IHS Conference

ABSTRACT BOOK 2023

STUDENTS' SCIENTIFIC SOCIETY

of Lithuanian University of Health Sciences

ISSN 2783-7408

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Anaesthesiology & Intensive therapy, Emergency medicine

Development of late cerebral ischemia after cerebrovascular aneurysm rupture in NICU patients

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Introduction

Delayed cerebral ischemia (DCI) is a major predictor of poor outcomes in patients with SAH [1]. This occurs in about one-third of patients after SAH and poses substantial risks for mortality. In patients who experience DCI, about 20% have fatal outcomes [2, 3]. While it is important to detect early signs of DCI, patients with a high risk of DCI are difficult to identify. Therefore, this study aimed to identify risk factors of DCI and clarify their clinical impact on outcome and the disease course.

Aim

To evaluate the most important risk factors causing the development of late ischemia after cerebral vascular aneurysm rupture and the outcome of patients with DCI.

Methods

The study was approved by the Bioethics center of Lithuanian University of Health Sciences (LUHS) (BEC-MF-02). It was a single-centre retrospective analysis of 165 patients during the period of 2020.09 to 2021.12 in LUHS KC Neurosurgery Intensive care Unit. Inclusion criteria were: age ≥ 18, patients diagnosed with ruptured cerebral artery aneurysm. Medical history was analyzed. Statistical analysis was performed with IBM SPSS Statistics 27.0 and MS Excel 2016 programs. To carry out research objectives Mann-Whitney test, Chi-Square and p-value criteria were used (statistically significant if $p<0.05$). The statistical strength and direction of association between two variables were counted with Spearman's correlation coefficient (R).

Results

Of all 165 patients with SAH, 27.88% (n=46) developed DCI (diagnosed by CT findings and worsened neurological condition after >48 hours): 43.50% (n=20) men and 56.50% (n=26) women. The average age of the patients was 57.61±12.39 years (range 34-86 years), the majority were >50 years (73.90%). 47.80% of the patients had previously been diagnosed with arterial hypertension, diabetes mellitus, or both and even 52.20% had no comorbidities. The most common site of rupture was the anterior communicating artery (39.10%). Although the patients'

initial blood glucose level and leukocyte count were not statistically significant for patients with DCI outcomes, these results were increased (7.74±1.66, p=0,48 and 13.58±5.51, p=0,69). According to the GOS scale, outcomes of the patients with DCI were: death (39.10%), vegetative state (15.20%), severe disability (28.30%), moderate disability (8.70%) and good recovery (8.70%). Outcomes after developing DCI were not associated with gender (p=0.96) and age (p=0.12). Moreover, comorbidities, the site of an aneurysm, and the amount of SAH (e.g. Fisher scale) did not correlate with outcomes after DCI (p>0.05).

Conclusions

This study showed that DCI was not associated with such risk factors as age, gender and comorbidities, initial glucose level, leukocyte count, and even with the site of an aneurysm. Furthermore, according to the GOS scale, death was the most common outcome in patients with DCI.

References

1. Dodd WS, Laurent D, Dumont AS, et al. Pathophysiology of Delayed Cerebral Ischemia After Subarachnoid Hemorrhage: A Review. J Am Heart Assoc 2021; 10: 21845.
2. Yu W. Vasospasm and Delayed Cerebral Ischemia After Aneurysmal Subarachnoid Hemorrhage: Recent Advances and Future Directions in Translational Research. Transl Stroke Res 2022 2022; 1–2.
3. Bernier TD, Schontz MJ, Izzy S, et al. Treatment of Subarachnoid Hemorrhage-Associated Delayed Cerebral Ischemia with Milrinone: A Review and Proposal. J Neurosurg Anesthesiol 2021; 33: 195.

The impact of preoperative anxiety on perioperative outcomes in patients undergoing surgery: a systematic literature review

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Introduction

Preoperative anxiety (POA) is a common reaction that may be experienced by up to 80% of patients undergoing surgery [1-3]. While it is well known that POA can have negative effects on a patient's condition and may worsen the perioperative period, there is still a lack of information about the specific impact of anxiety on postoperative outcomes and how to address it in order to promote the patient's overall well-being and support a successful surgical outcome [4].

Aim

To review and systematize the available evidence on the relationship between preoperative anxiety and perioperative outcomes in patients undergoing surgery.

Methods

A comprehensive search of scientific literature was conducted using the PubMed and ScienceDirect databases and following the PRISMA guidelines. The search included a combination of keywords such as "preoperative anxiety," "surgery," "perioperative outcomes". Articles were selected based on inclusion and exclusion criteria developed using the PICO method. Inclusion criteria for the studies were: published in English, focused on adult patients undergoing surgery, assessed the impact of preoperative anxiety on perioperative outcomes, and published within the past 5 years. In total, 196 articles were screened for eligibility.

Results

Of the 196 articles screened, 12 studies met inclusion criteria. The studies included a total of 16,670 patients. Findings were organized into seven areas: 1) POA was significantly associated with negative postoperative outcomes, including nausea, vomiting, reoperation on the same day, lower quality of recovery, and a longer hospitalization [4-7]. This relationship was observed across four studies, involving a total of 9,082 patients. 2) POA was strongly correlated with intraoperative propofol and postoperative opioid consumption, as well as greater postoperative pain [4, 5, 7-9]. This finding was supported by five studies, which included a total of 5,551 patients. 3) POA was linked to hemodynamic changes, including increases in mean arterial pressure, systolic blood pressure, and heart rate upon arrival to the operating room [10, 11]. Two studies, including a total of 308 patients, supported this finding. 4) POA was associated with a higher risk of postoperative delirium in elderly patients, although this relationship was not consistently observed in all studies [4, 12-14]. This finding was supported by four studies involving a total of 1,838 patients. 5) No significant correlation was found between preoperative anxiety and higher mortality risk [15]. This finding was supported by one study, which included a total of 241 patients. 6) Some studies found that younger patients were more likely to experience preoperative anxiety [9], while others found no significant difference between men and women in terms of the prevalence of POA [8]. 7) Various interventions, such as preoperative education, relaxation techniques, and pharmacological therapies, have been suggested to reduce anxiety and improve patient outcomes [1, 4].

Conclusions

Our systematic literature review showed that preoperative anxiety has strong negative impact on perioperative outcomes, such as nausea, vomiting, increased need for anesthetics and analgesics, as well as greater postoperative pain. Interventions such as preoperative education, relaxation techniques, and pharmacological therapies may be effective in reducing anxiety, though more research is needed to determine the optimal approach.

References

1. Oteri V, Martinelli A, Crivellaro E, Gigli F. The impact of preoperative anxiety on patients undergoing brain surgery: a systematic review. Neurosurg Rev. 2021 Dec;44(6):3047-3057. doi: 10.1007/s10143-021-01498-1.
2. Chen YK, Soens MA, Kovacheva VP. Less stress, better success: a scoping review on the effects of anxiety on anesthetic and analgesic consumption. J Anesth. 2022 Aug;36(4):532-553. doi: 10.1007/s00540-022-03081-4.
3. Shewangzaw Engda A, Belay Yigzaw H, Alemnew Engdaw N, Admasu Basha E, Adem A, et al. Magnitude of Preoperative Anxiety and Associated Factors Among Adult Surgical Patients in Debre Berhan Comprehensive Specialized Hospital. Int J Gen Med. 2022 Jul 5;15:5999-6007. doi: 10.2147/IJGM.S369921.
4. Ren A, Zhang N, Zhu H, Zhou K, Cao Y, Liu J. Effects of Preoperative Anxiety on Postoperative Delirium in Elderly Patients Undergoing Elective Orthopedic Surgery: A Prospective Observational Cohort Study. Clin Interv Aging. 2021 Mar 26;16:549-557. doi: 10.2147/CIA.S300639.
5. Bayrak A, Sagiroglu G, Copuroglu E. Effects of Preoperative Anxiety on Intraoperative Hemodynamics and Postoperative Pain. J Coll Physicians Surg Pak. 2019 Sep;29(9):868-873. doi: 10.29271/jcpsp.2019.09.868.
6. Majumdar JR, Vertosick EA, Cohen B, Assel M, Levine M, Barton-Burke M. Preoperative Anxiety in Patients Undergoing Outpatient Cancer Surgery. Asia Pac J Oncol Nurs. 2019 Oct-Dec;6(4):440-445. doi: 10.4103/apjon.apjon_16_19.
7. Gümüs K. The Effects of Preoperative and Postoperative Anxiety on the Quality of Recovery in Patients Undergoing Abdominal Surgery. J Perianesth Nurs. 2021 Apr;36(2):174-178. doi: 10.1016/j.jopan.2020.08.016.
8. Fernández-Castro M, Jiménez JM, Martín-Gil B, Muñoz-Moreno MF, Martín-Santos AB, Del Río-García I, et al. The influence of preoperative anxiety on postoperative pain in patients undergoing cardiac surgery. Sci Rep. 2022 Oct 1;12(1):16464. doi: 10.1038/s41598-022-20870-9.
9. Yu J, Zhang Y, Yu T, Mi W, Yao S, Wang Z, et al. Preoperative Anxiety in Chinese Adult Patients Undergoing Elective Surgeries: A Multicenter Cross-Sectional Study. World J Surg. 2022 Dec;46(12):2927-2938. doi: 10.1007/s00268-022-06720-9.
10. Tai AL, Hsieh HF, Chou PL, Chen HM, Liu Y. The Influence of Preoperative Anxiety, Optimism, and Pain Catastrophizing on Acute Postoperative Pain in Patients Undergoing Cardiac Surgery: A Cross-sectional Study. J Cardiovasc Nurs. 2021 Sep-Oct 01;36(5):454-460. doi: 10.1097/JCN.0000000000000687.
11. Tadesse M, Ahmed S, Regassa T, Girma T, Mohammed A. The hemodynamic impacts of preoperative anxiety among patients undergoing elective surgery: An institution-based prospective Cohort Study. Int. J. Surg, 2022;43:100490.
12. Mou Q, Gao M, Liu X, Wei C, Lan G, Zhao X, et al. Preoperative anxiety as an independent predictor of postoperative delirium in older patients undergoing elective surgery for lumbar disc herniation. Aging Clin Exp Res. 2022 Oct 19. doi: 10.1007/s40520-022-02278-7.
13. Ma J, Li C, Zhang W, Zhou L, Shu S, Wang S, et al. Preoperative anxiety predicted the incidence of postoperative delirium in patients undergoing total hip arthroplasty: a prospective cohort study. BMC Anesthesiol. 2021 Feb 12;21(1):48. doi: 10.1186/s12871-021-01271-3.
14. Milisen K, Van Grootven B, Hermans W, Mouton K, Al Tmimi L, Rex S, et al. Is

preoperative anxiety associated with postoperative delirium in older persons undergoing cardiac surgery? Secondary data analysis of a randomized controlled trial. BMC Geriatr. 2020 Nov 18;20(1):478. doi: 10.1186/s12877-020-01872-6.
15. Kassahun WT, Mehdorn M, Wagner TC, Babel J, Danker H, Gockel I. The effect of preoperative patient-reported anxiety on morbidity and mortality outcomes in patients undergoing major general surgery. Sci Rep. 2022 Apr 15;12(1):6312. doi: 10.1038/s41598-022-10302-z.

Peculiarities of medication use during the perioperative period in women, who underwent surgical treatment with anaesthesia at the Hospital of Lithuanian University of Health Sciences Kauno Klinikos

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Introduction

Various medications can affect physiologic parameters, so information about preoperative medication use is very important to the anaesthesiologist and is routinely part of the questionnaire during the patient examination. It should be noted that not only prescription drugs but also over-the-counter drugs or herbal preparations must be considered and analysed during the patient questioning, since they have the same effect [1]. It is worth noting that during preoperative consultations with various specialists preoperative medication use and a plan for postoperative management should be discussed [2]. However, the question remains to what extent all these goals are achieved in reality.

Aim

To identify peculiarities of medication use during the perioperative period in women, who underwent surgical treatment with anaesthesia at the Hospital of Lithuanian University of Health Sciences Kauno Klinikos

Methods

From 1 to 30 December 2022 at Hospital of LUHS Kauno Klinikos adults who were scheduled to undergo surgical procedures requiring anaesthesia were invited to participate in a

questionnaire survey during their time in the waiting room. 41 women were surveyed with an original questionnaire of 29 questions related to patient demographics, medication familiarity and habits, perioperative information on medication use and related aspects. IBM SPSS Statistics 23.0 was used. Pearson and point-biserial correlations, χ^2 and Student's t-tests were used. The result was considered statistically significant at $p<0.05$.

Results

Median age of respondents was 45 years (min - 27; max - 84). 25 (60.98%) of them live in the major cities, while others (n=16; 39.02%) - in the regions. 58.54% (n=24) of respondents reported suffering from chronic diseases. Majority of respondents (78.05%; n=32) have already undergone surgery in the past.

When asked about regular drug use, respondents' answers were almost evenly distributed: 51.22% (n=21) use drugs regularly, 48.78% (n=20) do not. Drug use was statistically moderately correlated with older age of patients (r=0.45; p=0.003). 73.17% (n=30) of subjects also regularly take dietary supplements. No difference was found between the use of dietary supplements according to the age of the patients (p>0.05). Overall, 85.37% (n=35) of respondents regularly used medications, dietary supplements or a combination of both.

60.00% (n=21) of respondents who were taking medications discontinued them before surgery. Analysis of respondents' answers to the multiple-choice question about where they learned how to take or stop medications revealed that 48.78% (n=20) learned from the attending surgeon, 34.15% (n=14) from the primary care physician, 17.07% (n=7) from informational brochures, 14.63% (n=6) from the Internet and 2.44% (n=1) from social media.

85.71% (n=30) reported that information about the specifics of taking medications during the preoperative period was sufficiently clear. Only 19.51% (n=8) of respondents had a discussion about renewing medications after surgery.

Conclusions

1. During our trial 85.37% of women, who underwent surgical treatment with anaesthesia, used medications (drugs or dietary supplements).
2. Majority of the women, who underwent surgical treatment with anaesthesia, indicated that information about preoperative medication use was clear.
3. Less than one fifth of women, who underwent surgical treatment with anaesthesia, had conversation about medication use after the surgery.

References

1. Rienzo RA, Roessler EM. Preoperative evaluation for noncardiac surgery. Physician Assistant Clinics. 2021;6(2):209–13.
2. Zafirova Z, Vázquez-Narváez KG, Borunda D. Preoperative management of medications. Anesthesiology Clinics. 2018;36(4):663–75.

Occupational hand eczema among intensive care unit workers during the COVID-19 pandemic

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Introduction

Healthcare workers (HCWs) frequently have occupational hand eczema (HE) because of wet work conditions. The prevalence of HE increased in several regions of the world during the COVID-19 pandemic due to enhanced hand hygiene, which is one of the principal ways of infection management. HE causes various rashes of hand skin that may interfere with work and daily activities. [1,2]

Aim

We aim to assess hand hygiene features, HE prevalence and clinical symptoms, and the most common risk factors of HE in HCWs working in intensive care units (ICU) of Lithuanian University of Health Sciences hospital Kaunas Clinics (LUHS KC) during the COVID-19 pandemic.

Methods

A 30-question original online survey based on the guidelines published by Thyssen et al. was conducted between May 1, 2022 and May 31, 2022 in various ICU of LUHS KC. [3] It covered demographics, self-reported HE (symptoms, severity, aggravating factors), hand hygiene and hand skincare habits before and during the pandemic. Statistical data analysis was performed using IBM SPSS Statistics 29.0. Descriptive statistical analysis, T-test, and chi-square ($\chi 2$) were used for data analysis.

Results

Of the 183 HCWs invited to participate in the study by institutional email, 48 (n=42 female, n=6 male) completed the questionnaire (response rate 26.2%). Among the respondents, 56.25% (n=27) were resident doctors and doctors, 43.75% (n=21) were nurses with a median age of 36.5 (23.0-64.0) years. Before and during the COVID-19 pandemic, the prevalence of self-reported HE was 68.8% and 75.0%, respectively. HE was diagnosed in 12.5% (n=6) of respondents, 73.5% (n=25) reported an exacerbation of HE during the COVID-19 pandemic. The most commonly reported skin changes during COVID-19 were dry skin (75.0%), itching (54.2%), and redness

(56.3%). The median severity of symptoms (when 0 is no symptoms and 10 - severe symptoms) was 3 (0-7) and 5 (0-9) before and during the pandemic. The severity of HE symptoms during COVID-19 increased ($p<0.001$). The most commonly reported risk factors for HE were antiseptic use (81.3%), cold weather (56.3%), and household chemicals (54.2%). Use of gloves, as a risk factor for HE, was more frequent among respondents, who have dry or sensitive skin ($p=0.014$). The overall hand washing and disinfection increased during COVID-19 ($p<0.001$). Nurses washed their hands (>30 times daily) more frequently than doctors or resident doctors (61.9%, 15.4%, and 14.3%, respectively ($p=0.001$)). Pruritus was more common in those who reported more frequent hand hygiene (21-30 times versus 6-10 times daily) ($p=0.038$). Application of skin care products increased during the pandemic ($p<0.001$). 77.1% of respondents reported using emollients at least once daily. Nurses used emollients more often than resident doctors and doctors (95.2%, 57.1%, and 69.2%, respectively ($p=0.23$)). 83.3% of HCWs reported improvement in HE during holidays.

Conclusions

The prevalence and severity of self-reported HE increased during COVID-19. It may be associated with hand hygiene features, such as frequent hand washing and disinfection, which particularly increased among nurses. Although many HCWs experienced clinical symptoms of HE, only a minority were diagnosed with HE. Thus, it is necessary to raise awareness of HE and educate HCWs about hand skincare to prevent occupational HE.

References

1. Symanzik C, Yüksel YT, Christensen MO, Thyssen JP, Skudlik C, John SM, et al. Prevalence and incidence of hand eczema in healthcare workers: protocol for a systematic review and meta-analysis. BMJ Open. 2022;12:e062194.
2. Symanzik C, Stasielowicz L, Brans R, Skudlik C, John SM. Prevention of occupational hand eczema in healthcare workers during the COVID-19 pandemic: A controlled intervention study. Contact Dermatitis. 2022;87(6):500-10.
3. Thyssen JP, Schuttelaar MLA, Alfonso JH, Andersen KE, Angelova-Fisher I, Arents BWM, et al. Guidelines for diagnosis, prevention, and treatment of hand eczema. Contact Dermatitis. 2022;86(5):357- 78.

Patients' awareness of blood thinners undergoing elective non-cardiac surgery

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Introduction

Blood thinners (BTs) are one of the most used drugs for the prevention of cardiovascular and cerebrovascular disease [1]. For example (e.g.), the use of blood thinners increased by 134.7 % between 2006 and 2016 in England [2]. The perioperative management of anticoagulant therapy presents many challenges, including an increased risk of bleeding during invasive or surgical procedures [3]. For optimal clinical outcomes, it is important that patients are adequately informed about the risks and benefits of anticoagulant therapy and know when to discontinue their medications before surgery [4, 5].

Aim

To evaluate patients' general awareness of blood thinners undergoing elective non-cardiac surgery in Hospital of Lithuanian University of Health Sciences Kaunas Clinics, Anesthesiology department. To assess knowledge of patients regularly taking anticoagulants or antiplatelet agents about medication use before elective non-cardiac surgery.

Methods

An anonymous direct interview consisting of 26 original questions prepared by the authors was conducted from 1 November to 1 December 2022 in the Department of Anesthesiology, Hospital of the Lithuanian University of Health Sciences in Kaunas. The study involved 251 patients who underwent abdominal or urological surgery, despite taking or not taking BTs. Statistical calculations were performed using SPSS 28.0 software. Statistically significant results were assumed with $p < 0.05$. Chi-square was used to determine a relationship between categorical variables ($\alpha = 0.05$).

Results

Out of 251 patients, 61% were male, 39% - female. The average age was 60.3 years. 35.9% of patients underwent minor abdominal (e.g., hernioplasty), 29.5% - minor urological (e.g., ureteral stenting), 24.7% - major abdominal (e.g., hemicolectomy), 10.0% major urological (e.g., nephrectomy) surgery. 67.7% of respondents have taken BTs at least once in their lifetime, 70.6% of them have used aspirin. The top 3 ways patients get information about BTs are: relatives or friends - 47.8%, family physicians (FPs) – 40.6%, other sources (social media, cardiologists, etc.) - 39.0%. The majority (62.9%) stated that the reason for taking BTs is to prevent blood clots from forming. According to patients, more than a quarter do not know anything about BTs. 77.7% of respondents stated that BT could have side effects. Out of 251 patients, 27.5% take BTs regularly, 69.6% of them use aspirin, 11.6% - rivaroxaban, 5.8% - warfarin. Even 20.3% of regular BTs takers do not know the reason they take this drug. Men significantly more often follow the physician's recommendations when taking BTs compared to women (83.7% vs. 45.0%, respectively; $p<0.05$), while women are more likely to take medication only when they remember, compared to men (40.0% vs. 8.2%, respectively; $p<0.05$). 24.2% of patients consulted an anesthesiologist or cardiologist on their medication discontinuation before surgery. 75% of

patients who take rivaroxaban regularly consulted a surgeon before surgery. For 33.3% of them, this medication was changed to nadroparin which is an improper BTs discontinuation tactic.

Conclusions

More than two-thirds of respondents have taken BTs at least once in their lifetime, mostly aspirin. In most cases patients get information about BTs from their relatives, friends or FPs. According to patients, 26.3% do not know anything about BTs. Men are more likely to take BTs continuously, women – irregularly. Mostly the surgeon instructs patients about BTs taking before surgery, however, not always properly.

References

1. Tolunay H. Anticoagulant And Antiplatelet Medication Awareness Of Preoperative Patients. Dicle Tıp Derg. 2020. 47:873–80.
2. Jani YH, Hirani B, Livingstone C. Evaluation of patients' knowledge about oral anticoagulant medicines and use of alert cards by community pharmacists. Int J Clin Pharm. 2021. 43(1):203-11.
3. Perioperative Considerations and Management of Patients Receiving Anticoagulants. 2017. Available from: https://www-ncbi-nlm-nih-gov.ezproxy.dbazes.lsmuni.lt/pmc/articles/PMC5341681/
4. Magon A, Arrigoni C, Roveda T, Grimoldi P, Dellafiore F, Moia M, et al. Anticoagulation Knowledge Tool (AKT): Further evidence of validity in the Italian population. PLoS ONE. 2018. 13(8): e0201476.
5. Douketis JD. Perioperative management of patients receiving anticoagulants. 2022. Available from: https://www-uptodate-com.ezproxy.dbazes.lsmuni.lt/contents/perioperative-management-of-patients-receiving-anticoagulants/print

National guidelines of safe anaesthetic services in Lithuania

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Introduction

Safety is main foundation of anesthesiology practice leading to formation of guidelines in this field (1,2). Internationally recognized guidelines focus on determining algorithms of safe and

efficient provision of anaesthesia care. Until last year Lithuania had no official guidelines, making every hospital establish internal rules on anaesthesia (3). New guidelines rely on evidence-based methods in order to ensure the safety of the patient. The research focused on evaluating Lithuanian hospitals being ready for the implementation of those guidelines.

Aim

Our goal was to determine how well are various hospitals of Lithuania prepared for the new anaesthesia guidelines to be implemented in Lithuania in the aspects of workload, availability of necessary equipment, emergency protocols and patient consultation.

Methods

Our study was conducted through anonymous questionnaires among the members of Lithuanian Society of Anaesthesiology and Intensive Care (LSAIC). Results were split based on levels of the hospitals – national, regional, district and specialised (maternal care, esthetic surgery institutions etc.). The questionnaire included questions about preanesthetic, perianesthetic and postanesthetic periods to determine if hospitals are ready to meet requirements of the new guidelines. All results are presented aggregated and anonymous.

Results

Approximate number of members of LSAIC is 500, only 178 of them responded, response rate - 35.6%. National hospital anesthesiologists made the majority of respondents - n=104 (58,4%), regional - n=35 (19,7%), district - n=20 (11,2%) and specialised - n=19 (10,7%). National hospital respondents revealed the main issues with anaesthesia team not always being complete and with some of them working in more than one operating room (OR) at the same time, meanwhile this issue was less relevant in other levels of hospitals. Meanwhile smaller hospitals struggled mostly with the availability of various equipment (videolaryngoscope, fibroscope, ultrasound and standard monitoring devices) and postanesthetic care, pain management and emergency protocols. On a major scale our study revealed that the biggest problems were - anesthesiologists working in multiple ORs (65,2%), patients are evaluated on the day of the procedure (55,8%), no ambulatory patient consultations (64%), lack of equipment - videolaryngoscope (11,2%), fibroscope (23,6%), ultrasound (6,7%), no 30 min access to laboratory tests (arterial blood gas, glycemia, Na+, K+, lactate) (14%), no standardised postanesthetic care (37,1%), pain management (71,9%) or emergency (28,7%) protocols.

Conclusions

In summary, our questionnaire revealed that all Lithuanian hospitals are unprepared in some extent for the implementation of new anaesthesia guidelines. Major issues were in the field of workload, equipment deficiency, lack of protocols and patient consultation, with no significant difference between hospitals.

References

1. Dobson G, Chow L, Filteau L, Hurdle H, McIntyre I, Milne A, et al. Guidelines to the Practice of Anesthesia - Revised Edition 2021. Can J Anaesth [Internet]. 2021 Jan 1

[cited 2023 Jan 21];68(1):92–129. Available from: https://pubmed.ncbi.nlm.nih.gov/33398771/
2. Guidelines for the Provision of Anaesthetic Services | The Royal College of Anaesthetists [Internet]. [cited 2023 Jan 21]. Available from: https://rcoa.ac.uk/safety-standards-quality/guidance-resources/guidelines-provision-anaesthetic-services
3. V-429 Dėl Anestezijos asmens sveikatos priežiūros paslaugų teikimo vaikams ir suaugusiesiems tvarkos ap... [Internet]. [cited 2023 Jan 21]. Available from: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/c5a14d10965211ec9e62f960e3ee1cb6

Systemic hemodynamic responsiveness to passive leg raise test

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Introduction

The passive leg raise (PLR) test has been developed as a strategy to predict fluid responsiveness and has the potential to reduce fluid administration (1). However, it is not profoundly explored how healthy individuals physiologically respond to PLR test and how it changes during the day, compared morning to the evening when individuals have consumed fluids.

Aim

To compare systemic hemodynamic changes of healthy individuals during the PLR test in the morning and in the evening.

Methods

The trial was conducted at LUHS Hospital Kaunas Clinics Department of Intensive care, where healthy volunteers were examined. Criteria for inclusion in the trial group: age of the volunteers from 18 and above, no history of chronic illness, healthy at the present time. Data was collected in the morning and in the evening. Volunteers were instructed to not consume any food, beverages or tobacco products before the test in the morning. A passive leg raising test was performed and systemic hemodynamic changes were registered by non-invasive impedance cardiography monitor before and after the PLR test. An increase in stroke volume (SV) ≥ 15% was considered a positive test result and a person considered being a fluid responder accordingly.

Data is presented as median (interquartile range). Results were considered statistically significant when $p<0.05$.

Results

The study involved 50 volunteers, 16 of them were males (32%) and 34 were females (68%). The age median of the participants was 23 years. Body mass index was 21.8 (20.0 – 23.8) kg/m2. The median heart rate in the morning and in the evening before the PLR test was not statistically significant. We found a significant rise of the baseline mean arterial pressure in the morning 92 (88 – 100) mmHg and in comparison, in the evening 96 (92 – 103) mmHg ($p=0.004$). The analysis also showed a significant increase in cardiac output in the morning and in the evening before the PLR test: 5.9 (5.3 – 6.6) l/min vs. 6.3 (5.4 – 7.1) l/min, $p=0.033$. There was no significant change in SV as well in the responders proportions compared PLR test performed in the morning to evening.

Conclusions

We observed no change in systemic hemodynamic responsiveness to PLR test during day in young healthy individuals. However, some physiological changes, unaffected by PLR test, in systemic hemodynamics have been observed, which may be related to participants daily routine.

References

4. Rameau A, de With E, Boerma EC. Passive leg raise testing effectively reduces fluid administration in septic shock after correction of non-compliance to test results. Ann Intensive Care [Internet]. 2017 Dec 1 [cited 2023 Jan 21];7(1). Available from: /pmc/articles/PMC5209308/

Options for premature life termination of terminal patients in Lithuania

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Introduction

Active euthanasia has since been legalised in Belgium, Luxembourg, Colombia, and Canada. In 2021 alone, relevant legislation was adopted in Spain, New Zealand and Portugal, but the Portuguese Constitutional Court revoked the project. In Austria, a law legalising assisted suicide came into force in January 2022. The euthanasia debate has received particular attention in the

United States. The case of Jacob Kevorkian is also well known to the general public. Dr Kevorkian, also known as 'Dr Death', euthanised over 130 of his patients between 1990 and 1998. As a result of this unprecedented case, assisted suicide was legalised in ten US states. 1-5

Aim

To find out the views of the Lithuanian population on active and passive euthanasia and assisted suicide, as well as the factors influencing these views, such as age, length of care experience or the size of the patient's settlement.

Methods

The cross sectional study was conducted in Lithuania in 2021 using an anonymous e-questionnaire in general population aged 18-75. The sample size was 5804 respondents. The literature review based survey instrument was composed of five case vignettes and sociodemographic variables. Descriptive and analytical data analysis using SPSS26 was conducted to identify the prevalence of attitudes (95% CI applied) and estimate differences between different social groups ($p<0.05$).

Results

The study had 79.8% female (n=4632) and 20.2% male participants (n=1172). When a terminal patient had the choice to consult a doctor for the administration of life-ending medication at his or her request, 70.7% of respondents (n=4106) backed the right to end life (i.e. when the physician administers a lethal injection).32.5% (n=1885) of the participants, a way lower percentage favored granting the right to euthanasia to a patient with a drug-resistant mental health condition. 61% (n=3540) of the participants approved the possibility of a 'living will' request for a healthy person when it excluded certain life-sustaining measures (e.g. artificial lung ventilation, parenteral nutrition, etc.). The highest correlation coefficient was found between the percentage of respondents agreeing and the age of the respondents (correlation coefficient = 0.302; $p<0.05$). The sum of the respondents' settlement and those who supported the right to terminate life were found to be directly correlated. The attitudes of the general public in case the decision on patient’s resuscitation should be taken by doctors without the consent of the patient's relatives were almost equally split in to two shares – paternalistic approach was supported by 43.6% (n=2533) and the respect for the personal autonomy was supported by 44.1% (n=2561). Nearly half of those who objected (48.9%; n=1341) thought that the patient alone has the authority to determine whether resuscitation is necessary.

Conclusions

The majority of respondents support the right to euthanasia and assisted suicide for patients with serious illness.
One third of respondents support granting the right to euthanasia to patients with serious, drug-resistant mental illnesses.
Big part of respondents agree that a person has the right to make a living will request to be exempted from treatments such as artificial lung ventilation, dialysis, etc.
The proportion of respondents in favour of euthanasia is negatively correlated with age and length of care experience, but positively correlated with the size of the patient's settlement.

References

1. Rietjens JA, van der Maas PJ, Onwuteaka-Philipsen BD, van Delden JJ, van der Heide A (September 2009). "Two Decades of Research on Euthanasia from the Netherlands. What Have We Learnt and What Questions Remain?". J Bioeth Inq. 6 (3): 271-283. doi:10.1007/s11673-009-9172-3. PMC 2733179. PMID 19718271
2. "Dutch 'mercy killing law' passed". BBC. 11 April 2001. Retrieved 3 November 2018
3. REGIONAL EUTHANASIA REVIEW COMMITTEES ANNUAL REPORT 2016, 11 p.
4. Adams M, Nys H (2003). "Comparative reflections on the Belgian Euthanasia Act 2002". Med Law Rev. 11 (3): 353-76. doi:10.1093/medlaw/11.3.353. PMID 16733879
5. "Luxembourg erlaubt Ärzten aktive Sterbehilfe". Die Welt (in German). 20 February 2008

Women's Awareness and Attitude toward Epidural Analgesia

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Introduction

Labor pain is one of the most severe pains that women experience and the relief of this pain is an important issue for women (1). There is a big choice of labor pain treatment methods, but epidural analgesia remains the most effective and is considered to be the gold standard of labor analgesia (2). Nevertheless, studies reveal that parturients have limited knowledge about epidural analgesia and its complications (3,4).

Aim

To assess the parturient perception, sources of information and attitude regarding epidural analgesia.

Methods

A cross-sectional study was conducted at the Hospital of Lithuanian University of Health Sciences Kaunas Clinics. Permission for the research was obtained by from Bioethics center (No. BEC-MF-14.). The study took place in November 2022 by using a pre-designed questionnaire. 102 questionnaires were distributed to parturients and 100 were returned, the response rate was 98%. Data were analyzed with IBM SPSS Statistics 29. Data for qualitative variables are presented by frequency - number of respondents (n) and percentage expression. Means and

standard deviation values of quantitative variables are presented. Chi-square (χ^2) and/or Fisher's exact criteria were calculated to assess differences between the groups. Phi and Cramer's tests were used to assess the relationship between categorical data. Results were considered statistically significant when $p<0.05$.

Results

The average age was 29.7 (SD 4.7) years. The youngest interviewee was 19, and the oldest was 45. More than half of the women had higher education 68 (68%). 63 (63%) women were primiparas. 91 (91%) named their income as average and sufficient. Out of the 100 women, 71 (71%) thought that epidural analgesia was the most effective method of pain management. 69 (69%) women considered pain relief a major reason for requesting epidural analgesia, and 36 (36%) mentioned the possible risks for newborn and 26 (26%) side effects for mother as their main concern. Internet was the main source of information for 50 (50%) women, and partners' opinion about epidural analgesia was neutral in 66 (66%) cases and only 4 (4%) partners were against epidural. 35 (35%) women were not sure about requesting epidural analgesia in the future, 44 (44%) said yes, and 21 (21%) said no. The source of information about epidural analgesia was not associated with the decision to use an epidural ($p>0,05$). Women who know that epidural analgesia is the most effective analgesia method, statistically significantly more often choose to use epidural analgesia in the future ($\chi2=17.272$ Phi 0,416 $p<0.001$). The number of previous labor, age, level of education, income were not significantly associated with women's decision to choose epidural analgesia in the future.

Conclusions

More than two-thirds of women agree that epidural analgesia is the most effective method for labor pain management. The Internet remains the main source of information for women. The demographic variables were not associated with the desire to request epidural analgesia in the future.

References

1. Ali Alahmari S, ALmetrek M, Alzillaee A, Hassan W, Ali Alamry S. Knowledge, attitude, and practice of childbearing women toward epidural anesthesia during normal vaginal delivery in Alsanayeah Primary Health Care in Khamis Mushait. J Family Med Prim Care. 2020;9(1):99.
2. Ashagrie HE, Fentie DY, Kassahun HG. A review article on epidural analgesia for labor pain management: A systematic review. Vol. 24, International Journal of Surgery Open. Elsevier Ltd; 2020. p. 100–4.
3. Almuntashiri WM, Mutawakkil AS, Alghamdi AS, Alqarni RD, Althubaiti AM, Kayal HS. Awareness among Pregnant Women about Epidural Analgesia: A Cross-Sectional Study. Anesthesiol Res Pract. 2022;2022.
4. Ezeonu PO, Anozie OB, Onu FA, Esike CU, Mamah JE, Lawani LO, et al. Perceptions and practice of epidural analgesia among women attending antenatal clinic in FETHA. Int J Womens Health. 2017 Dec 12;9:905–11.

Apprehension of medication and supplements use during perioperative period at Hospital of Lithuanian University of Health Sciences Kaunas Clinics

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Introduction

Medication usage or withdrawal during perioperative period can impose complications. To avoid that physicians should learn about all patients' supplements: not only prescribed but also over-the counter and complementary medications [1]. With that information, medical personnel could verify which substances should be continued or not during perioperative period and give clear instructions to patients that risks of continuation or discontinuation of drugs would be minimal [1, 2].

Aim

To analyse awareness of patients, who use medication and supplements and are having surgery requiring anaesthesia, regarding consumption of said substances during perioperative period in Hospital of LUHS Kaunas Clinics.

Methods

In December 2022 50 patients, that were having surgery and were using any substances (drugs or supplements), were asked to participate in survey. They were surveyed with original questionnaire consisting 29 questions related to patient demographics, medication habits, familiarity with drugs, perioperative information on drug use and related aspects. Patients were invited to participate voluntarily during waiting time. Questionnaire was anonymous, designed in paper format. Results were estimated by statistic data analysis using IBM SPSS Statistics 23.0. Pearson and point-biserial correlations, $\chi 2$ and Student's t-tests were used. Result was considered statistically significant at $p<0.05$.

Results

Majority of respondents were females (74%; N=37). Mean age of patients was 51±15.27 years. Statistically significant difference was observed in age regarding respondents' sex (women – 48.97±16.00 years; men – 59.00±10.17 years; p=0.014). 70.00% (N=35) of respondents use drugs

continuously. 70.00% (N=35) of patients use supplements. 20 (40.00%) participants use both. 32 respondents stopped using drugs (N=8), supplements (N=8) or both (N=16) during perioperative period. Most of them got information from doctors: 58.00% (N=29) from surgeon, 28.00% (N=14) from family physician, also 20.00% (N=10) already knew about it. Others read Internet (14.00%; N=7), booklets (14.00%; N=7) or social media (2.00%; N=1). Then they were asked by whose recommendation they stopped using substances before surgery: 66.00% (N=33) stopped taking it by doctors' recommendations (40.00% (N=20) by surgeon and 26.00% (N=13) by family physician's recommendations), 20.00% (N=10) of them did that at their own discretion and 14.00% (N=7) used terms recommended on Internet, social media or booklets. All followed recommendations to stop taking substances but there were few (10.00%, N=5) who stopped taking medication that doctors said to continue because they weren't sure how to use it before surgery. Only 20 (40.00%) discussed surgery with family physician because physician only did tests, said too little, didn't have time, didn't say anything because surgeon will talk about surgery, or there was no need because they had surgery in the past and know how to prepare. Furthermore, only 9 patients (18.00%) talked about drugs renewal after surgery with doctors beforehand: 4 with family physician and 5 with surgeon. Overall, 78% (N=39) of respondents understood information that they were given about surgery, including substances use.

Conclusions

Study demonstrated that patients' apprehension about medication and supplements use during perioperative period is quite good but there could be improvement from doctors' side so that patients wouldn't look for obscure information on Internet or other places.

References

1. Meguerditchian AN, Krotneva S, Reidel K, Huang A, Tamblyn R. Medication reconciliation at admission and discharge: A time and motion study. BMC Health Serv Res. 2013;13(1).
2. Matoses-Chirivella C, Navarro-Ruíz A, Lumbreras B. Development and validation of a guide for the continuity of care in perioperative medication management. J Orthop Traumatol. 2018;19(1).

IHS Conference

Cardiology

Electrocardiographic findings in Lithuanian track and field athletes that are suspected of RED-S syndrome

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Introduction

Athlete's heart is a well-known since the assessment of Henschen, who saw the athlete's heart as a physiological and positive phenomenon [1]. Since then, science has studied athletes and their cardiovascular system in depth. Over the years more and more new pathological conditions have emerged that affect the athletes body through various mechanisms. One of these conditions is relative energy deficiency in sport (RED-S) syndrome, which was first described in 2014 [2]. This syndrome is relatively new and there are still many questions about how it affects the body, including the cardiovascular system. Part of this is the electrical activity of the heart, which can be assessed with electrocardiographic testing. With the question of how RED -S syndrome affects the electrical conduction system of the heart, we decided to conduct this study. Although obesity is known to be associated with abnormalities in electrocardiographic results [4], we wanted to know how calorie deficit affects the results of this test.

Aim

Analysis of electrocardiographic findings in Lithuanian track and field athletes suspected of having the RED-S syndrome.

Methods

A retrospective analysis evaluated electrocardiographic data from 10 Lithuanian track and field athletes and sought correlations between the data and body composition analysis results. The

study examined test data from 6 men and 4 women, who met the inclusion criteria. Inclusion criteria was: aged 18-34, consistently prepare (6 days/week) for and participate in athletics competitions at international level, physical activity type – short duration events (jumping, sprinting or hurdling), subjects have an established energy deficit (as measured by calorie intake and estimated daily calorie expenditure) and express ≥1 of the complaints characteristics to the RED-S syndrome, subjects are underfat according to Bray‘s categorization (relative fat percentage <21% in normal weight women and <8% in normal weight men) [3], patients underwent resting electrocardiography test (ECG) and body composition analysis by bioelectrical impedance testing. IBM SPSS Statistics 23.0 was used. Pearson correlation was calculated for two scale variables, while point-biseral correlation was was calculated between scale and nominal variables.

Results

The mean duration of the P wave and the QRS segment was found to be longer than the normal values in the general population with mean of P wave at 104,10 ms (median - 104,00) and mean for QRS segment at 103,10 ms (median - 103,50). A statistically significant strong correlation was calculated between a lower relative fat content in the athlete's body and a longer duration of the QRS complex ($r=0.870$; $p<0.001$).

Conclusions

1. Prolongation of the P-wave and the QRS segment can be found in athletes by electrocardiographic testing, but can be considered as the norm and a physiological adaptation to exercise.
2. QRS segment duration increases with a proportionately lower relative fat mass and may indicate the importance of energy deficit for the function of the cardiac conduction system and its normal activity, that may be impaired in the presence of severe or advanced RED-S syndrome.

References

1. Kindermann W. Die Historie des Sportherzens. Dtsch Z Sportmed. 2019; 70: 292-4.
2. Mountjoy M, Sundgot-Borgen J, Burke L, Carter S, Constantini N, Lebrun C, et al. The IOC consensus statement: beyond the Female Athlete Triad--Relative Energy Deficiency in Sport (RED-S). Br J Sports Med. 2014 Apr;48(7):491–7.
3. Maffetone PB, Rivera-Dominguez I, Laursen PB. Overfat and underfat: New terms and definitions long overdue. Frontiers in Public Health. 2017;4.
4. Dzikowicz DJ, Carey MG. Obesity and hypertension contribute to prolong QRS complex duration among middle-aged adults. Ann Noninvasive Electrocardiol. 2019;24(6):e12665.

Incidence of atrial functional mitral regurgitation in patients with paroxysmal and persistent atrial fibrillation

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Introduction

In most cases the main cause of atrial functional mitral regurgitation (AFMR) is atrial, not ventricular dilatation, usually due to long-standing atrial fibrillation (AF). AFMR is also associated with left ventricular (LV) diastolic dysfunction and heart failure with preserved ejection fraction (HFpEF) (1). LV size, leaflet motion and systolic function are typically normal. Echocardiography is contemplated to be the dominant diagnostic method of the evaluation of mitral valve (MV) disease (2). The incidence of AF and HFpEF is growing due to the aging of the population. It is expected that AFMR diagnosis will soon become a major health problem (3).

Aim

The aim is to assess the incidence of atrial functional mitral regurgitation in patients with paroxysmal and persistent atrial fibrillation according to echocardiography results.

Methods

We retrospectively analyzed medical data of patients diagnosed with paroxysmal and persistent AF who underwent 2D echocardiography in the Hospital of Lithuanian University of Health Sciences Kaunas Clinics from January 1st, 2021 to July 1st, 2021. The total of 123 patients were analyzed, we excluded patients with secondary mitral regurgitation (MR) (post myocardial infarction, dilated cardiomyopathy, systolic left ventricular dysfunction (ejection fraction (EF) <50%), restricted leaflet tethering) and primary MR (valve pathology, MV prolapse). We included patients with normal LV systolic function (EF >50%), without segmental wall motion abnormalities and with normal leaflet motion without any evident morphological changes of the MV leaflets. MR was evaluated qualitatively and semiquantitatively using vena contracta. A total of 44 eligible patients were selected. Based on the findings of 2D echocardiography, we calculated the incidence of AFMR. Data analysis was performed using SPSS Statistics, continuous variables were expressed as mean ± standard deviation (SD), p values <0,05 were considered as a statistically significant result.

Results

From the total of 44 eligible patients, 47,7% (n=21) were diagnosed with paroxysmal AF and 52,3% (n=23) with persistent AF. Left atrium size (from parasternal long axis) was 44,70 ± 6,53 mm, left atrium volume was 97,81 ± 32,15 ml, LV EF was 53,07 ± 2,90%. MR was identified in 84,1% (n=37) of patients: 40,9% (n=18) had mild (grade I) MR, 31,8% (n=14) had moderate (grade II) MR, 11,4% (n=5) had moderate to severe (grade II-III) MR. There were no patients with severe (grade III) MR. As no other cause of MR was identified, it was considered to be due to AF. The absence of MR was registered in 15,9% (n=7) patients. The grade of MR did not depend on the type of AF (p=0,235). Larger left atrium size was associated with higher MR grade (ϱ=0,30; p=0,047). Persistent AF was related to larger size of left atrium, paroxysmal AF was associated with smaller left atrium (t=-3,07; p=0,004).

Conclusions

Our study revealed that the incidence of atrial functional mitral regurgitation in patients with paroxysmal and persistent atrial fibrillation was 84,1%. Almost half of those patients had mild MR and the other half had moderate or moderate to severe MR.

References

1. Flachskampf FA. Atrial functional mitral regurgitation: Insufficiently understood and recognized. Advances in Clinical and Experimental Medicine. 2022 Nov 1;31(11):1177–81.
2. Deferm S, Bertrand PB, Verbrugge FH, Verhaert D, Rega F, Thomas JD, et al. Atrial Functional Mitral Regurgitation: JACC Review Topic of the Week. J Am Coll Cardiol. 2019 May 21;73(19):2465–76.
3. Muraru D, Guta AC, Ochoa-Jimenez RC, Bartos D, Aruta P, Mihaila S, et al. Functional Regurgitation of Atrioventricular Valves and Atrial Fibrillation: An Elusive Pathophysiological Link Deserving Further Attention. Journal of the American Society of Echocardiography. 2020 Jan 1;33(1):42–53.

Associations of left atrial function and left atrial geometry with prognostic factors for heart failure in non-ischaemic dilated cardiomyopathy

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Introduction

Non-ischemic dilated cardiomyopathy (NIDCM) is the most common form of cardiomyopathy leading to heart failure (HF) [1]. In case of NIDCM, it is important to determine not only the function and geometry of the left ventricle but also the left atrium (LA) [2,3]. It has been proven that the assessment of LA function is an important independent factor in predicting the outcomes of patients with NIDCM and is associated with prognostic factors of HF (NYHA (New York Heart Association) functional class and biomarkers) [4].

Aim

To assess the association of LA function and LA geometry with HF prognostic factors (BNP and NYHA functional classification) in NIDCM.

Methods

The study population consisted of 80 patients with NIDCM treated at the Hospital of Lithuanian University of Health Sciences Kaunas Clinics. Patients' medical histories and 2D echocardiography (2D-echoCG) images were analyzed. Images of the LA were obtained during the 2D-echoCG examination and were evaluated using the computer program Philips-IntelliSpace Cardiovascular. LA reservoir (LASr), conduit (LAScd), contractile (LASct) functions and geometrical modifications were assessed (LA size, area, volume and volume index) and compared to the reference values found in the literature. We also analyzed the prognostic (BNP and NYHA) and risk factors of HF. Statistical analysis was performed using IBM SPSS 27.0 software package. The strength of the association between different measurements was evaluated by Spearman's correlation coefficient. Differences were considered statistically significant when $p < 0.05$. Ethical approval was obtained for the study by Kaunas Regional Biomedical Research Ethics Committee and all participants gave written informed consent prior to enrolment.

Results

The average age of the NIDCM patients was 49±10 years. The patients' mean systolic blood pressure (BP) and heart rate (HR) were within normal limits (systolic arterial BP – 125±13 mmHg, HR – 80±18 bpm). The study group tended to be overweight (body mass index (BMI) – 29±6 kg/m2). The main biomarker of HF (BNP) was elevated and ranged from 4 to 9517 ng/L, with a mean of 1286.503 ng/L. There were more patients with NYHA functional classes III-IV (61% and 14%, respectively). However, no statistically significant correlation was found between NYHA class and LA geometry or function ($p > 0.05$). The average LA size of the subjects was 45±9 mm, area – 25±8 cm2, volume – 93±49 ml (45±24 ml/m2). All mechanical parameters of LA were reduced (LAScd -10 %, LASr 17.6 % and LASct -7.6 %). BNP correlated with LA reservoir function ($r = -0.249$, $p = 0.029$). However, we found statistically significant correlations between morphological and functional parameters of LA: all mechanical parameters of LA correlated with LA size (LAScd $r = 0.381$, $p < 0.001$, LASr function $r = -0.472$, $p < 0.001$, LASct

r = 0.436, p < 0.001), as well as with LA area (LAScd r = 0.383, p < 0.001, LASr r = -0.510, p < 0.001, LASct r = 0.514, p < 0.001) and LA volume index (LAScd r = 0.345, p < 0.001, LASr r = -0.452, p < 0.001, LASct r = 0.483, p < 0.001).

Conclusions

1. Higher values of BNP are related to the worse LA reservoir function.
2. NYHA class does not correlate with LA function or geometry.
3. LA geometry rearrangement during NIDCM is associated with poorer LA function.

References

1. Hänselmann A, Veltmann C, Bauersachs J, Berliner D. Dilated cardiomyopathies and non-compaction cardiomyopathy. Herz [Internet]. 2020 May 1 [cited 2023 Jan 4];45(3):212–20. Available from: https://pubmed.ncbi.nlm.nih.gov/32107565/
2. Japp AG, Gulati A, Cook SA, Cowie MR, Prasad SK. The Diagnosis and Evaluation of Dilated Cardiomyopathy. J Am Coll Cardiol [Internet]. 2016 Jun 28 [cited 2023 Jan 10];67(25):2996–3010. Available from: https://pubmed.ncbi.nlm.nih.gov/27339497/
3. Raafs AG, Vos JL, Henkens MTHM, Slurink BO, Verdonschot JAJ, Bossers D, Roes K, Gerretsen S, Knackstedt C, Hazebroek MR, Nijveldt R, Heymans SRB. Left Atrial Strain Has Superior Prognostic Value to Ventricular Function and Delayed-Enhancement in Dilated Cardiomyopathy. JACC Cardiovasc Imaging. 2022 Jun 1;15(6):1015–26.
4. Carpenito M, Fanti D, Mega S, Benfari G, Bono MC, Rossi A, Ribichini FL, Grigioni F. The Central Role of Left Atrium in Heart Failure. Front Cardiovasc Med. 2021 Aug 13;8:906.

CYP2C19 rs4244285 variant association with efficacy of long-term statin therapy in patients after ST-elevation myocardial infarction

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Introduction

Cardiovascular disease is the leading cause of death and disability in Europe [1]. Statin therapy is a cornerstone of secondary prevention after acute ischemic events such as myocardial infarction (MI), (class IA recommendation according to European Society of Cardiology (ESC) guidelines) [2]. Statins are competitive inhibitors of HMG-CoA reductase which mediates the first step of cholesterol biosynthesis. The reduction of intracellular cholesterol results in a decrease of low-density lipoprotein cholesterol (LDL-C) in blood plasma [3]. Atorvastatin and rosuvastatin are among the most frequently prescribed statins in Europe, including Lithuania. CYP2C19 metabolizes at least 10 % of drugs used in clinical practice [5]. The relationship between patient's response to statin therapy and CYP2C19 variants has not yet been established by other studies [4].

Aim

To determine the effect of CYP2C19 *2 (rs4244285) on the clinical effectiveness of statin therapy in patients with ST-elevation myocardial infarction (STEMI).

Methods

A total of 189 patients with ST-elevation myocardial infarction (STEMI) hospitalized at the Lithuanian University of Health Sciences, Cardiac Intensive Care Unit from January 2021 till January 2022 were enrolled in this prospective study. Statin therapy started at the day of hospital admission and it was prescribed according to the ESC guidelines for a long-term treatment. Blood samples were taken on the day of admission and after 6 months of treatment. Total lipoprotein cholesterol, low-density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), triglyceride cholesterol (TG-C) concentrations were checked in patient`s blood. CYP2C19 gene variants were analyzed using real-time PCR technique in the Laboratory of Molecular Cardiology of Institute of Cardiology of Lithuanian University of Health Sciences. Statistical analysis was performed using SPSS version 27. The normal distribution of data was not observed therefore nonparametric Kruskal - Wallis test was used for comparison of medians. The values were expressed as median, range, and percentages. A p-value < 0.05 was considered statistically significant.

Results

A total of 40 (21.2%) patients had CYP2C19 *1*2, 5 (2.7%) - *2*2 and 144 (76.2%) were wild-type homozygous patients (*1*1). The frequencies of rare (*2) and wild-type (*1) alleles established in this study were 0.13 and 0.87, respectively. Represented allele frequencies were distributed according to Hardy - Weinberg Equilibrium (p=0.56). During 6 months of statin treatment, lowest blood lipoprotein cholesterol levels and the highest effect of statin therapy was observed in *1*1 carriers: total lipoprotein cholesterol decreased by 1.84 (0.6-9) mmol/l, LDL-C – 1.29 (0.8-6.4) mmol/l, TG-C – 0.21 (0.3-7.9) mmol/l, but HDL-C increased by 0.17 (0.8-1.6) mmol/l. Lipoprotein levels were also reduced in *1*2 patients: total cholesterol – 0.45 (0.4-4.7) mmol/l, LDL-C – 0.235 (0.2-4) mmol/l, TG-C – 0.174 (0.2-1.3) mmol/l, respectively. HDL-C in *1*2 patients increased by 0.1 (0.4-1) mmol/l. The *2*2 patients had the slightest effect of statin therapy: total cholesterol was reduced by 0.12 (0.1-0.4) mmol/l, LDL-C – 0.2 (0-0.4) mmol/l, TG-C – 0.03 (0-0.2) mmol/l. Reduction of lipoprotein cholesterol between genotypes *1*1, *1*2 and *2*2 was significant ($p<0.036$).

Conclusions

Results of this study showed that CYP2C19 gene rs4244285 variants may have a significant effect on long-term treatment with statins in patients after STEMI.

References

1. Timmis A, Townsend N, Gale CP, Torbica A, Lettino M, Petersen SE, et al. European Society of Cardiology: Cardiovascular Disease Statistics 2019. Eur Heart J. 2020 Jan 1; 41(1):12–85. Available from: https://academic.oup.com/eurheartj/article/41/1/12/5670482
2. Mach F, Baigent C, Catapano AL, Koskinas KC, Casula M, Badimon L, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41:111–188. Available from: https://doi.org/10.1093/eurheartj/ehz455
3. Malloy MJ, Kane JP. Agents Used in Dyslipidemia. Basic & Clinical Pharmacology, 15e. Katzung BG, Vanderah TW. eds. McGraw Hill, 2021. Available from: https://accessmedicine.mhmedical.com/content.aspx?bookid=2988&sectionid=250599916
4. Whirl-Carrillo M, McDonagh EM, Hebert JM, Gong L, Sangkuhl K, Thorn CF, et al. Pharmacogenomics knowledge for personalized medicine: hmg coa reductase inhibitors. Clinical Pharmacology & Therapeutics (2012); 92(4): 414-7. Available from: https://www.pharmgkb.org/chemical/PA133950441/variantAnnotation
5. Scott SA, Sangkuhl K, Shuldiner AR, Hulot JS, Thorn CF, Altman RB et al. PharmGKB summary: very important pharmacogene information for cytochrome P450, family 2, subfamily C, polypeptide 19. Pharmacogenetics and genomics (2012). Available from: https://www.pharmgkb.org/gene/PA124

Significance of an implantable loop recorder in determining the causes of unexplained syncope in different genders.

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Introduction

Syncope is a common health condition in both genders, and may be induced by many cardiac and non-cardiac reasons [1]. Implantable loop recorder (ILR) is a small subcutaneous device that can continuously monitor the electrocardiogram (ECG) for up to 36 months [2]. ILR is a beneficial tool in patients with recurrent unexplained syncopes, while conventional examination findings did not help to determine certain diagnosis [3]. However, not much scientific data are available about gender differences in the presence of an implanted ILR.

Aim

To evaluate the findings of an ILR, while determining the causes of unexplained syncope in different genders.

Methods

This study included 38 patients (21 (55.3%) women) who underwent ILR implantation at Hospital of Lithuanian University of Health Sciences Kaunas Clinics between February 2017 and July 2022 due to syncope of unknown origin. Study data was collected from medical records. Statistical Package for the Social Sciences (SPSS) version 27.0 software was used for statistical analysis. Mann–Whitney U test and Chi-square test were performed. Research was approved by the Bioethics Center of the Lithuanian University of Health Sciences (no. BEC-MF-46).

Results

The median age of men was 49 [21-65] years, while in women group 46 [18-84] years. Arrhythmia-induced syncope found in 5 (29.4%) patients in the male group and in 4 (19.0%) in the female group. The frequency of achieved diagnosis did not differ between the two group (p=0.70). The median follow-up duration (from day of implantation till day of diagnosis) of male patients with confirmed rhythm disorder was statistically significant shorter than in female patients (129 [30-191] days versus 283 [155-452] days, p=0.03). All diagnoses of the female group were sinus node dysfunction (SND) (4 (100%) patients) related with syncope, while in men group, the diagnoses were distributed as follows: SND in 1 (20%), third-degree atrioventricular (AV)

block in 2 (40%), supraventricular tachycardia in 1 (20%), and ventricular tachycardia in 1 (20%) patient. Consequently, recommended management for all women was cardiac pacemaker, whereas in men group – more varied recommendations (cardiac pacemaker, ablation and electrophysiological study).

Conclusions

ILR was a useful method in identifying the cause of syncope in both genders, but the diagnosis was identified earlier in men. Possibly due to various identified pathologies, including AV block and heart rhythm disorders.

References

1. Da Silva RM. Syncope: epidemiology, etiology, and prognosis. Front Physiol. 2014;5:471. Published 2014 Dec 8. doi:10.3389/fphys.2014.00471.
2. Radovanović NN, Pavlović SU, Kirćanski B, et al. Diagnostic value of implantable loop recorders in patients with unexplained syncope or palpitations. Ann Noninvasive Electrocardiol. 2021;26(5):e12864. doi:10.1111/anec.12864.
3. Bisignani A, De Bonis S, Mancuso L, Ceravolo G, Bisignani G. Implantable loop recorder in clinical practice. J Arrhythm. 2018;35(1):25-32. Published 2018 Nov 20. doi:10.1002/joa3.12142.

Assessment of long-term outcomes in patients with Non-ST-Elevation Myocardial Infarction (NSTEMI) according to risk scores, specific in-patient treatment and concomitant diseases

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Introduction

Non-ST-Elevation Myocardial Infarction (NSTEMI) accounts for the largest percentage of all acute coronary syndrome events [1]. Sudden death may be an important contributor to late-term mortality rate. NSTEMI patients have more complex clinical features, including older age, a higher amount of comorbidities and many of them have a history of previous myocardial infarction [2]. In comparison to ST-Elevation Myocardial Infarction (STEMI) patients, NSTEMI patients have a lower short-term mortality rate, however, the long-term mortality rate is higher [3].

Aim

The aim of the study was to investigate the influence of non-modifiable risk factors, GRACE risk of death and CRUSADE bleeding risk scores, as well as comorbidities and treatment strategy, on the mortality rate in patients with NSTEMI within a 6-month follow-up period.

Methods

1218 patients were hospitalized with a main diagnosis of NSTEMI to the Hospital of Lithuanian University of Health Sciences Kaunas Clinics between December 2020 and July 2022. In this study, the analysis of 383 cases from 10 winter and spring months were performed. The collected data included patients' age, GRACE score, CRUSADE score, concomitant diseases (Diabetes Mellitus (DM), Chronic Heart Failure (CHF), Chronic Kidney Disease (CKD), heart rhythm and conduction disturbances, hypertension, previous stroke, dyslipidemia, cancer), in-patient medical treatment. In order to assess patient outcomes, the long-term mortality rate of patients over a 6-month follow-up period was recorded. Statistical data were analyzed by IBM SPSS 29.0. Normally distributed data were analyzed by Stjudent's t-test, p-value < 0.05.

Results

41 (10.7%) patients died within 6 months: 22 (53.7%) were men and 19 (46.3%) were women. The patients who had NSTEMI and died (NSTEMI_D) during 6-months were statistically significantly older than patients who remained alive during the follow-up period (NSTEMI_A) (76.71 (SD=10.76) vs. 69.55 (SD=11.28); p=0.0012), respectively. Ischemic risk (GRACE score) and bleeding risk (CRUSADE score) were higher in NSTEMI_D patients (173.17 (SD=42.10) vs. 129.15 (SD=32.36); p=0.01 and 39.41 (SD=25.21) vs. 32.38 (SD=17.93); p<0.001). There was a statistically significant difference in the proportion of concomitant diseases: patients who died within 6 months had a higher prevalence of DM (17.3 % vs. 8.4 %; p=0.01), CKD (24.4 % vs. 9.1 %; p=0.01), stroke (30.0 % vs. 9.6 %; p=0.02). Patients who survived during the follow-up

period were more likely to be prescribed the following drugs in the Cardiology department compared to the group of patients who died: ticagrelor (70.8 % vs. 39.0 %; p<0.001), beta-blockers (95.0 % vs. 78.0 %; p<0.001), statins (97.1 % vs. 78.0 %; p<0.001), angiotensin-converting enzymes inhibitors (88.3 % vs. 73.2 %; p<0.001), aspirin (98.2 % vs. 85.4 %; p<0.001). However, diuretics were more often taken by NSTEMI_D patients (75.6 % vs. 40.4 %; p<0.001). 53.7% of deaths were related to an acute cardiovascular event, 22.0 % to a chronic cardiovascular event, and the remainder were related to other causes.

Conclusions

The application of comprehensive guideline-based treatment strategies, taking into account the calculated bleeding and death from acute coronary syndrome risk scores, as well as the correction of comorbidities, is essential in order to improve the long-term outcome of patients with NSTEMI.

References

1. Berg DD, Wiviott SD, Braunwald E, et al. Modes and timing of death in 66 252 patients with non-ST-segment elevation acute coronary syndromes enrolled in 14 TIMI trials. Eur Heart J. 2018; 39: 3810–20.
2. Marc Cohen. Long-term outcomes in high-risk patients with non-ST-segment elevation myocardial infarction. J Thromb Thrombolysis. 2016; 41:464–74.
3. Bouisset F, Ruidavets JB, Dallongeville J, Moitry M, Montaye M, Biasch K, Ferrières J. Comparison of Short- and Long-Term Prognosis between ST-Elevation and Non-ST-Elevation Myocardial Infarction. J Clin Med. 2021;10(2):180.

The predictive value of acute phase QFR in the evaluation of non-culprit artery condition. STEMI patients analysis

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Introduction

Physiology guidance of non-culprit lesions in ST-elevation myocardial infarction (STEMI) patients, especially in the acute phase, is barely available due to procedure prolongation, improper results and unclear interpretation of physiological assessment results in acute settings, and increased mechanical complication of the procedure. Therefore, wire- and adenosine-based physiological assessment methods remain underused in certain circumstances [1]. Multiple studies proved excellent agreement between Fractional Flow reserve (FFR) and its non-invasive value computation method known as Quantitative Flow Ratio (QFR). The recent investigation suggested that QFR may be an option for the non-culprit lesion haemodynamic significance evaluation in urgent cases [2].

Aim

The aim of this research was to determine the agreement of an intermediate (lumen stenosis 35-75%) non-culprit coronary artery lesions QFR values acquired during the acute and the stable phases of STEMI.

Methods

A total 251 non-culprit lesions of 200 STEMI patients, who had at least one residual intermediate (35-75%) non-culprit lesion and undergone primary percutaneous coronary intervention (PCI) of a culprit lesion between January 1, 2022, and September 30, 2022, were included in this prospective research. All patients had an angiogram performed twice: in the acute phase during primary PCI, and after 3-4 months, in a stable setting. For each non-culprit lesion, the QFR measurements were performed twice: during the PCI via acute phase (QFR_1) and on the stable phase - 3-4 months later (QFR_2). All QFR analyses were performed by an experienced QFR observer. Statistical analysis was performed using the software package SPSS 28.0 with a significance level of $p<0.001$: numerical compliance between QFR_1 and QFR_2 was evaluated by the Bland-Altman plot and numerical cut-off for an intention to treat was evaluated by Chi-square test.

Results

Of all non-culprit lesions (N=251), 40.2% (N=101) were discovered in the left anterior descending artery, 32.3% (N=81) in the left circumflex, and 27.5% (N=69) in the right coronary artery. Comparison of QFR_1 and QFR_2 numerical values and treatment decision showed a strong correlation: $r=0.937$ and $r=0.991$, $p<0.001$, respectively. No statistically significant numerical difference between QFR_1 and QFR_2 was found ($t(250) = 6.66$, $p < 0.001$), Neither PCI treatment decision, comparing the QFR_1 and QFR_2 measurements, showed significant differences ($X2(1, N=251) = 246.7$, $p<0.001$).

Conclusions

The results of this study revealed that there is a high level of agreement between QFR measurements of non-culprit lesions taken during the acute phase of STEMI and in the stable setting of coronary artery disease. The study suggests that using QFR measurement during the

acute phase of a STEMI is a reliable method for evaluating non-culprit lesions and could be used more widely in clinical practice as both a time and cost-effective method.

References

1. Chang CC, Lee YH, Chuang MJ, Hsueh CH, Lu YW, Tsai YL, Chou RH, Wu CH, Lu TM, Huang PH, Lin SJ, van Geuns RJ. Agreement Between Invasive Wire-Based and Angiography-Based Vessel Fractional Flow Reserve Assessment on Intermediate Coronary Stenoses. Front Cardiovasc Med. 2021;30;8:707454.
2. Montone RA, Meucci MC, Niccoli G. The management of non-culprit coronary lesions in patients with acute coronary syndrome. Eur Heart J Suppl. 2020;18;22:L170-L175.

Gender differences among Non-ST-Elevation Myocardial Infarction (NSTEMI) patients: contraversion of conservative treatment strategies and 1-month to 6-month mortality analysis

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Introduction

Gender differences exist in the pathogenesis, clinical course and prognosis of Non-ST-Elevation Myocardial Infarction (NSTEMI) [1]. For example, endogenous risk factors such as hormonal background are more pathogenetically important in the development of angina in women, who are more likely to develop angina as a result of microvascular dysfunction, whereas traditional

risk factors are more important in men [2]. Also, studies have shown a negative association between female gender and outcome after NSTEMI [3].

Aim

The study aim was to evaluate risk factors, clinical features and treatment approach as well as short- and long-term outcomes in NSTEMI patient of different genders.

Methods

1218 patients were hospitalised with a main diagnosis of NSTEMI to the Hospital of Lithuanian University of Health Sciences Kaunas Clinics between December 2020 and July 2022. In this study, 383 cases from 10 winter and spring months were analyzed. Patients' data, including age, GRACE score, CRUSADE score, Killip class, concomitant diseases, in-patient medical treatment, death events during 30 days and 6 months of follow-up, were collected and analysed. Software package IBM SPSS 29.0 was used for the data analysis, with chosen p-ratio < 0.05.

Results

Of all observed patients, 64.23 % were men. Female (F) NSTEMI patients were older than male (M) NSTEMI patients (F: 75.12 (SD=10.30) vs. M: 67.64 (SD=11.17); p<0,001). Correlation of genders were found with: acute left ventricular failure by Killip class (r=0.13, p=0.01), GRACE (r=0.18, p<0.001) and CRUSADE scores (r=0.32, p<0.001), usage of ticagrelor (r=-0.14, p=0.01), beta-blockers (r=-0.14, p=0.01), and statins (r=-0.17, p<0.001) during hospitalisation in Cardiology department. Killip III class was also found to be more common in F (F=51.2 % vs. M=15.1 %; p=0.002). The ischemic risk (GRACE score) and bleeding risk (CRUSADE score) were higher in F than in M (F: 140.44 (SD=33.39) vs. M: 130.20 (SD=37.87); p=0.01 and F: 41.30 (SD=17.14) vs. M: 28.59 (SD=17.35); p<0.001). There was no statistically significant difference between genders in the proportion of concomitant diseases (arrythmias, arterial hypertension, diabetes mellitus, stroke). Ticagrelor (M=71.1 % vs. F=60.6 %; p=0.03), beta-blockers (M=94.7 % vs. F=90.5 %; p=0.02), statins (M=96.7 % vs. F=92.0 %; p=0.003) were more often given as a treatment to M than F, but F more frequently were treated with clopidogrel (F=35.0 % and M=24.4 %; p=0.02), an oral anticoagulant (F=16.1 % and M=9.8 %; p=0.02), and diuretics (F=52.6 % and M=39.4 %; p=0.01). 18 (4.7%) patients died during 30 days after MI (M n=11 (61.1 %) vs. F n=7 (38.9 %)), 42 (10.7%) died within 6 months after MI (M n=22 (52.4 %) vs. F n=19 (47.6 %)), however, there was no significant difference in mortality rate between genders (p=0.37). An analysis of the most common causes of death in the 6-month period found that 6.4 % of all patients died due to acute cardiovascular events: M=58.3 % vs. F=41.7 % and 15.2% - due to chronic cardiovascular events: M=45 % vs. F=55 %. The rest died of other causes.

Conclusions

Despite the higher risk of death due to ischaemia and bleeding in women, mortality rate did not differ between genders. Although ticagrelor is the first-line treatment for NSTEMI, triple antiplatelet therapy with clopidogrel and an oral anticoagulant (omitting ticagrelor due to a higher risk of bleeding) was used more frequently in the sample, without a higher arrhythmia rate. We suggest to pay more attention to gender differences in treatment strategies for NSTEMI patients.

References

1. Sui YG, Teng SY, Qian J, at al. Gender differences in treatment strategies among patients ≥80 years old with non-ST-segment elevation myocardial infarction. J Thorac Dis 2019;11(12):5258-5
2. Varghese T, Wenger NK. Non-ST elevation acute coronary syndrome in women and the elderly: recent updates and stones still left unturned. F1000Res. 2018;7:F1000.
3. Kuehnemund L, Koeppe J, Feld J, Wiederhold A, Illner J, Makowski L, Gerß J, Reinecke H, Freisinger E. Gender differences in acute myocardial infarction-A nationwide German real-life analysis from 2014 to 2017. Clin Cardiol. 2021;44(7):890-898.

The heart failure biomarkers plasma NT-proBNP and soluble ST2 changes after one year of the Arteriovenous Fistula formation surgery in patients with the end stage kidney disease.

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Introduction

In Lithuania, based on data from 2020, 2417 patients with end-stage kidney disease (ESKD) received some form of renal replacement therapy: 1342 patients received hemodialysis treatment. Long-term hemodialysis remains essential for patients with ESKD [1]. The arteriovenous fistula (AVF) formation surgery is the optimal option for patients requiring hemodialysis [2,3] . On the other hand the formation of the AVF increases arterial outflow to the venous system, might cause right ventricular dysfunction and worsen cardiac decompensation in patients with ESKD [4–6]. Natriuretic peptides: Brain Natriuretic Peptide (BNP) and N-terminal prohormone of brain natriuretic peptide (NT-proBNP), are important in clinical practice for diagnostics of heart failure (HF) and prognosis [7–9]. Both biomarkers are equally eliminated through kidneys, so the choice of investigating NT-proBNP rather than BNP should not affect results in the study [10]. Suppression of tumorigenicity 2 (ST2) is a promising heart biomarker that could be useful in HF diagnostics [11,12].

Aim

The purpose of this study is to evaluate the changes in the heart failure biomarkers during the first year of hemodialysis.

Methods

A prospective study with a total of 54 patients with ESKD with planned AVF formation surgery for hemodialysis access were enrolled between April 2019 and February 2021 in LUHS Kaunas Clinics. NT-proBNP and ST2 values were registered 0 to 5 days before the AVF formation operation and after one year. Statistical analysis was performed using SPSS 29.0 software. Data were analysed with the descriptive statistics, Mann-Whitney U-Test and Wilcoxon signed-rank test. P value <0.05 was considered significant.

Results

The sample consists of 54 (n=54) patients with the ESKD, who received AVF formation surgery for vascular access for hemodialysis. Gender distribution in the study: 22 (40.7%) female and 32 (59.3%) male subjects. Mean female age 66.33 ± 3.342 years and mean male age 65.99 ± 1.912 years. After 01/01/2023, 31 (57.4%) patients were alive and 23 (42.6%) died beforehand, of which 4 due to unknown causes and 19 due to disease. Cardiopulmonary failure was the leading cause of death in the sample, that affected 6 subjects. 27 values (N=27) of NT-proBNP were compared: baseline values were compared to one-year values. A change in NT-proBNP levels before AVF formation and after one year of the hemodialysis is seen statistically significant when analysed with Wilcoxon signed-rank test (p=0.011). Mean of NT-proBNP values before surgery were 7020.89 ± 1579.23, mean of NT-proBNP values after one year were 2474.89 ± 709.91. This result showed that values of NT-proBNP decreased and were statistically significant after one year of HD (p=0.006). 28 values (N=28) of ST2 were compared: baseline values were compared to one-year values. A difference in ST2 levels before AVF formation and after one year of the hemodialysis was statistically insignificant (p=0.374).

Conclusions

The study showed significant decrease in NT-proBNP values after one-year follow-up of AVF formation surgery and hemodialysis initiation.

References

1. ERA Registry Annual Report 2020 REGISTRY.
2. Lawson JH, Niklason LE, Roy-Chaudhury P. Challenges and novel therapies for vascular access in haemodialysis. Nat Rev Nephrol [Internet]. NIH Public Access; 2020 [cited 2023 Jan 17];16:586. Available from: /pmc/articles/PMC8108319/
3. Güven C, Uludağ Ö. Proximal Arteriovenous Fistulas in Hemodialysis Patients: Advantages and Disadvantages. Cureus [Internet]. Cureus; 2020 [cited 2023 Jan 18];12. Available from: https://pubmed.ncbi.nlm.nih.gov/33391896/
4. McCullough PA, Rios A, Smith B. Dialysis fistulas and heart failure. Eur Heart J [Internet]. Eur Heart J; 2017 [cited 2023 Jan 16];38:1924–5. Available from: https://pubmed.ncbi.nlm.nih.gov/28329218/

5. Malik J, Lomonte C, Rotmans J, Chytilova E, Roca-Tey R, Kusztal M, et al. Hemodialysis vascular access affects heart function and outcomes: Tips for choosing the right access for the individual patient. J Vasc Access [Internet]. SAGE Publications; 2021 [cited 2023 Jan 16];22:32. Available from: /pmc/articles/PMC8606800/
6. Reddy YNV, Obokata M, Dean PG, Melenovsky V, Nath KA, Borlaug BA. Long-term cardiovascular changes following creation of arteriovenous fistula in patients with end stage renal disease. Eur Heart J [Internet]. Eur Heart J; 2017 [cited 2023 Jan 16];38:1913–23. Available from: https://pubmed.ncbi.nlm.nih.gov/28329100/
7. Maries L, Manitiu I. Diagnostic and prognostic values of B-type natriuretic peptides (BNP) and N-terminal fragment brain natriuretic peptides (NT-pro-BNP). Cardiovasc J Afr [Internet]. Cardiovasc J Afr; 2013 [cited 2023 Jan 18];24:286–9. Available from: https://pubmed.ncbi.nlm.nih.gov/24217307/
8. Castiglione V, Aimo A, Vergaro G, Saccaro L, Passino C, Emdin M. Biomarkers for the diagnosis and management of heart failure. Heart Fail Rev [Internet]. Heart Fail Rev; 2022 [cited 2023 Jan 18];27:625–43. Available from: https://pubmed.ncbi.nlm.nih.gov/33852110/
9. Cao Z, Jia Y, Zhu B. BNP and NT-proBNP as Diagnostic Biomarkers for Cardiac Dysfunction in Both Clinical and Forensic Medicine. Int J Mol Sci [Internet]. Int J Mol Sci; 2019 [cited 2023 Jan 18];20. Available from: https://pubmed.ncbi.nlm.nih.gov/31013779/
10. Scali MC, Simioniuc A, Dini FL, Marzilli M. The potential value of integrated natriuretic peptide and echo-guided heart failure management. 2014 [cited 2023 Jan 18]; Available from: http://www.cardiovascularultrasound.com/content/12/1/27
11. McCarthy CP, Januzzi JL. Soluble ST2 in Heart Failure. Heart Fail Clin [Internet]. Heart Fail Clin; 2018 [cited 2023 Jan 21];14:41–8. Available from: https://pubmed.ncbi.nlm.nih.gov/29153199/
12. Dudek M, Kałużna-Oleksy M, Migaj J, Straburzyńska-Migaj E. Clinical value of soluble ST2 in cardiology. Adv Clin Exp Med [Internet]. Adv Clin Exp Med; 2020 [cited 2023 Jan 21];29:1205–10. Available from: https://pubmed.ncbi.nlm.nih.gov/33049127/

Cardiac changes following arteriovenous fistula formation in patients with end stage renal disease

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Introduction

End-stage renal disease (ESRD) also known as 5 stage kidney disease, is a life-threatening condition and should be treated immediately.[1][2][3] Patients with ESRD are dependent on renal replacement therapy (RRT) via kidney transplantation or dialysis: hemodialysis (HD) or peritoneal dialysis (PD). [4] Despite the fact that kidney transplantation often results in the best patient outcomes, the main treatment is still hemodialysis. [5][6]As a vascular access point for hemodialyzation, a central venous catheter (CVC), an arteriovenous graft, or a native arteriovenous fistula (AVF) may be used. [4][7][8] The longest patency and fewest problems of the three procedures make an AVF the best choice. [4][7] Unfortunately, there are lack of researches about long term cardiac changes after the formation of arteriovenous fistula [8][9].

Aim

Prospectively assess whether the formation of an arteriovenous fistula is associated with structural or functional changes in heart characteristics at 6 months follow-up after the formation operation of an arteriovenous fistula.

Methods

In total, 54 patients with end-stage renal disease were enrolled in this single-center study between April 2019 and February 2021. Initial echocardiography was performed in all patients 2-7 days before the operation, while a follow-up echocardiography was completed 6 months later. The statistical analysis was performed using SPSS 29.0 software. Data were analyzed using descriptive statistics and Wilcoxon signed-rank test. P value less than 0.05 was considered significantly important. Bioethics approval was obtained from LUHS Bioethics Center.

Results

Out of 54 enrolled patients, all patients underwent arteriovenous fistula formation operations. 19 of them underwent echocardiography after 6 months. Others were not measured due to the COVID-19 pandemic situation in the country . Changes were statistically insignificant in: left ventricular end-diastolic diameter (LV EDD) (min. 40 mm, max. 61 mm vs min. 42 mm, max. 64mm; p=0.25), left ventricular mass index (min. 59 g/m2, max. 148 g/m2 vs min. 59 g/m2, max. 151 g/m2 ; p=0.055), ejection fraction (min. 30 %, max. 66 % vs min. 30 %, max. 62 %; p=0.891), global longitudinal strain (GLS) (min. -21 %, max. -12 % vs. min. -21 %, max. -16 %; p=0.1), left ventricular diastolic function (p=0.636), right ventricle size (min. 30 mm, max. 47 mm vs min. 29 mm, max. 43 mm; p=0.139), right atrium size (min. 31 mm, max. 50 mm vs min. 30 mm, max. 60 mm ; p=0.636), left atrium size (min. 33 mm, max. 51 mm vs min. 33 mm, max. 57 mm ; p=0.212). Otherwise, statistical significance was observed in the decrease in left atrial volume (min. 52 ml, max. 91 ml vs min. 44 ml, max. 81 ml; p=0.008). In this study, right ventricular long-axis function was not measured due to the small sample size.

Conclusions

Only the decreased left atrial volume after 6 months of follow-up was statistically significant in the study group. No further significant cardiac changes were found. However, in order to confirm the obtained results, additional larger studies are needed.

References

1. Hashmi MF, Benjamin O, Lappin SL. End-Stage Renal Disease. In Treasure Island (FL); 2022.
2. Gusev E, Solomatina L, Zhuravleva Y, Sarapultsev A. The Pathogenesis of End-Stage Renal Disease from the Standpoint of the Theory of General Pathological Processes of Inflammation. Int J Mol Sci. 2021 Oct;22(21).
3. Lee H-J, Son Y-J. Prevalence and Associated Factors of Frailty and Mortality in Patients with End-Stage Renal Disease Undergoing Hemodialysis: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health. 2021 Mar;18(7).
4. Braun MM, Khayat M. Kidney Disease: End-Stage Renal Disease. FP Essent. 2021 Oct;509:26–32.
5. Wouk N. End-Stage Renal Disease: Medical Management. Am Fam Physician. 2021 Nov;104(5):493–9.
6. Gupta R, Woo K, Yi JA. Epidemiology of end-stage kidney disease. Semin Vasc Surg. 2021 Mar;34(1):71–8.
7. Wongmahisorn Y. Maturation of arteriovenous fistulas in patients with and without preexisting hemodialysis catheters. Ann Med Surg. 2019 Dec;48:11–6.
8. Reddy YN V, Obokata M, Dean PG, Melenovsky V, Nath KA, Borlaug BA. Long-term cardiovascular changes following creation of arteriovenous fistula in patients with end stage renal disease. Eur Heart J [Internet]. 2017 Jun 21;38(24):1913–23. Available from: https://doi.org/10.1093/eurheartj/ehx045
9. Ingle K, Pham L, Lee V, Guo L, Isayeva-Waldrop T, Somarathna M, et al. Cardiac changes following arteriovenous fistula creation in a mouse model. J Vasc Access. 2021;

IHS Conference

Basic sciences & Pharmacology: anatomy, histology, biochemistry, etc.

Placental Mesenchymal Stromal Cell Application in Acute Respiratory Distress Syndrome Murine Model

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Introduction

Effective and consistent acute respiratory distress syndrome (ARDS) treatment is still needed (1). Mesenchymal stromal cells (MSC) have shown promising preclinical and clinical data as a potential ARDS therapy (2). The American Thoracic Society (ATC) proposed a list of criteria, of which at least 3 should be present in an ARDS animal model: histological evidence of injury, altered integrity of alveolar capillary barrier (e.g., increase in BALF protein concentration), presence of an inflammatory response as indicated by infiltrating leukocytes (e.g., increase in BALF neutrophil count), physiological changes consistent with pulmonary dysfunction (3). Intranasal lipopolysaccharide (LPS) instillation is a viable strategy to induce ARDS in a murine model (4).

Aim

To implement a murine ARDS model and to apply it in evaluating the efficacy of systemic placental MSC administration.

Methods

5th passage human placental MSC were prepared in LUHS. The amnion and umbilical cord were removed and the remaining placental tissue was minced, digested with collagenase A for 4 h at 37 °C and cultured in DMEM with 10 % FBS, 0.1 % gentamycin. The cells were characterized in previous experiments and fulfilled the International Society for Cellular Therapy criteria for multipotent MSC (5). C57BL/6 10–12-week-old mice were used. LPS was injected intranasally (5 mg/kg) and 4 hours later 2 x 105 MSC (n=12) or vehicle (n=12) were injected intraperitoneally. Mice were euthanised and tissue was collected 24, 72 or 168 hours after lung injury induction (n=4 per group). The left main bronchus was ligated. 0,5 ml of phosphate-buffered saline was instilled and aspirated through the trachea three times. BALF protein concentration was evaluated using the bicinchoninic acid assay. BALF cells were counted with a hemocytometer, smeared, and stained with Wright-Giemsa to evaluate neutrophils. Histological slides of the left lung were stained with haematoxylin and eosin. GraphPad Prism was used for statistical analysis, results are described as median and interquantile range. Differences between groups were compared using Mann-Whitney test, p-value < 0.05.

Results

All mice in the MSC group survived the experimental period, one mouse in the control group died in the first 24 h. Histological lung assessment showed ARDS features in control mice: accumulation of neutrophils in the interstitial space, thickening of the alveolar wall, haemorrhage, which were less significant in the MSC group, with most noticeable difference after 168 h. BALF protein concentration in MSC treated mice after 24, 72 and 168 hours was 454.9 (434.9-475.1), 536.4 (502.8-569.9), 67.0 (43.1-140.4) μg/ml, in the control group it was 714.4 (619.2-809.5) (p=0.33), 761.4 (435.3-810.6) (p=0.57), 140.1 (123.3-170.1) (p=0.40) μg/ml respectively. Neutrophil count in MSC treated mice after 24, 72 and 168 hours was 28.0 (40.0-68.0), 55 (0.9-120), 0.1 (0.0-0.3) x 104/ml, in the control group it was 98.5 (87.0-110.0) (p=0.20), 83.0 (61.5-220.0) (p=0.39), 0.2 (0.1-2.3) (p=0.20) x 104/ml respectively. Healthy mice BALF protein concentration was 108.0 (55.5-152.9) μg/ml (p<0.05), neutrophil count was 5.1 (2.7-7.6) x 102/ml (p<0.05).

Conclusions

Intranasal LPS induced lung damage that satisfied the 3 of the 4 criteria. Placental MSC therapy reduced alveolar protein permeability and diminished the number of alveolar space infiltrating neutrophils, although the results were not statistically significant. MSC treatment also reduced the degree of histological lung injury.

References

1. Meyer NJ, Gattinoni L, Calfee CS. (2021). Acute respiratory distress syndrome. The Lancet. 14;398(10300):622–37.
2. Johnson, C. L., Soeder, Y., & Dahlke, M. H. (2017). Concise Review: Mesenchymal Stromal Cell-Based Approaches for the Treatment of Acute Respiratory Distress and Sepsis Syndromes. Stem cells translational medicine, 6(4), 1141–1151.
3. Matute-Bello, G., Downey, G., Moore, B. B., Groshong, S. D., Matthay, M. A., Slutsky, A. S., Kuebler, W. M., & Acute Lung Injury in Animals Study Group. (2011). An official

American Thoracic Society workshop report: features and measurements of experimental acute lung injury in animals. American journal of respiratory cell and molecular biology, 44(5), 725–738.
4. Khadangi, F., Forgues, A. S., Tremblay-Pitre, S., Dufour-Mailhot, A., Henry, C., Boucher, M., Beaulieu, M. J., Morissette, M., Fereydoonzad, L., Brunet, D., Robichaud, A., & Bossé, Y. (2021). Intranasal versus intratracheal exposure to lipopolysaccharides in a murine model of acute respiratory distress syndrome. Scientific reports, 11(1), 7777.
5. Dominici, M., Le Blanc, K., Mueller, I., Slaper-Cortenbach, I., Marini, F., Krause, D., Deans, R., Keating, A., Prockop, D.j, & Horwitz, E. (2006). Minimal criteria for defining multipotent mesenchymal stromal cells. The International Society for Cellular Therapy position statement. Cytotherapy, 8(4), 315–317.

Activation of H2A.X by nanoparticulate carbon in lung epithelial cells

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Introduction

Nanoparticles (NPs) are ultrafine molecules whose sizes range from 1 to 100 nm. Several studies, including ourselves, have explicitly reported that NPS can trigger DNA damage, either by the direct interaction of NPs with the DNA or secondarily by initiating ROS mechanism in the cell, which leads to double-strand breaks (DSBs) (1, 2). DSBs are the most dangerous DNA damage. Histone H2A variant H2A.X has a special role in DNA repair (3). Phosphorylation of H2A.X at residue Ser-139 (Anti-γH2A.X) by PI3K-like kinases is an early cellular response to the generation of DNA double-strand breaks (DSBs) (4). Monitoring γH2A.X (Ser-139) has emerged as a highly specific and sensitive molecular marker of DNA damage (5).

Aim

The objective of our study was to evaluate markers of DNA damage in type II lung epithelial cells induced by nanoparticles of carbon black.

Methods

A549 cells (human alveolar epithelial cell line) were grown for up to 24 hours with 200μg/mL NPCB, or carbon black (CB) used as a reference compound. Cells were plated at a density of 0.15×10^6 cells·per well in Petri dishes and grown overnight to 80% confluency. Then the medium was replaced with serum-free medium supplemented with CB or NPCB (200 μg·mL−1) for a further 24 h. H2A.X (mRNA and protein) and γH2A.X were estimated with quantitative RT-PCR, WB, and flow cytometry (FC) Co-expression of H2A.X and γH2A.X and cell distribution were studied with flow cytometry of double-stained cells and bivariate scatterplots.

Results

H2A.X mRNA was elevated by more than 2 fold in cells grown with NPCB when compared to cells treated with CB or control cells. H2A.X and γH2A.X were also higher in both WB and FC assays. Density plots suggest that increased H2A.X and γH2A.X are interrelated.

Conclusions

Our results show that nanoparticle carbon black increases H2A.X mRNA, H2A.X protein, and γH2A.X levels, thus phospho-histone H2A.X (Ser139) may serve as a biomarker of environmental pollutant-induced DNA damage.

References

1. Risom L, et al. Oxidative stress-induced DNA damage by particulate air pollution. Mutat Res. 2005 Dec 30;592(1-2):119-37. doi: 10.1016/j.mrfmmm.2005.06.012. Epub 2005 Aug 8. PMID: 16085126.
2. Mroz RM, et al. Nanoparticle-driven DNA damage mimics irradiation-related carcinogenesis pathways. Eur Respir J. 2008 Feb;31(2):241-51. doi: 10.1183/09031936.00006707. Epub 2007 Dec 5. PMID: 18057054.
3. Sedelnikova OA, et al. Histone H2AX in DNA damage and repair. Cancer Biol Ther. 2003 May-Jun;2(3):233-5. doi: 10.4161/cbt.2.3.373. PMID: 12878854.
4. Ibuki Y, et al. γ-H2AX is a sensitive marker of DNA damage induced by metabolically activated 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone. Toxicol In Vitro. 2015 Oct;29(7):1831-8. doi: 10.1016/j.tiv.2015.07.023. Epub 2015 Jul 29. PMID: 26231820.
5. Rogakou EP, et al. DNA double-stranded breaks induce histone H2AX phosphorylation on serine 139. J Biol Chem. 1998 Mar 6;273(10):5858-68. doi: 10.1074/jbc.273.10.5858. PMID: 9488723.

Impact of urban dust on extracellular signal-regulated kinase 5 in lung alveolar epithelial cells

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Introduction

Urban dust (UD) is a mixture of organic and inorganic particles, that triggers an inflammatory response in the airways, resulting in several adverse health effects. Both acute and chronic exposure to air pollution is associated with an increased risk of death from cardiovascular diseases, including ischemic heart disease, heart failure, and ischemic/thrombotic stroke (1). Specific biomonitoring may help quantify both accumulative, and time-integrative responses toward the specific air samples (2). Expression and activity kinases are important to indicate specific pathways of activation or cell distribution (3).

Aim

The objective of our study was to assess the effect of standardized urban dust on the expression and activation of extracellular signal-regulated kinase 5 (ERK5) in lung alveolar epithelial cells.

Methods

We used human alveolar epithelial cells - A549 cells. The cells were grown for up to 24 hours with 10-200μg·mL−1 carbon black (CB; reference) or UD. ERK5 mRNA was estimated with quantitative RT-PCR, ERK5 and ERK5-P proteins were assayed with Western Blott and flow cytometry, and co-expression and cell distribution were studied with flow cytometry of double-stained cells and bivariate scatterplots. Cell-free controls were included in each experiment to assess the interference of particles with each assay.

Results

The mRNA of ERK5 was increased by more than 2 in samples with urban dust when compared to cells treated with carbon black or control cells, but was not “dose”- dependent. WB evidenced increased values, however, they were not significant, whereas FC revealed a more than a two-fold increase (p<o.o5). The activated ERK5 was not increased more than naïve protein and analysis of binary scatterplots suggests linear co-expression, at least in the majority of cells tested.

Conclusions

ERK5 may be used as biomarkers for alveolar cell response to urban dust.

References

10. Vesterdal LK, Jantzen K, Sheykhzade M, Roursgaard M, Folkmann JK, Loft S, Møller P. Pulmonary exposure to particles from diesel exhaust, urban dust or single-walled carbon nanotubes and oxidatively damaged DNA and vascular function in apoE(-/-) mice. Nanotoxicology. 2014 Feb;8(1):61-71. doi: 10.3109/17435390.2012.750385. Epub 2012 Dec 11. PMID: 23148895.
11. Shaw OM, Sawyer GM, Hurst RD, Dinnan H, Martell S. Different immune and functional effects of urban dust and diesel particulate matter inhalation in a mouse model of acute air pollution exposure. Immunol Cell Biol. 2021 Apr;99(4):419-427. doi: 10.1111/imcb.12425. Epub 2020 Dec 16. PMID: 33169881.
12. Paudel R, Fusi L, Schmidt M. The MEK5/ERK5 Pathway in Health and Disease. Int J Mol Sci. 2021 Jul 15;22(14):7594. doi: 10.3390/ijms22147594. PMID: 34299213; PMCID: PMC8303459.

Activation of p53 protein in lung alveolar epithelial cells; the effect of cisplatin, urban dust and carbon nanoparticles

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Introduction

Particulate matter (PM), the "floating dust" triggers an inflammatory response in the airways, which may provoke DNA damage and lung cancer (1). The tumor suppressor protein p53 plays a major role in DNA repair (2).

Aim

Our study aimed to examine the effect of coarse carbon black (CB); Huber 990; H. Haeffner and Co Ltd, Chepstow, UK; primary diameter 260nm, urban dust (UD); a Standard Reference Material 1649a from the National Institute of Standards and Technology (Gaithersburg, USA), and nanoparticle carbon black (NPCB); Printex 90; Frankfurt, Germany, primary diameter 14 nm on DNA damage and p53 phosphorylation in an alveolar epithelial cell line (A549).

Methods

DNA integrity was assessed by propidium iodide (PI) DNA staining and flow cytometry (FC). Cell cycle-specific subpopulations were divided into resting (G0/G1) and proliferating (G2/M) A549 cells (3). Phosphorylated p53 proteins (at Ser 9, 20, 46 and 392) were quantified in both fractions using specific mAb and a binary FC. A similar experiment was done on cells pre-treated overnight with 30 μg/mL cisplatin (CPT).

Results

Untreated A549 cells showed the presence of the constitutively expressed p53Ser9P, p53Ser20P, p53Ser46P and p53Ser392P in interphase and mitotic nuclei. Cell treatment with CPT increased by about 25-60%, p53Ser9P, p53Ser46P, and p53Ser392P but p53Ser20P was increased only in quiescent cells which may indicate some protective role of cisplatin. The most relevant difference in phosphorylated p53 levels between naïve and CPT-treated cells was observed in UD and NPCB-treated cells, where lower p53Ser9P and p53Ser46P response was observed in CPT-pretreated cells.

Conclusions

Naïve and “cisplatin-resistant” A549 cells differ in their p53 signaling response to PM treatment. PM exposure stabilizes and activates P53 and probably initiates DNA repair, cell-cycle arrest, and apoptosis (4). The experimental data are consistent with the role of p53 in modulating the activation of cell cycle checkpoints, especially at highly conserved Ser20 and Ser392 sites relevant to transactivation and stabilization, respectively (5). Significant increase in phosphorylated p53 especially in G2/M cells, may be relevant in cisplatin resistance. Identification of functional patterns of p53 activation is necessary.

References

1. Quezada-Maldonado EM et al. Airborne particulate matter induces oxidative damage, DNA adduct formation and alterations in DNA repair pathways. Environ Pollut. 2021 Oct 15;287:117313. doi: 10.1016/j.envpol.2021.117313. PMID: 34022687.
2. Williams AB et al. p53 in the DNA-Damage-Repair Process. Cold Spring Harb Perspect

Med. 2016 May 2;6:a026070. doi: 10.1101/cshperspect.a026070. PMID: 27048304; PMCID: PMC4852800.
3. Pozarowski P et al. Analysis of cell cycle by flow cytometry. Methods Mol Biol. 2004;281:301-11. doi: 10.1385/1-59259-811-0:301. PMID: 15220539.
4. Soberanes S et al. p53 mediates particulate matter-induced alveolar epithelial cell mitochondria-regulated apoptosis. Am J Respir Crit Care Med. 2006;174:1229-38. doi: 10.1164/rccm.200602-203OC. Epub 2006 Aug 31. PMID: 16946128; PMCID: PMC2648105.
5. Gordon EM et al. Cell cycle checkpoint control: The cyclin G1/Mdm2/p53 axis emerges as a strategic target for broad-spectrum cancer gene therapy - A review of molecular mechanisms for oncologists. Mol Clin Oncol. 2018;9:115-134. doi: 10.3892/mco.2018.1657. PMID: 30101008; PMCID: PMC6083405.

Associations of VEGFA Gene Polymorphisms with Hormonal Activity of Pituitary Adenomas

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Introduction

Pituitary adenomas (PA) are benign tumors that arise in the anterior lobe of the pituitary gland and exert their effects via mass effect or excessive hormone secretion [1]. Therefore, PAs can be divided into somatotropic, corticotropic, lactotropic, thyrotropic, and non-secreting adenomas [2]. The etiology of this disease is diverse, however, in some cases, germline or somatic genetic defects are associated with the occurrence of PA [3]. This study investigated the association of PA with single nucleotide polymorphisms of the vascular endothelial growth factor-A (VEGFA) gene. Because solid tumors are generally hypoxic, this leads to the continuous production of VEGFA. Consequently, tumors can exploit the inflammatory response to vascular permeability stimulated by VEGFA to promote their spread and proliferation [4]. Since the VEGFA gene is associated with such biological processes, it can be hypothesized that this gene is related to the occurrence of PA and its hormonal activity.

Aim

To study the associations of VEGFA gene polymorphisms (rs1570360, rs699947, rs3025033, rs2146323) with the hormonal activity of PA.

Methods

108 patients with PA (59 active and 49 inactive PA) and 245 healthy volunteers participated in the study. DNA samples from peripheral blood leukocytes were purified by the DNA salting-out method and the column-based DNA purification method. RT-PCR performed single nucleotide polymorphisms (rs1570360, rs699947, rs3025033, rs2146323). Results were analyzed using the statistical analysis program "IMB SPSS Statistics 27.0".

Results

The VEGFA rs3025033 G allele is statistically significantly less frequent in the group of women with active PA than in the control group of women (13.0% vs. 87.0%, p=0.047). The VEGFA rs699947 AA genotype is statistically significantly more frequent in the group of men with active PA than in the control group of men (53.8% vs. 25.8%, p=0.030). Moreover, the VEGFA rs699947 genotypes AC+CC are associated with a 3.4-fold increased odds of active PA occurrence in men compared to the AA genotype (OR=3.358; 95% CI: 1.067-10.571; p=0.038). The frequencies of each SNP are presented in Table 1.

Table 1. The frequencies of SNPs

SNP and genotype	Control group, n (%)	Active PA, n (%)	Inactive PA, n (%)	p value		
				*	**	***
rs1570360						
GG	121 (49.4)	26 (44.1)	24 (49.0)	0.463	0.958	0.610
AG	75 (30.6)	20 (33.9)	19 (38.8)	0.625	0.263	0.599
AA	49 (20.0)	13 (22.0)	6 (12.2)	0.728	0.204	0.183
rs699947						
AA	32 (28.6)	19 (32.2)	13 (26.5)	0.622	0.791	0.520
AC	56 (50.0)	28 (47.5)	24 (49.0)	0.752	0.905	0.875
CC	24 (21.4)	12 (20.3)	12 (24.5)	0.868	0.868	0.605
rs3025033						
AA	79 (70.5)	43 (72.9)	33 (67.3)	0.747	0.686	0.531
AG	28 (25.0)	13 (22.0)	14 (28.6)	0.666	0.635	0.435
GG	5 (4.5)	3 (5.1)	2 (4.1)	0.855	0.913	0.805
rs2146323						
CC	46 (41.1)	24 (40.7)	20 (40.8)	0.960	0.976	0.988
AC	53 (47.3)	28 (47.5)	23 (46.9)	0.986	0.964	0.957
AA	13 (11.6)	7 (11.9)	6 (12.2)	0.960	0.908	0.952

* Control group vs. Active PA; ** Control group vs. Inactive PA; *** Active PA vs. Inactive PA

Conclusions

Our study revealed that the VEGFA rs3025033 G allele is statistically significantly less frequent in the group of women with active PA than in the control group of women. The VEGFA rs699947 AA genotype is statistically significantly more frequent in the group of men with active PA. In addition, the VEGFA rs699947 AC+CC genotypes are associated with a 3.4-fold increased odds of active PA occurrence in men compared with the AA genotype. We did not obtain statistically significant results with rs1570360 and rs2146323.

References

1. Banskota S, Adamson DC. Pituitary adenomas: from diagnosis to therapeutics. Biomedicines. 2021 Apr 30;9(5):494.
2. Chang M, Yang C, Bao X, Wang R. Genetic and epigenetic causes of pituitary adenomas. Front Endocrinol (Lausanne). 2021 Jan 26;11:596554.
3. Tatsi C, Stratakis CA. The genetics of pituitary adenomas. J Clin Med. 2019 Dec 21;9(1):30.
4. Claesson-Welsh L, Welsh M. VEGFA and tumour angiogenesis. J Intern Med. 2013 Feb;273(2):114-27.

NRP-1 targeting lipid-polymer hybrid nanoparticles as a promising tool for triple-negative breast cancer therapy

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Introduction

Triple-negative breast cancer (TNBC) is one of the most aggressive and deadliest forms of breast cancer. It lacks estrogen, progesterone and human epidermal growth factor 2 receptors, which could be exploited as therapeutic targets for cancer therapy [1]. TNBC cells are over-expressing neuropilin-1 (NRP-1) receptors that could be used for targeted treatment [2]. Doxorubicin (DOX) is a well-known and often-used anticancer drug in oncology; however, there are some limitations, such as DOX transport inefficiency in the acidic tumor microenvironment [3]. For this reason, scientists are searching for new DOX transportation approaches like nanocarriers as they may increase selectivity for cancer cells, reduce adverse effects and load higher amounts of drugs. Due to insufficient vascularization, some tumor cells are adapted to live in low levels of oxygen and this phenomenon is called hypoxia. As hypoxic tumor areas can contain the most resistant malignant cells for treatment, it is important to evaluate the effects of nanomedicines in a hypoxic environment [4].

Aim

The aim of our study was to evaluate the peptide-conjugated doxorubicin (DOX) loaded lipid-polymer hybrid nanoparticles (LPHN) effect on TNBC cell viability in normoxia and hypoxia.

Methods

Poly(lactic-co-glycolic acid), lecithin, 1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[maleimide (polyethylene glycol)-2000] and DOX were used for the synthesis of LPHN-DOX. FAM-Cys-RPARPAR peptide that binds to NRP-1 receptors (P) was conjugated to the surface of nanoparticles (LPHN-P-DOX). The size, polydispersity index (PdI) and zeta potential of nanoparticles were evaluated using the dynamic light scattering method. DOX entrapment in LPHN was measured by fluorescence spectroscopy. The colloidal stability of LPHN-P-DOX was determined in human plasma, phosphate-buffered saline (PBS) and cell growth medium. The effect of nanoparticles on MDA-MB-231 cell viability was established by WST-1 assay after 72 h of incubation in normoxia and hypoxia conditions and compared with free DOX effectiveness. Effective concentration EC50, at which cell viability is reduced by 50% in the presence of tested material, has been calculated.

Results

The HLPN-DOX size was 162 ± 2 nm, PdI was 0.127 ± 0.054, and the zeta potential was -42.63. The HLPN-P-DOX were larger (size was 201.1 ± 5 nm), their PdI was 0.17 ± 0.02, and the zeta potential was -20.4 ± 1. The encapsulation efficiency of DOX in LPHN-DOX was 70.5%. The stability studies revealed that LPHN-P-DOX were stable in PBS and medium but unstable in human plasma. In normoxia, an effective concentration of DOX was 150 μg/ml, LPHN-P-DOX - 220 μg/ml and LPHN-DOX - 360 μg/ml. Also, LPHN-DOX nanoparticles were 2.1 times, and LPHN-P-DOX were 1.3 more cytotoxic in hypoxia than normoxia, which could be beneficial in the treatment of later stages of triple-negative breast cancer, usually characterized by hypoxia.

Conclusions

To conclude, while both LPHN-DOX and LPHN-P-DOX demonstrate less effectiveness in reducing cell viability compared with free DOX, LPHN-P-DOX is more effective than LPHN-DOX in normoxia and both products are more toxic in hypoxia, making LPHN-P-DOX a potential tool for target therapy in triple-negative breast cancer.

References

1. Tang Y, Wang Y, Kiani MF, Wang B. Classification, treatment strategy, and associated drug resistance in breast cancer. Clinical breast cancer. 2016 Oct 1;16(5):335-43.
2. Latil A, Bieche I, Pesche S, Valeri A, Fournier G, Cussenot O, Lidereau R. VEGF overexpression in clinically localized prostate tumors and neuropilin-1 overexpression in metastatic forms. International journal of cancer. 2000 Mar 20;89(2):167-71.
3. Mansoori B, Mohammadi A, Davudian S, Shirjang S, Baradaran B. The different mechanisms of cancer drug resistance: a brief review. Advanced pharmaceutical bulletin. 2017 Sep;7(3):339-48.
4. Eales KL, Hollinshead KE, Tennant DA. Hypoxia and metabolic adaptation of cancer cells. Oncogenesis. 2016 Jan;5(1):e190–e190.

EMT related genes expression in pancreatic cancer tissues

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Introduction

Pancreatic cancer is the fourth highest cause of cancer fatalities, with a 5-year survival rate of less than 10% (1). Tumour cell invasiveness and resistance are known to depend on a reversible developmental process called epithelial-mesenchymal transition (EMT) (2). EMT is mediated by a group of EMT-activating transcription factors such as SNAIL, SLUG, ZEB1, ZEB2, and TWIST (2, 3). ZEB1 is the most important EMT-TF which can promote pancreatic cancer stemness, invasion, and metastasis (3). To develop a new treatment method for pancreatic cancer it is necessary to determine the expression changes of EMT-TFs in pancreatic cancer pathogenesis.

Aim

The aim of this study is to evaluate the expression of mRNA molecules responsible for epithelial-mesenchymal transformation in pancreatic cancer tissues.

Methods

Postoperative pancreatic cancerous and precancerous tissue (n=13) was frozen at -80°C and used for this research. Total RNA isolation with Trizol was performed following the protocol recommended by the „Abexa“ manufacturer. cDNAs were synthesized by Reverse Transcription Kit and converted to 1 μg as instructed by the manufacturers. Changes in gene expression were evaluated by RT-PCR conducted with TaqMan® Fast Universal PCR Master Mix with the TaqMan probes. The expression data were standardized to GAPDH and the relative fold-change in expression with respect to a reference sample was computed using the $2^{-\Delta\Delta Cq}$ (Livak) Method. Statistical analysis was performed using GraphPad Prism and the Mann-Whitney U test. All data was presented as median +/- interquartile range. A value of $p < 0.05$ was statistically significant.

Results

Relative gene expressions were calculated as median and compared between the patient's cancerous and precancerous tissue. The results showed that all genes were down-regulated. ZEB1 gene expression had a median of 0.3 with a p-value of <0.001 and ZEB2 gene expression had a median of 0.03 with a p-value of 0.044. Since the p-value is not greater than 0.05, these results suggest that these markers are statistically significant. Although the median was lower, 3

out of 13 patients still had increased ZEB1 expression, which would further allow us to group patients according to ZEB1 expression and look for clinical aspects in one or the other study group. Other markers such as SNAIL, SLUG, and TWIST were not statistically significant as their $p>0.05$.

Conclusions

Our results suggest that the expression of transcription factors responsible for EMT has been decreased, indicating EMT has already occurred in cancerous tissues. However, expression of ZEB1 was increased in 3 pancreatic cancer patients in comparison to other 10. This would allow us to group patients according to ZEB1 expression and look for clinical aspects in one or the other study group for future analysis.

References

1. Nakaoka K, et al. Current Status of the Diagnosis of Early-Stage Pancreatic Ductal Adenocarcinoma. Diagnostics. 2023; 13(2):215.
2. Kaşıkcı E, et al. Inhibition of Migration, Invasion and Drug Resistance of Pancreatic Adenocarcinoma Cells - Role of Snail, Slug and Twist and Small Molecule Inhibitors. Onco Targets Ther. 2020 Jun 18; 13:5763-5777.
3. Liu M, et al. Zinc-Dependent Regulation of ZEB1 and YAP1 Coactivation Promotes Epithelial-Mesenchymal Transition Plasticity and Metastasis in Pancreatic Cancer. Gastroenterology. 2021 Apr;160(5):1771-1783.e1.

Impact of a phytobiotic preparation derived from the *Macleaya cordata* plant on the nutritional and sensory properties of pork

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Introduction

Due to its rapid development and continuous rate of food conversion, pork is in high demand all over the world. However, the primary concern for producers, researchers, and consumers is to obtain not only healthier pork, but also qualitatively more nutritious production (1,2). This demand has sparked an increased interest in natural-originated pig feed supplements that could improve the health and productivity of the animals as well as the quality of the meat. One of those natural feed supplements is phytobiotics, which are bioactive substances isolated from plants or algae that potentially have antibacterial, anti-inflammatory, and antioxidant effects. The plant *Macleaya cordata* (*M. cordata*) belongs to the *Papaveraceae* family and bears significant amounts of alkaloids, including phenolic acids, protopine, allocryptopine, sanguinarine, and chelerythrine (3). Previously conducted research shows that feed supplementation with *M. cordata* can improve pig growth performance (4), the immune resistant levels of animals (5,6), and the diarrhoea score (7). However, limited data is available on its effect on the sensory and textural properties of pork.

Aim

The aim of this study was to investigate the impact of *M. cordata* inclusion in feed on the sensory and textural properties of pork.

Methods

The feeding trial included 52 45-day-old fattening pigs (Landrace x Yorkshire (mother) and Piétrain x Durok (father)) randomly assigned to two treatment groups (n = 26 pigs/group): the BD group, which received a basal diet, and the MC group, which received a BD supplemented with *M. cordata* via water at a rate of 50 g/m3. At the end of the feeding trial (153-day-old) and sample collection post-mortem (n = 6 *longissimus dorsi* muscles/group), the sensory profile test was applied (n = 6 evaluators). The evaluation was carried out in accordance with the requirements of LST ISO 8589. A modified methodology described by Baublits et al. (8) was used for sample preparation. The samples were prepared (2 x 2 cm pieces) and sealed in cooking bags before immersing in boiling water for 35 min. at 80°C. The texture properties of the samples were evaluated with a universal texture analyser Instron 3343 (Instron Engineering Group, High Wycombe, UK). The texture profile analysis assessed the hardness and elasticity of boiled pork samples. Data analysis was performed by SPSS for Windows, version 25.0 (IBM Corp., Released 2017, Armonk, NY, USA).

Results

The results of evaluating the odour features of boiled pork revealed that *M. cordata* had no significant effect on the general intensity of odour, pork odour, or additional sour odour ($P>0.05$). The same trend was observed when evaluating the flavour of boiled pork, as no significant differences were found between the BD and MC treatments ($P>0.05$). All the samples tested had a distinct flavour of pork with no aftertaste. Overall, evaluators found the odour, flavour, and colour characteristics of boiled pork from both treatments to be equally acceptable. Therefore, *M. cordata* inclusion significantly affected some of the texture properties of boiled pork: lower firmness by 0.83 points, elasticity by 0.50 points, and chewiness by 0.50 points, compared to BD ($P<0.05$).

Conclusions

The presence of *M. cordata* in pig water had no effect on the sensorial properties of odour, flavour, or colour. Therefore, this kind of plant-based natural feed additive can significantly improve the textural properties of the boiled pork by reducing firmness, elasticity, and chewiness, which could be more desirable for pork consumers.

References

1. Valaitienė V, Stanytė G, Klementavičiūtė J, Jankauskas A. Nutritional value of and element content in meat from various pig breeds. Animal Science Papers and Reports 2017;35(4):419.
2. Karmaus AL, Jones W. Future foods symposium on alternative proteins: Workshop proceedings. Trends in Food Science & Technology 2021;107:124-129.
3. Huang P, Zhang Y, Xiao K, Jiang F, Wang H, Tang D, et al. The chicken gut metagenome and the modulatory effects of plant-derived benzylisoquinoline alkaloids. Microbiome 2018;6(1):211.
4. Kantas D, Papatsiros VG, Tassis PD, Athanasiou LV, Tzika ED. effect of a natural feed additive (Macleaya cordata), containing sanguinarine, on the performance and health status of weaning pigs. Animal science journal 2015;86(1):92-98.
5. Guo S, Lei J, Liu L, Qu X, Li P, Liu X, et al. Effects of Macleaya cordata extract on laying performance, egg quality, and serum indices in Xuefeng black-bone chicken. Poultry science 2021;100(4):101031.
6. Xia X, Liu G, Wu X, Cui S, Yang C, Du Q, et al. Effects of Macleaya cordata extract on TLR20 and the proinflammatory cytokines in acute spleen injury of loach (Misgurnus anguillicaudatus) against Aeromonas hydrophila infection. Aquaculture 2021;544:737105.
7. Ni H, Martínez Y, Guan G, Rodríguez R, Más D, Peng H, et al. Analysis of the Impact of Isoquinoline Alkaloids, Derived from Macleaya cordata Extract, on the Development and Innate Immune Response in Swine and Poultry. BioMed Research International 2016;2016:1352146-7.
8. Baublits RT, Meullenet J-, Sawyer JT, Mehaffey JM, Saha A. Pump rate and cooked temperature effects on pork loin instrumental, sensory descriptive and consumer-rated characteristics. Meat science 2006;72(4):741-750.

Changes of IL-1b and IL-6 genes expression in peripheral blood mononuclear cells of pancreatic cancer patient's

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Introduction

The World Health Organization, based on 2020 statistics, presented that pancreatic ductal adenocarcinoma (PDAC) was still one of the deadliest cancers, with a 5-year survival rate of about 5% (1). Cancer therapies that incorporate immunotherapy-based techniques have become increasingly common in recent years. IL-1b and IL-6 are members of the cytokine family, with a pivotal role in the activation and regulation of immune response and progression of cancer. IL-1b produced by M1 macrophages, has antitumoral properties and helps to activate cytotoxic T cells, which can induce cancer cell apoptosis (2). Also, IL-1b helps in differentiation of CD4+ cells with a focus on Th17 and Th9 cells (3). IL-6 has opposite functions, this anti-inflammatory cytokine induces proliferation of immune suppressive cells (4). Moreover, IL-6 protects cancer cells from therapy-induced DNA damage, oxidative stress and apoptosis by facilitating the repair and induction of countersignaling pathways (5). Nevertheless, pro-inflammatory IL-6 function induces M1 type macrophage polarization. Higher M1 infiltration into tumor means better prognosis for survival (6).

Aim

The purpose of this research was to study if and how IL-1b and IL-6 gene expression were different of cancer patients compared with healthy control.

Methods

Main material of this study was peripheral blood obtained from PDAC patients and healthy controls (HC). The mean age of PDAC patients was 67,7 years, including 12 women and 12 men. The mean age of HC was 50,2 years, including 20 women and 1 man. Blood was taken for the study before surgery or biopsy. The patients did not receive chemotherapy before this study, the diagnosis was confirmed histologically after medical intervention. RNA extraction from peripheral blood mononuclear cells PBMC was performed using the RNA extraction kit. Purified RNA was quantified and assessed for purity by spectrophotometry. cDNA was generated from 2μg of RNA with High-Capacity cDNA Reverse Transcription Kit. The amplification of specific RNA was performed in a 20μl reaction mixture containing 2μl of cDNA template, 1X PCR master mix, and the primers. Multiplex enzyme-linked immunosorbent assay was used to measure IL-1b and IL-6 concentrations in sera. Statistical analysis was performed using GraphPad software and data presented as medians.

Results

Expression of target genes data showed that both measured cytokines decreased significantly in PBMC from pancreatic cancer (PC) patients (IL-1b: HC mRNA median was 0,958, PC - 0,175, p=0,0006; IL-6: HC - 1,003, PC - 0,272, p=0,0022). IL-1b and IL-6 mRNA expression correlation was strong and positive among PDAC patients (r=0,89), as well as in PDAC and HC combined (r=0,93). Luminex assay showed higher concentration of IL-6 (IL-6: HC – 35,25pg/ml, PC –

43,75pg/ml, p=0,0035) in PC patients' sera than in HC, IL-1b (IL-1b: HC – 120pg/ml, PC – 119,5pg/ml p>0,05) concentration did not differ significantly from control.

Conclusions

Correlation data in IL-1b vs IL-6 showed a very strong association between these measured cytokines. High levels of IL-6 in patients sera confirmed inflammatory background, however significant decrease of the target cytokines mRNA expression showed PBMC function disbalance. This study is a small part of an international project to elucidate fundamental differences in the immune response between pancreatic cancer patients and healthy controls. In future studies, we will look for ways to restore the lost antitumor response in individual cases.

References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021 Feb 04;71(3):209-249. doi: 10.3322/caac.21660.
2. Van Dalen FJ, Van Stevendaal MHME, Fennemann FL, Verdoes M, Ilina O. Molecular Repolarisation of Tumour-Associated Macrophages. Molecules. 2018 Dec 20;24(1):9. doi 10.3390/molecules24010009
3. Vargas TR, Martin F, Apetoh L. Role of interleukin-1-family cytokines on effector CD4 T cell differentiation. World J Immuno. 2017 Jul 27;7(2):24-31. doi 10.5411/wji.v7.i2.24
4. Tan, E., El-Rayes, B. Pancreatic Cancer and Immunotherapy: Resistance Mechanisms and Proposed Solutions. J Gastrointest Canc. 2019 Mar 19;50(1):1-8 (2019). doi: 10.1007/s12029-018-0179-z
5. Kumari, N., Dwarakanath, B.S., Das, A. et al. Role of interleukin-6 in cancer progression and therapeutic resistance. Tumor Biol. 2016 Jun 03;37(9):11553–11572. doi 10.1007/s13277-016-5098-7
6. Li Y, Wang J, Wang H, Zhang S, Wei Y, Liu S.. The Interplay Between Inflammation and Stromal Components in Pancreatic Cancer. Front Immunol. 2022 Apr 14;13:1664-3224. doi: 10.3389/fimmu.2022.850093

IHS Conference

Neurosciences: Neurology, Neurosurgery, Psychiatry

Associations between mental disorders and obesity in the general population: a systematic literature review

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Introduction

An important association exists between obesity and mental illness that impacts all aspects of an individual's quality of life [1]. Across a variety of mental diseases, such as major depressive disorder (MDD), bipolar disorder, schizophrenia, and anxiety disorders, obesity rates are higher than average. Although the issue of obesity is commonly recognized in mental health study and treatment, a comprehension of their reciprocal link is still being developed.[2]. Adults who are obese can experience stigmatization, poor body image, which increase their vulnerability to mental disorders [3].

Aim

The aim of this review is to evaluate associations between mental disorders and obesity in the general population.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with keywords “obesity”, “mental illness” was performed up to December 22nd, 2022, in PubMed, Google Scholar databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 122 results, only those which identified the associations between mental disorders and obesity in the general population were collected. Selection criteria were applied, and 42 studies were selected for full-text analysis, 13 of them were included in this review.

Results

A number of cross-sectional studies found modest associations between obesity and any mood disorder. Most prospective studies on obesity and psychopathology focused on MDD and again this association has been positive, especially in adolescents [4]. According to the World Health Organization globally around 17% of adolescents are overweight-obese. They can express more weight concern and more dissatisfaction with their body image than normal weight adolescents. Also, more depressive symptoms can occur [5]. While individual studies differ in outcome, the

overall impression is that for most common or severe mental disorders, an association between psychopathology and obesity exists [4,6]. The relationship between obesity and depression is bi-directional: individuals with depression have a 50% higher risk of developing obesity and, conversely, people with obesity have an increased risk of developing depressive symptoms [7]. Recent study showed that individuals with severe obesity spent most of their time in daily living activities and less time in work, recreation, and rest activities than did a non-obese population [8]. Depressive symptoms then interfere with a person's ability to engage in healthy activities such as good nutrition or physical activity, compounding the burden of both illnesses [6]. Investigations into the effect of weight loss on mental health outcomes have primarily investigated its effect on depressive symptoms. In a study on obese participants suffering from post-traumatic stress disorder (PTSD), weight loss after a 16-week weight loss intervention was associated with a significant decline in PTSD and depressive symptoms [9]. Four studies have linked obesity to any anxiety illness, including panic disorder and generalized anxiety disorder [10,11,12,13].

Conclusions

Obesity and psychopathology have a well-established bidirectional relationship. Findings indicate that mental disorders occurs more frequently in obese/overweight people compared with normal weight people.

References

1. Valerie H. Taylor, Mary Forhan, Simone N. Vigod, Roger S. McIntyre, Katherine M. Morrison, The impact of obesity on quality of life, Best Practice & Research Clinical Endocrinology & Metabolism, Volume 27, Issue 2, 2013, Pages 139-146, ISSN 1521-690X.
2. Lopresti, A. L., & Drummond, P. D. (2013). Obesity and psychiatric disorders: commonalities in dysregulated biological pathways and their implications for treatment. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 45, 92-99.
3. HARIKHA, Igha Vinda; FISCM, Royke Tony Kalalo MD SpKJ K. Adolescent obesity and risk of mental disorder. International Journal of Child and Adolescent Health, 2021, 14.1: 31-38.
4. Abiri, B., Hosseinpanah, F., Banihashem, S., Madinehzad, S. A., & Valizadeh, M. (2022). Mental health and quality of life in different obesity phenotypes: a systematic review. Health and Quality of Life Outcomes, 20(1), 1-14.
5. Sagar, R., & Gupta, T. (2018). Psychological aspects of obesity in children and adolescents. The Indian Journal of Pediatrics, 85, 554-559.
6. Julieta Schachter, Jan Martel, Chuan-Sheng Lin, Chih-Jung Chang, Tsung-Ru Wu, Chia-Chen Lu, Yun-Fei Ko, Hsin-Chih Lai, David M. Ojcius, John D. Young, Effects of obesity on depression: A role for inflammation and the gut microbiota, Brain, Behavior, and Immunity, Volume 69, 2018, Pages 1-8, ISSN 0889-1591, https://doi.org/10.1016/j.bbi.2017.08.026.
7. Y.S. Woo, H.J. Seo, R.S. McIntyre, W.M. Bahk Obesity and its potential effects on antidepressant treatment outcomes in patients with depressive disorders: a literature review Int. J. Mol. Sci., 17 (2016), p. 80.
8. Papadopoulos S, Brennan L. Correlates of weight stigma in adults with overweight and obesity: a systematic literature review. Obesity. 2015;23:1743–60.

9. K. Deliopoulou, A. Konsta, S. Penna, P. Papakostas, K. Kotzampassi. The impact of weight loss on depression status in obese individuals subjected to intragastric balloon treatment. Obes Surg (2013), 10.1007/s11695-012-0855-1.
10. Ejike CE. Association between anxiety and obesity: A study of a young-adult Nigerian population. J Neurosci Rural Pract. 2013;4(Suppl 1):S13–8.
11. Guedes EP, Madeira E, Mafort TT, Madeira M, Moreira RO, Mendonça LM, et al. Body composition and depressive/anxiety symptoms in overweight and obese individuals with metabolic syndrome. Diabetol Metab Syndr. 2013;23:5–82.
12. Lindberg, L., Hagman, E., Danielsson, P., Marcus, C., & Persson, M. (2020). Anxiety and depression in children and adolescents with obesity: a nationwide study in Sweden. BMC medicine, 18(1), 1-9.
13. R. Dent, A. Blackmore, J. Peterson, et al. Changes in body weight and psychotropic drugs: a systematic synthesis of the literature PLoS One, 7 (6) (2012), p. e36889.

Job burnout among healthcare professionals - how to spot it and take action: a systematic review

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Introduction

Approximately, one in three physicians is experiencing job burnout (JB) at any given time. This may not only interfere with own wellbeing but also with the quality of delivered care [1,2]. Recognizing indicators for JB and addressing these issues on profession-wide levels may help to improve healthcare provider satisfaction and fulfillment [3]. Stress management programs that range from relaxation to cognitive-behavioral and patient-centered therapy have been found to be of utmost significance when it comes to preventing and treating JB [4].

Aim

To review the most relevant publications about how healthcare professionals should spot job burnout and what actions need to be taken to reduce and relieve its symptoms.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “job burnout”, “burnout syndrome among healthcare professionals” was performed up to December 18th, 2022, in PubMed, Google Scholar

databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 152 results, only those which identified how healthcare professionals should spot JB and what actions need to be taken to reduce its symptoms, were collected. Selection criteria were applied, and 21 studies were selected for full-text analysis, 10 of them were included in this review. The titles and abstracts were analyzed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

Building on foundational work by Maslach [5], researchers have described burnout as a combination of emotional exhaustion, depersonalization, and low personal accomplishment caused by the chronic stress of medical practice [6]. In the research literature JB is measured by assessing some combination of these 3 subcomponents [7]. So in order to recognize JB at work, healthcare professionals (HP) need to recognize these subcomponents first.
Some studies have found that burnout among HP is associated with lower patient satisfaction and decreased professional work effort.
Burnout syndrome is increasingly recognized among HP, with the Agency for Healthcare Research and Quality estimating that burnout may affect 10–70% of nurses and 30–50% of physicians [8]. Studies suggest that the prevalence of JB among residents ranges between 50 and 76% [4].
Few studies have suggested that Balint sessions can have a positive effect in preventing JB, moreover exercises can reduce exhaustion symptoms while improving the mental and physical well-being of HP. Occupational interventions in the work settings can also improve the emotional and work-induced exhaustion [9]. Combining individual and organizational interventions can significantly lower HP burnout levels; therefore, multidisciplinary actions that include changes in the work environmental factors along with stress management programs that teach people how to cope better with stressful events showed promising solutions to manage JB [10].

Conclusions

Burnout among healthcare professionals might cause reduced patient satisfaction and decreased professional work effort.
Multidisciplinary interventions that alter the workplace environment and stress management education that shows workers how to cope with stressful situations better can help control burnout.

References

1. Kim MH, Mazenga AC, Simon K, et al.. Burnout and self-reported suboptimal patient care amongst health care workers providing HIV care in Malawi. PLoS One. 2018;13(2):e0192983. doi: 10.1371/journal.pone.0192983
2. Saijo Y, Chiba S, Yoshioka E, et al.. Job stress and burnout among urban and rural hospital physicians in Japan. Aust J Rural Health. 2013;21(4):225-231. doi: 10.1111/ajr.12040.
3. Bridgeman, P. J., Bridgeman, M. B., & Barone, J. (2018). Burnout syndrome among

healthcare professionals. The Bulletin of the American Society of Hospital Pharmacists, 75(3), 147-152.
4. Romani M, Ashkar K. Burnout among physicians. Libyan J Med. 2014 Feb 17;9(1):23556. doi: 10.3402/ljm.v9.23556. PMID: 24560380; PMCID: PMC3929077.
5. Maslach C, Jackson SE, Leiter MP. Maslach Burnout Inventory Manual. 4th ed Menlo Park, CA: Mind Garden Inc; 2016.
6. Friganović A, Selič P, Ilić B, Sedić B. Stress and burnout syndrome and their associations with coping and job satisfaction in critical care nurses: a literature review. Psychiatr Danub. 2019 Mar;31(Suppl 1):21-31. PMID: 30946714.
7. Shanafelt TD, Mungo M, Schmitgen J, et al.. Longitudinal study evaluating the association between physician burnout and changes in professional work effort. Mayo Clin Proc. 2016;91(4):422-431. doi: 10.1016/j.mayocp.2016.02.001
8. Shanafelt TD, Sonja B, Litjen T, Dyrbye LN, Sotile W, Daniel S, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. JAMA Intern Med. 2012;172:1377–85.
9. Gunthner A, Batra A. Prevention of burnout by stress management. Bundegesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2012;55:183–9.
10. Skodova Z, Lajciakova P. The effect of personality traits and psychosocial training on burnout syndrome among healthcare students. Nurse Educ Today. 2013;33:1311–15.

Experience of lumbar puncture in inpatient and outpatient settings

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Introduction

Diagnostic lumbar puncture (LP) is one of the most performed invasive tests in clinical medicine [1]. Even with advanced neuroimaging methods, LP is still essential diagnostic tool since cerebrospinal fluid (CSF) analysis offers significant diagnostic data for a variety of neurological disorders [2]. Although LP is a generally safe procedure, complications can occur despite the use of good technique and standard infection control measures [3].

Aim

The aim of this study was to assess the experience of lumbar puncture in inpatient and outpatient settings.

Methods

A retrospective study was conducted on 45 patients. An anonymous questionnaire was used to evaluate patient' perspective of lumbar puncture procedure in inpatient and outpatient settings. Responses were obtained from February to December 2022. Analysis was performed using SPSS 22.0 software package. A statistically significant difference was defined when $p<0.05$.

Results

A total of 45 patients who received LP were enrolled, including 66.7% inpatients and 33.3% outpatients. More than a half (68.9%) of patients were females. Mean age was 55.66 years (±20.53). All LP were for diagnostic purposes. Among all outpatients, lumbar puncture was most often performed due to dementia (40%), and among all inpatients due to demyelinating central nervous system disease (26.7%). More than a half (57.8%) of patients reported mild pain at the site of lumbar punction injection. Remaining part of patients (15.6%) reported moderate or severe pain.

The majority (71.1%) of patients assumed that LP is routine medical procedure. Remaining part of patients (26.7%) determined that it is complicated procedure, ($p = 0.57$).

Before LP procedure 60% of all patients declared that they did not experienced anxiety (56.7% inpatients vs 66.7% outpatients). Remaining part of patients (28.9%) experienced stress about LP (43.3% inpatients vs 13.3% outpatients, $p = 0.642$).

The most common post-lumbar procedure inconvenience was stress and anxiety (51.1%). There was no significant difference between inpatient and outpatient settings ($p = 0.292$). About one quarter (26.7%) of patients (36.6% inpatients vs 6.7% outpatients) reported difficulties and impairment of life routine because of LP ($p = 0.032$). Post-lumbar headache developed to 36.6% of hospitalized patients and 6.7% of ambulatory patients ($p = 0.032$). Pain and paresthesia reported 40% inpatients and 6.7% outpatients ($p = 0.02$). There was no significant difference between gender and post-lumbar procedure inconvenience.

Conclusions

Both outpatient and inpatient lumbar puncture procedure experiences were similar. However, inpatients had more complaints about the disruption of their daily routine. Furthermore, inpatients more often experienced headaches, pain and paresthesia after the procedure than outpatients.

References

1. Carolynne M Doherty, Raeburn B Forbes. Diagnostic Lumbar Puncture. Ulster Med J. 2014;83(2):93-102.
2. Sebastiaan Engelborghs, Ellis Niemantsverdriet, Hanne Struyfs, Kaj Blennow, Raf Brouns, Manuel Comabella, Irena Dujmovic, Wiesje van der Flier, Lutz Frölich, Daniela Galimberti et al. Consensus guidelines for lumbar puncture in patients with neurological diseases. Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring 8 (2017) 111-126.
3. Kimberly S Johnson, Daniel J Sexton. Lumbar puncture: Technique, indications, contraindications, and complications in adults. UpToDate. 2022. Available from: https://www.uptodate.com/contents/lumbar-puncture-technique-indications-contraindications-and-complications-in-adults.

Prevalence of stress-related exhaustion disorder symptoms among Lithuanian University of Health Sciences medical students

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Introduction

In 2010, stress-related exhaustion disorder (ED) was introduced as medical diagnosis by the Swedish National Board of Health and Welfare [1]. Stress-related ED is a clinical condition characterized by various psychological and physical symptoms of exhaustion developed in response to long-term psychosocial stress [2]. The main cause of exhaustion disorder is one or more stressors that persist for at least six months, more often it is work-related stress compared to another source of stress, such as personal life circumstances [1].

Aim

To assess the prevalence of stress-related exhaustion disorder symptoms among Lithuanian University of Health Sciences medical students and to determine the relationship between experiencing stress-related exhaustion disorder and students' academic features.

Methods

The study was approved by the Bioethics center of Lithuanian University of Health Sciences (BEC-MF-102). The method of the research was based on a survey-observational study. The online questionnaire was shared online among groups of Lithuanian University of Health Sciences medical students. Statistical analysis was performed using the data collection and analysis software package SPSS 22. Statistical significance - $p<0.05$.

Results

There were 100 1st – 6th year medical students who participated in the survey, response rate - 100/584. Mean age was 22.16 (±2.21) years. Mean academic average were 8.48 (±0.87) - the highest was set among 6th year students – 8.86 and the lowest among 3rd year students – 8.0 ($p=0.005$). Most respondents claimed about the following stress-related ED symptoms during the last 2 weeks: impaired concentration (77%; n=77), difficulty in completing tasks on time and controlling time (64%; n=64), emotional instability (69%; n=69), sleep disorders (53%; n=53),

physical fatigue (55%; n=55), impaired memory (43%; n=43). During the study stress-related ED symptoms were divided into physical symptoms, psychological fatigue and with psychological fatigue related symptoms. Most common physical symptoms related to stress-related ED were gastrointestinal disorders (59%; n=59) and head dizziness (52%; n=52). Majority of respondents (88%; n=88) felt psychological fatigue and experience related symptoms: decreased initiative (83%; n=73), increased recovery time from stress (78.4%; n=69) and decreased endurance (64.8%; n=57). For many (85.2%; n=75) psychological fatigue lasts 2 weeks or longer and statistically significant difference between a higher academic average and longer duration of psychological fatigue was established (p=0.003). Higher academic average was related with more frequent emotional instability (p=0.047). Decreased endurance was mostly reported by 4th year students (p=0.036). 3rd year students more often reported no symptoms (p=0.026).

Conclusions

The most common stress-related ED symptoms were impaired concentration, difficulty in completing tasks on time and controlling time, emotional instability, physical symptoms, psychological fatigue and with psychological fatigue related symptoms. Stress-related ED symptoms are equally common between students of different study course. Decreased endurance was more often reported by 4th year students and 3rd year students were more likely to have no symptoms. However, regardless of the course of study, higher academic average is associated with longer duration of psychological fatigue and more frequent emotional instability.

References

1. Adamsson A, Bernhardsson S. Symptoms that may be stress-related and lead to exhaustion disorder: a retrospective medical chart review in Swedish primary care. BMC Family Practice. 2018 Oct 30;19(1).
2. Grossi G, Perski A, Osika W, Savic I. Stress-related exhaustion disorder - clinical manifestation of burnout? A review of assessment methods, sleep impairments, cognitive disturbances, and neuro-biological and physiological changes in clinical burnout. Scandinavian Journal of Psychology. 2015 Oct 23;56(6):626–36.

Dementia and benzodiazepine use patterns

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Introduction

Lithuanian Institute of Hygiene informs that in 2021, drugs affecting nervous system were second most used drug group in Lithuania [1]. Although this drug group is frequently prescribed for management of anxiety disorders, insomnia in elderly people, there is strong evidence that long-term drug use adversely affects cognitive function which causes worsening of dementia symptoms, increases risk of falls, hospitalization [2-4]. Benzodiazepines have been also found to be one of pharmacological classes most frequently involved in drug interactions for elderly people and there are no differences in strength of adverse effects in-between the use of short or long half-life benzodiazepines [5].

Aim

To analyze patterns of benzodiazepine consumption in patients with dementia.

Methods

A retrospective analysis of patients, treated in the Department of Family medicine, Kaunas Lithuanian University of Health Sciences Hospital from 2017 to 2022 was performed. Study population of people who were diagnosed with dementia including ICD-10 diagnoses F00-F03 was selected. There were 129 cases analyzed. Collected data include age, sex, benzodiazepine and dementia drug consumption, their amount, usage frequency. Drug interactions were analyzed with ”Lexicomp” program. Descriptive observational study was performed. Statistical analysis was performed using Excel and IBM SPSS Statistics 29 software. Descriptive analysis methods were used to analyze collected data and demographic statistics. For nonparametric statistics a Kruskal-Wallis and Spearman correlation tests were performed. Results with values of $p < 0.05$ considered statistically significant.

Results

The mean of patient age was 83.64 (SD = 8.9). Among the patients there were 78 % women, 22 % men. Unspecified dementia were diagnosed of 49 % of all patients, vascular dementia – for 32 %. We found that in this study population 32 % of the subjects were taking benzodiazepines. They were prescribed to 36 % of all men and 31% of all women. Patterns of benzodiazepine use by men and women were statistically significantly similar ($p<0.05$). Benzodiazepines were mostly used by patients with unspecified dementia and vascular dementia: 50 % and 31 % respectively. Highest benzodiazepine dosage was prescribed to the patients with unspecified dementia and dementia with Alzheimer’s disease diagnoses ($p<0.05$). Bromazepam was prescribed most often and used by 47 % of all benzodiazepine drug group users followed by lorazepam and diazepam that were used by 26 % and 13 % of the patients respectively. Only with benzodiazepine group drugs were treated 25 % of all the patients. Moderately severe drug interactions in-between all medications involved in this study have been found for 81 % of used drug combinations, severe interactions - for 3 %. The use of benzodiazepines significantly increases the possibility of drug interactions (correlation coefficient 0.804, $p<0.05$). Overall, no interactions have been detected for 16 % of drug combinations where memantine or donepezil were prescribed.

Conclusions

Our results show that one third of patients with diagnosed dementia were prescribed benzodiazepine group drugs. Drug interactions were statistically significantly higher in patients that were using benzodiazepines. Gender had no influence in benzodiazepines usage patterns. Out of all dementia medications that were analyzed only memantine and donepezil have had no interactions with other prescribed medication including benzodiazepines.

References

1. Health Information Centre of Institute of Hygiene. Drug consumption 2021. Vilnius; 2022.
2. Picton JD, Brackett Marino A, Lovin Nealy K. Benzodiazepine use and cognitive decline in the elderly. American Journal of Health-System Pharmacy. 2018 Jan 1 (cited 2023 Jan 10);75(1):e6–12. Available from: https://academic.oup.com/ajhp/article/75/1/e6/5101926
3. Torres-Bondia F, Dakterzada F, Galván L, Buti M, Besanson G, Grill E, et al. Benzodiazepine and Z-Drug Use and the Risk of Developing Dementia. International Journal of Neuropsychopharmacology. 2022 Apr 19 (cited 2023 Jan 10);25(4):261–8. Available from: https://academic.oup.com/ijnp/article/25/4/261/6417179
4. Lucchetta RC, da Mata BPM, Mastroianni P de C. Association between Development of Dementia and Use of Benzodiazepines: A Systematic Review and Meta-Analysis. Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy. 2018 Oct 1 (cited 2023 Jan 10);38(10):1010–20. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/phar.2170
5. Forgerini M, Schiavo G, Lucchetta RC, Mastroianni P de C. Drug interactions for elderly people with mental and behavioral disorders: a systematic scoping review. Arch Gerontol Geriatr. 2021

Computational fluid dynamics modelling and automatic classification of healthy human cerebral ventricular system components

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Introduction

Nowadays, Computational Fluid Dynamics (CFD) is becoming a viable tool in applied medical research, including research on the dynamics of cerebrospinal fluid (CSF) flow in human cerebral ventricular system (CVS) and subarachnoid space (SAS). To analyse the CSF flow dynamics, a classification of the anatomical regions of CVS is needed. Manual classification of human CVS is an extremely time-consuming procedure. To make this classification faster, a few semi-automatic or automatic classification methods have been proposed, such as multi-atlas label fusion method [1-3] and methods that use deep neural network [4-6]. We propose a novel approach for automatic classification of human cerebral ventricles that is based on the numerical modelling of CSF flow through the CVS.

Aim

To develop a novel, automatic method for classifying parts of healthy human cerebral ventricular system that would be easy to implement and use for the CSF flow analysis.

Methods

The segmented anatomical models of 20 healthy human brains were taken from the BrainWeb database [7]. From these models, an extremely fine surface meshes of CVS and SAS was generated using 3D Slicer software. From these surface meshes, volumetric meshes were generated, and the CSF flow was numerically solved using CFD software (COMSOL Multiphysics). Eventually, the cranial CSF flow pathways, pressure and velocity fields were obtained. Then, the histograms were generated by accumulating the volume of the computational mesh elements based on their pressure value. The histogram data was exported as a pressure/volume table and was used in our specific algorithm that returned critical pressure values allowing the classification of the ventricular system.

Results

Automatic classification of lateral ventricles, third ventricle, aqueduct of Sylvius and fourth ventricle of the brain were performed for all 20 subjects from the BrainWeb database. Upon the visual inspection, it was concluded that classifications were successful and meaningful. Later on, these automatically filtered out ventricular volumes were compared with volumes acquired from manual classification performed by an expert radiologist. The congruence between the volumes obtained by our method and by the expert radiologist for lateral and third ventricles were 99% and 95%, respectively. For the aqueduct of Sylvius, the congruence of volumes was near 90%, while the fourth ventricle had the least congruence of about 75-80 %. All volumes for the fourth ventricle were about 20-25% too large, which suggests a systematic error that should be addressed in the future.

Conclusions

We have developed a novel method for automatic classification of a healthy human cerebral ventricles that uses computational modelling of CSF flow. A good agreement was obtained between most of our and an expert classified CVS volumes. The resulting systematic error of the fourth ventricle classification should be addressed in the future. Upon improvements, our automatic CVS classification method could be used for practical applications, especially in the post-processing of CSF flow dynamics in the human brain.

References

1. Ledig C, Heckemann RA, Hammers A, Lopez JC, Newcombe VFJ, Makropoulos A, et al. Robust whole-brain segmentation: application to traumatic brain injury. Medical Image Analysis. 2015 Apr 1;21(1):40–58.
2. Doshi J, Erus G, Ou Y, Resnick SM, Gur RC, Gur RE, et al. MUSE: MUlti-atlas region Segmentation utilizing Ensembles of registration algorithms and parameters, and locally optimal atlas selection. Neuroimage. 2016 Feb 2;127:186-195.
3. Manjón J V., Coupé P. volBrain: An Online MRI Brain Volumetry System. Frontiers in Neuroinformatics. 2016 Jul 27;10:30.
4. Huff TJ, Ludwig PE, Salazar D, Cramer JA. Fully automated intracranial ventricle segmentation on CT with 2D regional convolutional neural network to estimate ventricular volume. International Journal of Computer Assisted Radiology and Surgery. 2019 Nov 1;14(11):1923–32.
5. van Doormaal JAM, Fick T, Ali M, Köllen M, van der Kuijp V, van Doormaal TPC. Fully Automatic Adaptive Meshing Based Segmentation of the Ventricular System for Augmented Reality Visualization and Navigation. World Neurosurgery. 2021 Dec 1;156:e9–24.
6. Shao M, Han S, Carass A, Li X, Blitz AM, Shin J, et al. Brain ventricle parcellation using a deep neural network: Application to patients with ventriculomegaly. NeuroImage Clinical. 2019 Jan 1;23:101871.
7. BrainWeb: 20 Anatomical Models of 20 Normal Brains. Available from: https://brainweb.bic.mni.mcgill.ca/anatomic_normal_20.html

Prognostic factors and their influence on outcomes of patients with severe traumatic brain injury

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Introduction

According to provided data from Lithuanian Institute of Hygiene in 2021, external causes were fourth in all leading causes of death in Lithuania [1]. Despite treatment and rehabilitation effort, it remains a leading cause of death, disability worldwide [2]. Prognostic factors, such as alcohol consumption, coagulopathy are linked with increased mortality, decreased positive outcomes in traumatic brain injury patients [3]. Unfavorable outcomes range from 29 to 100 % [4].

Aim

To investigate prognostic factors and their influence on outcomes of patients with severe traumatic brain injury.

Methods

A retrospective analysis of patients, treated in the Department of Neurosurgery, Kaunas Lithuanian University of Health Sciences Hospital from 2020 to 2021 was done. Study population of people who experienced severe traumatic brain injury was selected. Traumatic brain injury is classified as severe when Glasgow Coma Scale (GCS) score is ≤ 8 at the time of hospitalization. There were 129 cases analyzed. Outcome was assessed by Glasgow Outcome Score (GOS) at the time of discharge from the hospital. Outcome was classified as poor when GOS was 1-3, favorable – from 4 to 5. Blood coagulation was assessed as pathological when admission blood plasma platelet count was < 152 x 109/l, SPA activity < 70 %, INR > 1.2. Alcohol consumption was documented when admission breathalyzer result was above 0.0 ‰. Demographic and clinical parameters such as age, sex, alcohol consumption, clinical and laboratory assessment, complications were collected. Statistical analysis was done using MS Excel, IBM SPSS Statistics 29 software. Descriptive analysis methods were used to analyze collected data. Differences between variables were compared using χ2 test, Mann-Whitney-U test. Level of statistical significance as $p < 0.05$ was chosen.

Results

The mean of age of patients in this study was 59.9 (SD = 15.8) years. Males were dominant part of study group (77.5 % vs. 22.5 %). Alcohol consumption at the time of trauma was documented in 26 % of all cases. Alcohol consumption have had no significant impact on poor outcomes (GOS 1-3 alcohol consumption group 76.5 % vs. non-alcohol consumption group 87.3 %) ($\chi^2 = 2.270$; df= 1; p=0.132). Coagulopathy have been detected in 28 % of patients. They were linked with higher mortality rates (mortality of patients with coagulopathy reached 58.3 % vs. patients without coagulopathy 23.6 %) ($\chi^2 = 14.044$; df= 1; $p<0.01$) and poor outcomes (GOS 1-3 were 97.2 % vs. 79.6 %) ($\chi^2 = 6.173$; df= 1; p=0.013). Admission blood plasma sodium, hemoglobin counts had no significant impact on outcomes ($p>0.05$). Overall fatal outcomes have been recorded in 33.3 % cases, poor and favorable in 84 % and 16 % respectively.

Conclusions

One-fourth of the patients have had coagulopathy and associated higher mortality, poor outcome rates. Alcohol consumption at the time of trauma, admission blood plasma sodium, hemoglobin counts did not significantly affect the outcomes.

References

1. Higienos instituto Sveikatos informacijos centras Health Information Centre of Institute of Hygiene Mirties priežastys. [cited 2023 Jan 13]; Available from: www.hi.lt
2. Rakhit S, Nordness MF, Lombardo SR, Cook M, Smith L, Patel MB. Management and Challenges of Severe Traumatic Brain Injury. Semin Respir Crit Care Med [Internet]. 2021 Feb 1 [cited 2023 Jan 13];42(1):127–44. Available from: http://www.thieme-connect.com/products/ejournals/html/10.1055/s-0040-1716493
3. Svedung Wettervik T, Enblad P, Lewén A. Pre-injury chronic alcohol abuse predicts intracranial hemorrhagic progression, unfavorable clinical outcome, and mortality in severe traumatic brain injury. https://doi-org.ezproxy.dbazes.lsmuni.lt/101080/0269905220211975196 [Internet]. 2021 [cited 2023 Jan 13];35(12–13):1569–76. Available from: https://www-tandfonline-com.ezproxy.dbazes.lsmuni.lt/doi/abs/10.1080/02699052.2021.1975196
4. Mostert CQB, Singh RD, Gerritsen M, Kompanje EJO, Ribbers GM, Peul WC, et al. Long-term outcome after severe traumatic brain injury: a systematic literature review. Acta Neurochir (Wien) [Internet]. 2022 Mar 1 [cited 2023 Jan 13];164(3):599–613. Available from: https://link-springer-com.ezproxy.dbazes.lsmuni.lt/article/10.1007/s00701-021-05086-6

Post-traumatic delirium association with patient outcomes after traumatic brain injury. A retrospective study.

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Introduction

Post-traumatic delirium (PTD) after a traumatic brain injury (TBI) can severely affect patients' quality of life, as it is associated with significant physical and cognitive morbidity. PTD is associated with short and long-term cognitive function deterioration, decline of emotional and physical health [1]. Approximately half of the patients admitted to the ICU after TBI are thought to have delirium, which usually occurs within the first 24 hours [2].

Aim

To analyze PTD cases and their correlation with patient outcomes and blood plasma sodium concentration because dysnatraemia is indicated as a possible risk factor [3].

Methods

Data were collected on patients hospitalized in the Lithuanian University of Health Sciences Hospital Kaunas Clinics, Department of Neurosurgery in 2020-2021 due to TBI. Data on blood tests and at the moment of delirium manifestation, before and after surgery, as well as performed surgeries, complications, GOS and mRS scales were investigated. Patients with severe TBI who were unconscious and had a poor outcome (GOS 1-3) were excluded from the study, and the alcohol factor was also eliminated, and only those patients who had not consumed alcohol on admission were analyzed. A retrospective analysis of 609 patients was performed. Outcomes were evaluated by GOS and mRS for patients at the time of discharge. Outcomes were divided into poor (GOS 1-3 or mRS 2-6) and good (GOS 4-5 or mRS 0-1). Data analysis was performed using Microsoft Excel 2017 and SPSS Statistics 17.0. Data are presented as mean values with standard deviation. The selected significance level of $p < 0.05$ was selected.

Results

Of the 609 patients analyzed, 64.0% were males (390 patients, mean age 58.62±18.4) and 36.0% were females (219 patients, mean age 72.03±16.06). 260 patients (26.1%) had neurosurgery procedures, 12 % of PTD cases were observed from all population. The study, study population was dichotomized and analyzed based on outcomes and the fact of delirium (73 PTD patients vs. 536 non-PTD patients). The analysis showed that the GOS score differed in two groups: patients who had PTD tended to score lower on GOS (poor outcomes (GOS 1-3) PTD 69.9 % vs. non-PTD 22.6 %, χ^2 70.893, $p < 0.001$). The same was done with the mRS scale: patients who had PTD had higher mRS scores and tended to worse outcomes (poor outcomes (mRS 2-6) PTD 76.7 % vs. non-PTD 32.6 %, χ^2 52.985, $p < 0.001$). Additionally, analysis showed that a patient who subsequently had a PTD, blood plasma sodium concentration had a statistically higher values: 139.51 ±6.288 vs. 136.54 ±5,695, $p<0.001$. The relationship between PTD and postoperative blood plasma sodium concentration (group 1 ≤145 mmol/l, group 2 - >145mmol/l) was examined. PTD patients tended to have higher postoperative blood plasma sodium levels: sodium >145 mmol/l PTD 21.6 % vs. non-PTD 5.7 %, χ^2 13.037, $p < 0.001$. Analysis of blood plasma sodium concentration before operation showed no statistically significant relationship with PTD: sodium >145 mmol/l PTD 1.5 % vs non-PTD 1.6 %, χ^2 0.004, $p = 0951$.

Conclusions

PTD is associated with worse outcomes as measured by GOS and mRS at the time of discharge. Postoperative blood plasma sodium concentration tends to be higher for patients with PTD.

References

1. Maneewong J, Maneeton B, Maneeton N, Vaniyapong T, Traisathit P, Sricharoen N, Srisurapanont M (2017) Delirium after a traumatic brain injury: Predictors and symptom patterns. Neuropsychiatr Dis Treat 13:459–465
2. Roberson SW, Patel MB, Dabrowski W, Ely EW, Pakulski C, Kotfis K (2021) Challenges of Delirium Management in Patients with Traumatic Brain Injury: From Pathophysiology to Clinical Practice. Curr Neuropharmacol 19:1519–1544
3. Zaal IJ, Devlin JW, Peelen LM, Slooter AJC (2015) A systematic review of risk factors for delirium in the ICU. Crit Care Med 43:40–47

Association between polycystic ovary syndrome and mental health: a systematic literature review

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Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age, affecting 5-8% of women. It's charecterized by hyperandrogenism, menstrual cycle abnormalities, and polycystic ovaries visible during ultrasound (1).

Aim

To review assosciations between mental health and PCOS.

Methods

Data search was conducted using PubMed database, following PRISMA guidelines. Keywords used: "Polycystic ovary syndrome", "mental health", "PCOS". Inclusion criteria: full text articles written in english, published less than 5 years ago. Exclusion criteria: articles older than 5 years, other languages than english. 85 articles were screened. Selection criteria were applied and only 9 [2-10] publications were selected.

Results

Prevalance of depression in PCOS increases 3 to 8 times. Insulin resistance, which is core to the pathophysiology of the disorder, increased odds of depression 2.3 times in PCOS patients (2). In comparison to healthy women, PCOS patients are six times more likely to develop severe anxiety symptoms. Women with PCOS were hospitalized twice as often due to stress and self-harming behaviour. Ego-resiliency was significantly lower compared to healthy women, and active stress-coping strategies were used more by the healthy women (3). Adolescents with PCOS have higher incidence of severe perceived life(4) . In addition, 71% of women with PCOS struggle with loneliness (5) Affective symptoms were linked alterations of neuroactive steroids and gonadal steroids. DHEA-S, 17-OH progesterone levels were significantly higher in the depressed PCOS group (6). Genetically predicted PCOS is positively associated with obsessive compulsive disorder (OCD). Women with PCOS are 1.37 times more susceptible to OCD (7). Hyperandrogenism, which is one of the symptoms of PCOS, was associated with overall increased risk of psychiatric disorders, especially anxiety, bipolar disorder and sleep disorders

at ages 20-29, with P<0.001 (8). Women with PCOS also presented significantly lower health related quality of life score than the control group of women without PCOS (9). Prevelance of six personality disorders: schizoid, avoidant, antisocial, depressive, sadistic, and negativistic in infertile women with PCOS are significantly higher than those of women without PCOS (p<0.05) (10).

Conclusions

Women with PCOS have higher prevelance and risk of mental health disorders, including depression, anxiety, OCD, loneliness and lower health related quality of life.

References

1. Rodriguez-Paris D, Remlinger-Molenda A, Kurzawa R, Głowińska A, Spaczyński R, Rybakowski F, et al. Psychiatric disorders in women with polycystic ovary syndrome. Psychiatr Pol [Internet]. 2019 [cited 2023 Jan 21];53(4):955–66. Available from: https://pubmed.ncbi.nlm.nih.gov/31760419/
2. Greenwood EA, Pasch LA, Cedars MI, Legro RS, Eisenberg E, Huddleston HG. Insulin resistance is associated with depression risk in polycystic ovary syndrome. Fertil Steril [Internet]. 2018 Jul 1 [cited 2023 Jan 21];110(1):27–34. Available from: https://pubmed.ncbi.nlm.nih.gov/29908775/
3. Dybciak P, Humeniuk E, Raczkiewicz D, Krakowiak J, Wdowiak A, Bojar I. Anxiety and Depression in Women with Polycystic Ovary Syndrome. Medicina (B Aires) [Internet]. 2022 Jul 1 [cited 2023 Jan 21];58(7). Available from: /pmc/articles/PMC9319705/
4. Khafagy G, Sayed I el, Abbas S, Soliman S. Perceived Stress Scale Among Adolescents with Polycystic Ovary Syndrome. Int J Womens Health [Internet]. 2020 [cited 2023 Jan 22];12:1253. Available from: /pmc/articles/PMC7778675/
5. Hasan M, Sultana S, Sohan M, Parvin S, Ashrafur Rahman M, Jamal Hossain M, et al. Prevalence and associated risk factors for mental health problems among patients with polycystic ovary syndrome in Bangladesh: A nationwide cross—Sectional study. PLoS One [Internet]. 2022 Jun 1 [cited 2023 Jan 22];17(6). Available from: /pmc/articles/PMC9216580/
6. Standeven LR, Olson E, Leistikow N, Payne JL, Osborne LM, Hantsoo L. Polycystic Ovary Syndrome, Affective Symptoms, and Neuroactive Steroids: a Focus on Allopregnanolone. Curr Psychiatry Rep [Internet]. 2021 Jun 1 [cited 2023 Jan 22];23(6). Available from: https://pubmed.ncbi.nlm.nih.gov/33881645/
7. Jin L, Yu J, Chen Y, Pang H, Sheng J, Huang H. Polycystic Ovary Syndrome and Risk of Five Common Psychiatric Disorders Among European Women: A Two-Sample Mendelian Randomization Study. Front Genet [Internet]. 2021 Jun 15 [cited 2023 Jan 22];12:689897. Available from: /pmc/articles/PMC8239353/
8. Wang TM, Chou CH, Lee YL, Chung CH, Huang YC, Lai XC, et al. Clinical Characteristics of Hyperandrogenism Include Hirsutism, Polycystic Ovary Syndrome, and Acne: Association with Psychiatric Disease in Women -A Nationwide Population-Based Cohort Study in Taiwan. Int J Womens Health [Internet]. 2022 [cited 2023 Jan 22];14:1173–89. Available from: https://pubmed.ncbi.nlm.nih.gov/36059578/
9. Sánchez-Ferrer ML, Adoamnei E, Prieto-Sánchez MT, Mendiola J, Corbalán-Biyang S, Moñino-García M, et al. Health-related quality of life in women with polycystic ovary syndrome attending to a tertiary hospital in Southeastern Spain: a case-control study.

Health Qual Life Outcomes [Internet]. 2020 Jul 16 [cited 2023 Jan 22];18(1). Available from: /pmc/articles/PMC7364602/
10. Ahmadi M, Faramarzi M, Basirat Z, Kheirkhah F, Chehrazi M, Ashabi F. Mental and personality disorders in infertile women with polycystic ovary: a case-control study. Afr Health Sci [Internet]. 2020 [cited 2023 Jan 22];20(3):1241. Available from: /pmc/articles/PMC7751531/

Negative Effects of Social Media on Youth Eating Behaviors

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Introduction

Social media (SM) usage is growing increasingly with majority of the generation already using SM platforms with millions of new users joining every year [1]. Along with SM being more and more prominent, the prevalence of eating disorders (EDs) continues to grow [2]. Some authors believe that problematic internet use and social pressure on SM about person's physical appearance may be a predictor of eating disorders [3,8]. In this systematic literature review we are going to identify if there is an association between SM usage and EDs, SM effects on youth eating behaviors.

Aim

To analyse already completed researches about an association between SM usage and EDs, SM effects on youth eating behaviors.

Methods

Literature for this review was conducted by using a search in PubMed database. The keywords used in search were "eating disorder", "social media", "dependence", "addiction". Only full free access articles in English were selected. Single case reports, abstracts were excluded. Two qualitative researches were included (a review and meta-analysis) [4,8]. In order to provide the most up-to-date information, studies older than 5 years were not included. Articles and studies that collected data during the Covid pandemic were excluded, 183 articles were found, out of which 6 matched criteria [3-8].

Results

The reviewed studies included a total of 18901 subjects, the majority of whom were females. The average age ranged from 14 to 27,61 years (M=22,4) [3-8]. Facebook (72,86%) and Instagram (82,83%) were the most popular SM used [3-4]. Digital platforms facilitate peer-to-peer interactions in ways that are quicker and more convenient than traditional in-person support networks, potentially influencing peer social norms and health-related ideas [4]. Hinjo et

al. confirmed that students with internet addiction are more likely to develop eating disorders [8]. Using platforms such as Facebook and Instagram has been particularly associated with a higher body dissatisfaction and the appearance of ED symptoms [3]. To evaluate eating disorder risk studies commonly used EAT-26 (38,66%), the SCOFF scale (29,96%) [3,6-8]. In relation to the eating disorders associated with each study the most frequently reported ED is bulimia nervosa (90,74%), followed by anorexia nervosa (50,22%) and binge eating disorder (16,66%) [3,6,8]. SM has more significant negative effect on people with certain characteristics. In one study it was established that high SM dependence and low non-planning impulsiveness had significantly higher eating disorders risk than those with high SM dependence and high levels of non-planning impulsiveness [5]. Furthermore, a significant association between the level of education and the frequency of comparing one's own physical appearance to that of people followed on SM can lead to body dissatisfaction, drive for thinness and has direct link to ED [3,7].

Conclusions

The excessive use of SM is associated with the development of EDs. The results of the studies show that people with SM dependence are less satisfied with their appearance and has a higher risk of EDs.

References

1. Global Social Media Statistics. Available from: https://datareportal.com/social-media-users
2. Filippone L, Shankland R, Hallez Q. The relationships between social media exposure, food craving, cognitive impulsivity and cognitive restraint. J Eat Disord. 2022 Nov 25;10(1):184.
3. Jiotsa B, Naccache B, Duval M, Rocher B, Grall-Bronnec M. Social Media Use and Body Image Disorders: Association between Frequency of Comparing One's Own Physical Appearance to That of People Being Followed on Social Media and Body Dissatisfaction and Drive for Thinness. Int J Environ Res Public Health. 2021 Mar 11;18(6):2880.
4. Chung A, Vieira D, Donley T, Tan N, Jean-Louis G, Kiely Gouley K, Seixas A. Adolescent Peer Influence on Eating Behaviors via Social Media: Scoping Review. J Med Internet Res. 2021 Jun 3;23(6):e19697.
5. He Z, Yang W. Impulsiveness as potential moderators of the relation between social media dependence and eating disorders risk. BMC Psychol. 2022 May 8;10(1):120
6. Aaricio-Martinez P, Perea-Moreno AJ, Martinez-Jimenez MP, Redel-Macías MD, Pagliari C, Vaquero-Abellan M. Social Media, Thin-Ideal, Body Dissatisfaction and Disordered Eating Attitudes: An Exploratory Analysis. Int J Environ Res Public Health. 2019 Oct 29;16(21):4177.
7. He Z, Li M, Liu C, Ma X. Common Predictive Factors of Social Media Addiction and Eating Disorder Symptoms in Female College Students: State Anxiety and the Mediating Role of Cognitive Flexibility/Sustained Attention. Front Psychol. 2022 Mar 29;12:647126.
8. Hinojo-Lucena FJ, Aznar-Díaz I, Cáceres-Reche MP, Trujillo-Torres JM, Romero-Rodríguez JM. Problematic Internet Use as a Predictor of Eating Disorders in Students: A Systematic Review and Meta-Analysis Study. Nutrients. 2019 Sep 9;11(9):2151.

IHS Conference

Neurosciences: Neurology, Neurosurgery, Psychiatry poster

Bipolar disorder and suicide in adults – associations and risk factors: a systematic literature review

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Introduction

Bipolar disorder (BD) is a chronic mood disorder characterized by manic or hypomanic episodes alternating with episodes of depression [1]. Of all mental diseases, bipolar disorder (BD) has the highest suicide incidence, which is around 20–30 times greater than the general population [2,3]. Also, there are risk factors connected to bipolar disorder and suicide, and researchers and practitioners should be aware of them.

Aim

The purpose of this review is to evaluate and analyze associations between bipolar disorder and suicide, also, to evaluate risk factors for attempting suicide when a patient suffers from bipolar disorder.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “bipolar disorder and suicide”, “bipolar disorder - suicide risk factors” was performed up to December 8th, 2022, in PubMed, Google Scholar databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 1342 results, only those which identified the associations between bipolar disorder and suicide, also its risk factors, were collected. Selection criteria were applied, and 75 studies were selected for full-text analysis, 18 of them were included in this review. The titles and abstracts were analyzed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

In comparison to all other mental conditions, bipolar disorder carries the highest risk of suicide. [4,5]. About one-third of BD patients attempt suicide at least once in their lifetime [6]. This information raises the question of what are the risk factors for suicide attempt in BD patients? There are several ways for categorizing suicide risk factors in BD. One of the most popular systems divides risk factors into proximal and distal ones, where proximal factors are near to

suicide behavior in time and distant elements are rather seen as qualities or predispositions and, therefore, they are enduring. [7] Most BD patients experience depressive episodes for around half of their lives, which increases the risk of suicide [8]. Below is a summary of the most important suicide risk factors in BD: prior suicide attempt(s), high number of hospitalizations, comorbidity with other mental diseases, predominantly depressed polarity, and type of the present mood episode, longer period of untreated illness, sociodemographic factors (male gender is a risk factor for lethal suicides, while female gender is a risk factor for attempts, as well as bipolar patients who are divorced, unemployed), personality traits (e.g. impulsive traits), family history of suicide acts, or mood disorders. [9-15]. BD and suicide risk factors should be recognized by researchers and clinicians since they have an impact on the identification of BD patients who are at high risk for suicide. Unfortunately, only a small number of studies have investigated the efficacy of psychosocial interventions against suicide among BD patients. Yet, the few available research findings are encouraging [16-18].

Conclusions

Patients with BD have a significantly increased risk of suicide. For physicians, it's crucial to assess the risk factors for suicide in BD (e.g. prevalence of depressive polarity, the longer period of untreated illness, sociodemographic characteristics etc.).

References

1. Grande I, Berk M, Birmaher B, Vieta E. Bipolar disorder. Lancet. 2016;387:1561–72. This is a comprehensive review of bipolar disorder and emphasizes the importance of accurate diagnosis.
2. Miller JN, Black DW. Bipolar Disorder and Suicide: a Review. Curr Psychiatry Rep. 2020 Jan 18;22(2):6. doi: 10.1007/s11920-020-1130-0. PMID: 31955273.
3. Schaffer A., Isometsa E.T., Tondo L., Moreno D.H., Sinyor M., Kessing L.V., Turecki G., Weizman A., Azorin J.-M., Ha K., et al. Epidemiology, neurobiology and pharmacological interventions related to suicide deaths and suicide attempts in bipolar disorder: Part I of a report of the International Society for Bipolar Disorders Task Force on Suicide in Bipolar Disorder. Aust. N. Z. J. Psychiatry. 2015;49:785–802. doi: 10.1177/0004867415594427.
4. Plans L, Barrot C, Nieto E, Rios J, Schulze TG, Papiol S, et al. Association between completed suicide and bipolar disorder: a systematic review of the literature. J Affect Disord. 2019;242:111–22.
5. Dong M, Lu L, Zhang L, Zhang Q, Ungvari GS, Ng CH, et al. Prevalence of suicide attempts in bipolar disorder: a systematic review and meta-analysis of observational studies. Epidemiol Psychiatr Sci. 2019;29:e63 1–9.
6. Baldessarini RJ, Undurraga J, Vázquez GH, Tondo L, Salvatore P, Ha K, et al. Predominant recurrence polarity among 928 adult international bipolar I disorder patients. Acta Psychiatr Scand. 2012;125:293–302.
7. Altamura AC, Dell'Osso B, Berlin HA, Buoli M, Bassetti R, Mundo E. Duration of untreated illness and suicide in bipolar disorder: a naturalistic study. Eur Arch Psychiatry Clin Neurosci. 2010;260:385–91.
8. Pallaskorpi S, Suominen K, Rosenström T, et al. Predominant polarity in bipolar I and II disorders: a five-year follow-up study. J Affect Disord. 2019;246:806–13.
9. Rihmer Z., Gonda X., Döme P. The Assessment and Management of SuicideRrisk in

Bipolar Disorder. In: Carvalho A.F., Vieta E., editors. The Treatment of Bipolar Disorder: Integrative Clinical Strategies and Future Directions. Oxford University Press; Oxford, UK: 2017.
10. Turecki G., Brent D.A. Suicide and suicidal behaviour. Lancet. 2016;387:1227–1239. doi: 10.1016/S0140-6736(15)00234-2.
11. Plans L., Barrot C., Nieto E., Rios J., Schulze T.G., Papiol S., Mitjans M., Vieta E., Benabarre A. Association between completed suicide and bipolar disorder: A systematic review of the literature. J. Affect. Disord. 2019;242:111–122. doi: 10.1016/j.jad.2018.08.054.
12. Malhi G.S., Outhred T., Das P., Morris G., Hamilton A., Mannie Z. Modeling suicide in bipolar disorders. Bipolar Disord. 2018;20:334–348. doi: 10.1111/bdi.12622.
13. Vieta E., Berk M., Schulze T.G., Carvalho A.F., Suppes T., Calabrese J.R., Gao K., Miskowiak K.W., Grande I. Bipolar disorders. Nat. Rev. Dis. Primers. 2018;4:18008. doi: 10.1038/nrdp.2018.8.
14. Pompili M., Gonda X., Serafini G., Innamorati M., Sher L., Amore M., Rihmer Z., Girardi P. Epidemiology of suicide in bipolar disorders: A systematic review of the literature. Bipolar Disord. 2013;15:457–490. doi: 10.1111/bdi.12087.
15. Hansson C., Joas E., Palsson E., Hawton K., Runeson B., Landen M. Risk factors for suicide in bipolar disorder: A cohort study of 12,850 patients. Acta Psychiatry Scand. 2018;138:456–463. doi: 10.1111/acps.12946.
16. Rihmer Z., Gonda X., Döme P. The Assessment and Management of SuicideRrisk in Bipolar Disorder. In: Carvalho A.F., Vieta E., editors. The Treatment of Bipolar Disorder: Integrative Clinical Strategies and Future Directions. Oxford University Press; Oxford, UK: 2017.
17. Mendez-Bustos P., Calati R., Rubio-Ramirez F., Olie E., Courtet P., Lopez-Castroman J. Effectiveness of Psychotherapy on Suicidal Risk: A Systematic Review of Observational Studies. Front. Psychol. 2019;10:277. doi: 10.3389/fpsyg.2019.00277.
18. Goldstein T.R., Fersch-Podrat R.K., Rivera M., Axelson D.A., Merranko J., Yu H., Brent D.A., Birmaher B. Dialectical behavior therapy for adolescents with bipolar disorder: Results from a pilot randomized trial. J. Child Adolesc. Psychopharmacol. 2015;25:140–149. doi: 10.1089/cap.2013.0145.

Cotard's Syndrome - what is it: a systematic review

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Introduction

Cotard's Syndrome (CS) is a rare and unusual neuropsychiatric condition [1]. It is characterized by nihilistic delusions that can range from the denial of body parts to the belief that one is dead or non-existent. Although being an uncommon disorder, CS has drawn growing interest because of its unusual clinical characteristics and difficult treatment [2]. Understanding its clinical characteristics, diagnostic procedures, and treatment methods have drawn increasing attention in recent years.

Aim

Explore the diagnostic standards and methods used for the identification and diagnosis of Cotard's Syndrome, as well as the clinical characteristics of the condition.

Methods

A systematic literature review was performed according to PRISMA guidelines in English language international medical databases: PubMed, and Google Scholar, using the keywords "Cotard's syndrome", "delusions", and "neuropsychiatric condition". Search was performed up to December 10th, 2022. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective and retrospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English. Of the 1543 results, only studies that specifically identified Cotard's Syndrome, its clinical features, diagnostics, and treatment were collected. Selection criteria were applied, and 25 studies were selected for full-text analysis, 9 of them were included in this review.

Results

A common definition of Cotard's syndrome is the misconception that the patient is dead or nonexistent. Jules Cotard's original description of the "delusion of negations," however, included delusions and claims of immensity and enormity as well as delusions of bodily destruction. [3]. Berrios and Luque (1995) made the first evidence – based classification of CS. Three different forms of CS were discovered using a retrospective factor analysis of 100 cases found in the literature. The first is a kind of psychotic depression characterized by anxiety, guilt delusions, and auditory hallucinations. The second is CS type I, which is linked to nihilistic and hypochondriac delusions. The third is CS type II, in which anxiety, depression and suicidal behavior are characteristic features [4]. However, the nosographic characterization of CS remains elusive and is not now classified as a separate disorder in both ICD and DSM-5 [5]. Many studies on effective pharmaceutical therapy, including antidepressant, antipsychotic, or lithium monotherapies, have been published. Electroconvulsive therapy has been the most commonly mentioned effective CS treatment method (ECT) [1]. There is little data on the prevalence of CS in Lithuania because it is a rare disorder. Healthcare experts in Lithuania have probably encountered cases of CS, but as the condition is uncommon, it might not be regularly identified.. Treatment options may include medication, psychotherapy, and in severe cases, ECT. Also, reports of patients from many parts of the world have emerged, showing that the ailment is not exclusive to any particular geographic regions. [6-9].

Conclusions

Cotard's Syndrome is a rare and complex psychiatric condition that presents with a wide range of symptoms and requires a multidisciplinary approach to diagnosis and treatment. To better comprehend the underlying causes of the condition and create more efficient treatment plans, further research is required.

References

1. Moschopoulos NP, Kaprinis S, Nimatoudis J. [Cotard's syndrome: Case report and a brief review of literature]. Psychiatriki. 2016 Oct-Dec;27(4):296-302. Greek, Modern. doi: 10.22365/jpsych.2016.274.296. PMID: 28114093.
2. Cipriani G, Nuti A, Danti S, Picchi L, Di Fiorino M. 'I am dead': Cotard syndrome and dementia. Int J Psychiatry Clin Pract. 2019 Jun;23(2):149-156. doi: 10.1080/13651501.2018.1529248. Epub 2019 Mar 8. PMID: 30848970.
3. Dieguez S. Cotard Syndrome. Front Neurol Neurosci. 2018;42:23-34. doi: 10.1159/000475679. Epub 2017 Nov 17. PMID: 29151088.
4. Debruyne, H., Portzky, M., Peremans, K., & Audenaert, K. (2017). Cotard's syndrome. Unusual and rare psychological disorders: A handbook for clinical practice and research, 30950-008.
5. Tomasetti C, Valchera A, Fornaro M, Vellante F, Orsolini L, Carano A, Ventriglio A, Di Giannantonio M, De Berardis D. The 'dead man walking' disorder: an update on Cotard's syndrome. Int Rev Psychiatry. 2020 Aug-Sep;32(5-6):500-509. doi: 10.1080/09540261.2020.1769881. Epub 2020 Jun 5. PMID: 32500801.
6. Grover S, Aneja J, Mahajan S, Varma S. Cotard's syndrome: Two case reports and a brief review of literature. J Neurosci Rural Pract. 2014 Nov;5(Suppl 1):S59-62. doi: 10.4103/0976-3147.145206. PMID: 25540544; PMCID: PMC4271387.
7. Weiss, C., Santander, J., & Torres, R. (2013). Catatonia, neuroleptic malignant syndrome, and cotard syndrome in a 22-year-old woman: a case report. Case Reports in Psychiatry, 2013.
8. Sottile, F., Bonanno, L., Finzi, G., Ascenti, G., Marino, S., Bramanti, P., & Corallo, F. (2015). Cotard and Capgras syndrome after ischemic stroke. Journal of Stroke and Cerebrovascular Diseases, 24(4), e103-e104.
9. Ozkan, N., & Caliyurt, O. (2016). Brain metabolism changes with 18F-fluorodeoxy-glucose-positron emission tomography in a patient with Cotard's syndrome. Australian & New Zealand Journal of Psychiatry, 50(6), 600-601.

The diagnosis of Ganser's syndrome: a systematic literature review

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Introduction

Questions about Ganser‘s syndrome (GS) etiology and definition, as well as its status as a true mental illness versus a specific form of malingering have been the subject of multiple journal articles [1]. Ganser's syndrome is a rare condition, whose main feature is the production of approximate answers to simple questions [1]. This symptom makes the diagnosis a very difficult one, mainly obtainable through processes of exclusion and this is the most important issue in Ganser's syndrome [2,4,8].

Aim

To select and evaluate scientific literature about most important issues in Ganser's syndrome: its diagnostics and recognition of clinical features.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “Ganser syndrome”, “diagnosis of Ganser syndrome” was performed up to December 15th, 2022 in PubMed, Google Scholar, ScienceDirect databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, randomized controlled studies, prospective and retrospective studies, clinical cases. Exclusion criteria: research articles are older than 10 year and were not written in English, pilot studies. Of the 107 results, only those which specifically identified the diagnostics and clinical features of Ganser‘s syndrome were collected. Selection criteria were applied and 37 studies were selected for full-text analysis, 8 of them were included in this review. The titles and abstracts were analyzed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

The full GS is considered very rare. Over a period of 118 years, there were only 79 papers found, describing 117 case reports on Ganser syndrome. It generally occurs in patients who are exposed to somatic disorders or to psychological stress, however, often in absence of a psychiatric disorder [3]. The most classical feature of GS is called “Vorbeireden”, or approximate answers: when confronted with simple questions, patients will answer wrong while being obvious that the aim of the question itself is clear to them (e.g. “How many legs does a horse have?”: “5”) [5,6,7]. While the DSM-IV-TR classifies GS under the heading of dissociative disorder, it is not listed as a diagnosis in the DSM-V. [3]. Diagnosing GS is challenging. Doctors must rule out any possible physical problems or other psychological conditions as the cause of the symptoms before considering a diagnosis of Ganser syndrome. If the doctor finds no physical reason for the symptoms, they may refer the person to a psychiatrist. Psychiatrists use specially designed interviews and assessment tools to evaluate a person for psychiatric conditions [3,7]. When a diagnostic suspicion arises, tests such as the Draw-A-Person and the Clock-drawing tests can be highly efficient tools in confirming or disproving a diagnosis of GS. Given these diagnostic challenges, it would be beneficial to establish a method of evaluation that is specific to Ganser's

syndrome. Regrettably, none are accessible [5]. Further articles on GS are required to examine and explain its uncertain prognosis.

Conclusions

Diagnostic difficulties when talking about Ganser Syndrome is a main problem. Such diagnosis is made by exclusion, after repeated inconclusive diagnostic pathways. Tests like the Draw-A-Person and the Clock-drawing tests, when a diagnosis of GS is suspected, can be very helpful diagnostic instruments.

References

1. Dieguez S. Ganser Syndrome. Front Neurol Neurosci. 2018;42:1-22. doi: 10.1159/000475676. Epub 2017 Nov 17. PMID: 29151087.
2. Wincewicz K, Sapota-Zaręba K, Nasierowski T. Ganser syndrome - a dissociative disorder or a factitious disorder? A case report. Psychiatr Pol. 2022 Feb 27;56(1):63-75. English, Polish. doi: 10.12740/PP/129012. Epub 2022 Feb 27. PMID: 35569148.
3. Petrykiv, S., De Jonge, L., Sibma, W., & Arts, M. (2017). A systematic report review of Ganser syndrome: 118 years of case studies. European Psychiatry, 41(S1), S699-S699. doi:10.1016/j.eurpsy.2017.01.1236
4. Moalla, M., Sellami, R., Feki, I., Hentati, S., & Masmoudi, J. (2017). Ganser's syndrome: A nosographic approach. European Psychiatry, 41(S1), S462-S462. doi:10.1016/j.eurpsy.2017.01.513
5. Carlo Magistri, Cristiano Mellini,A long-missed diagnosis: A paradigmatic case of diagnostic complexity of Ganser Syndrome, Psychiatry Research Case Reports, Volume 1, Issue 1, 2022, 100001, ISSN 2773-0212, https://doi.org/10.1016/j.psycr.2022.100001.
6. E. Fassbinder, A. Arntz Schema therapy with emotionally inhibited and fearful patients J. Contemp. Psychother., 49 (2019), pp. 7-14, 10.1007/s10879-018-9396-9.
7. Espiridion ED, Valent K, Qatanani A, Adesina O, Oladunjoye AO. A Rare Case of Ganser Syndrome: Psychogenic or Organic? Cureus. 2020 Aug 30;12(8):e10144. doi: 10.7759/cureus.10144. PMID: 33014642; PMCID: PMC7526759.
8. MAGISTRI, Carlo; MELLINI, Cristiano. A long-missed diagnosis: A paradigmatic case of diagnostic complexity of Ganser Syndrome. Psychiatry Research Case Reports, 2022, 1.1: 100001.

Sleep patterns in bipolar disorder: systematic literature review

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Introduction

Bipolar disorder (BD), also known as manic depression, is a chronic mood disorder defined by repetitive relapse of mood episodes between depression and mania. Sleep problems are commonly noted during the depressive episodes, manic episodes, and even euthymic episodes in patients with BD, as per the ICD -10 [1] a reduced need for sleep is a symptom of mania, whereas insomnia and hypersomnia are commonly noted in bipolar depression [2].

Aim

To discuss common types of sleep disturbances, explore contributing factors, and evaluate their impact on the course of bipolar disorder.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “bipolar disorder”, “sleep”, ‘’circadian rhythm” was performed up to November 11th, 2022, in PubMed, Google Scholar databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 1215 results, only those which specifically identified the associations between childhood sexual abuse and adult mental disorder. Selection criteria were applied, and 42 studies were selected for full-text analysis, 7 of them were included in this review. The titles and abstracts were analysed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

Sleep impairments are common in patients with BD, even in the euthymic state. However, the type of sleep disturbance depends on the prevailing mood state. Throughout the manic state, most patients encounter a reduced need for sleep (66–99%), while patients in the depressive state undergo insomnia (40–100%) and hypersomnia (23–78%) [2], [3]. It has been noted that irregularities in melatonin secretion are prevalent in BD patients [4]. Advanced melatonin peak time and increased secretion was recognized in patients in manic episodes, whereas patients in depressive episodes or euthymic states had delayed melatonin peak time and decreased secretion, suggesting that these dissimilarities are determined by predominant mood states [2], [5], [6]. It is notable that BD patients with impaired sleep patterns had considerably lower mood and worse psychosocial functioning opposed to patients with normal sleep [5], [7]. Bipolar disorder patients’ circadian rhythm dysfunctions interfere with the sleep–wake cycle and the secretion of serotonin and dopamine, hence, cause sleep difficulties and mood dysregulations [2]. Studies suggested that sleep disturbances were among the first prodromal signs of relapse of a mood episode, that aggravate during an episode [4], [6].

Conclusions

In conclusion, bipolar disorder often co-occurs with sleep disturbances such as insomnia, hypersomnia, and reduced sleep time, which significantly affect patients' mood. Sleep and circadian rhythm abnormalities are prevalent throughout all stages of bipolar disorder and frequently signal the onset of a mood episode, emphasizing their importance as target symptoms for early intervention. Given these findings, improving sleep should be considered a crucial aspect of early treatment.

References

1. World Health Organization. The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines. Geneva: World Health Organization; 2019.
2. Takaesu Y. Circadian rhythm in bipolar disorder: A review of the literature. Psychiatry Clin Neurosci. 2018 Sep;72(9):673-682. doi: 10.1111/pcn.12688. Epub 2018 Jul 4. PMID: 29869403.
3. Steardo LJ, de Filippis R, Carbone EA, Segura-Garcia C, Verkhratsky A, De Fazio P. Sleep disturbance in bipolar disorder: neuroglia and circadian rhythms. Front Psych. 2019;10:501. doi: 10.3389/fpsyt.2019.00501. PMID: 31379590.
4. Ahmad A, Anderson KN, Watson S. Sleep and Circadian Rhythm Disorder in Bipolar Affective Disorder. Curr Top Behav Neurosci. 2021;48:133-147. doi: 10.1007/7854_2020_150. PMID: 33547594.
5. Bradley AJ, Webb-Mitchell R, Hazu A, Slater N, Middleton B, Gallagher P, McAllister-Williams H, Anderson KN. Sleep and circadian rhythm disturbance in bipolar disorder. Psychol Med. 2017 Jul;47(9):1678-1689. doi: 10.1017/S0033291717000186. Epub 2017 Feb 8. PMID: 28173893.
6. Kaplan KA. Sleep and sleep treatments in bipolar disorder. Curr Opin Psychol. 2020 Aug;34:117-122. doi: 10.1016/j.copsyc.2020.02.001. Epub 2020 Feb 13. PMID: 32203912.
7. Bradley AJ, Anderson KN, Gallagher P, McAllister-Williams RH. The association between sleep and cognitive abnormalities in bipolar disorder. Psychol Med. 2020 Jan;50(1):125-132. doi: 10.1017/S0033291718004038. Epub 2019 Jan 16. PMID: 30646966.

Association between sexual abuse in childhood or adolescence and mental disorders in adulthood: a systematic literature review

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Introduction

Child sexual abuse (CSA), according to the World Health Organisation (WHO), is the involvment of a child in sexual acitivity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent, or that violates the laws or social taboos of society [1]. Approximately from 40% to 60% of all rape victims are underaged. Adolescent women are fourfold more likely to be sexually abused comparing to other age groups. [2].
It is important to understand that this statistical prevalence of child sexual abuse is likely to be undervalued, because only 5% of rape victims disclose their sexual abuse history with their doctors [3]. Medical community has long proclaimed the connection between history of sexual abuse and the development multiple psychiatric disorders.

Aim

To examine the relationship between childhood sexual abuse and adult mental disorders using a systematic literature review.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “childhood”, “adolescent”, ‘’sexual abuse” ‘’mental disorder’’, was performed up to December 4th, 2022, in PubMed, Google Scholar databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 1618 results, only those which specifically identified the associations between childhood sexual abuse and adult mental disorder. Selection criteria were applied, and 45 studies were selected for full-text analysis, 7 of them were included in this review. The titles and abstracts were analysed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

Childhood sexual abuse is known to increase the likelihood of developing mental disorders in adulthood. Victims who were exposed to completed or attempted intercourse had a 2.4 times higher likelihood ratio of mental disorders [5]. Childhood sexual abuse has been found to be strongly associated with depression, which is the most prevalent psychiatric outcome in survivors. Studies have reported varying rates of depression among survivors, with some estimating the prevalence to be as high as 65% [4], [6]. It is important to mention that patients with borderline personality disorder, anxiety, depression, or post-traumatic stress disorder (PTSD) have a background of childhood sexual abuse more frequently comparing to other psychiatric patients [4], [5]. Individuals with a history of childhood sexual abuse require more psychiatric hospitalizations, have higher rates of comorbidities, and require higher doses of medication [7]. Factors such as the relationship with the offender, duration of abuse, and age of the victim also impact the severity of mental health outcomes. It is hypothesised that adolescents

may suffer from more severe mental health issues comparing with younger children, who are yet rather unfamiliar with their sexuality [5].

Conclusions

It is clear that childhood sexual abuse is associated with the development, severity and clinical outcomes of mental illness in adulthood. It is crucially important to recognize and approach abused children or adolescents as promptly as possible while trying to minimize negative outcomes on their mental health.

References

1. WHO. Report of the consultation on child abuse prevention. Geneva: World Health Organization; 1999. p. 15.
2. Banvard-Fox C, Linger M, Paulson DJ, Cottrell L, Davidov DM. Sexual Assault in Adolescents. Prim Care. 2020 Jun;47(2):331-349. doi: 10.1016/j.pop.2020.02.010. Epub 2020 Feb 27. PMID: 32423718; PMCID: PMC7702185.
3. Chen LP, Murad MH, Paras ML, Colbenson KM, Sattler AL, Goranson EN, Elamin MB, Seime RJ, Shinozaki G, Prokop LJ, Zirakzadeh A. Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis. Mayo Clin Proc. 2010 Jul;85(7):618-29. doi: 10.4065/mcp.2009.0583. Epub 2010 May 10. PMID: 20458101; PMCID: PMC2894717.
4. Hailes HP, Yu R, Danese A, Fazel S. Long-term outcomes of childhood sexual abuse: an umbrella review. Lancet Psychiatry. 2019 Oct;6(10):830-839. doi: 10.1016/S2215-0366(19)30286-X. Epub 2019 Sep 10. PMID: 31519507; PMCID: PMC7015702.
5. Baytunca MB, Ata E, Ozbaran B, Kaya A, Kose S, Aktas EO, Aydın R, Guney S, Yuncu Z, Erermis S, Bildik T, Aydin C. Childhood sexual abuse and supportive factors. Pediatr Int. 2017 Jan;59(1):10-15. doi: 10.1111/ped.13065. Epub 2016 Sep 5. PMID: 27288641.
6. Burgić Radmanović M. Mental Disorders in Sexually Abused Children. Psychiatr Danub. 2020 Oct;32(Suppl 3):349-352. PMID: 33030451.
7. Werbeloff N, Hilge Thygesen J, Hayes JF, Viding EM, Johnson S, Osborn DPJ. Childhood sexual abuse in patients with severe mental Illness: Demographic, clinical and functional correlates. Acta Psychiatr Scand. 2021 Jun;143(6):495-502. doi: 10.1111/acps.13302. Epub 2021 Apr 10. PMID: 33779997; PMCID: PMC8252558.

Capgras syndrome: a systematic literature review

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Introduction

Capgras syndrome is named after the French psychiatrist Joseph Capgras, who first described it as a natural dissociation between recognition and identification, it is the best studied subcategory of Delusional Misidentification Syndromes (DMS) [1]. The syndrome is characterized by a fundamental distortion in the perception of self and others. Specifically, people affected by this disorder believe that close associates have been replaced by identical imposters [2].

Aim

To discuss findings relevant to Capgras syndrome, its aetiology, epidemiology, clinical features, diagnostics and treatment.

Methods

A systematic literature review was performed according to PRISMA guidelines. The search with combination of keywords “Capgras syndrome”, “delusions” was performed up to November 28th, 2022, in PubMed, Google Scholar databases. Inclusion criteria: research articles published less than 10 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Of the 151 results, only those which specifically identified the Capgras Syndrome, its etiology, clinical features, diagnostics and treatment were collected. Selection criteria were applied, and 20 studies were selected for full-text analysis, 7 of them were included in this review. The titles and abstracts were analysed by the authors, followed by the selection of complete articles for reviewing and analysis according to the eligibility criteria.

Results

Capgras syndrome's prevalence among psychiatric patients is uncertain, as no agreed clinical criteria exist, but it's believed to be less than 1% [3]. The most common comorbid disorders for Capgras syndrome are schizophrenia (32%), organic psychosis (19%) and dementia (15%), especially Lewy body (25%) and Alzheimer-type (10%) dementia [1], [3], [4]. Capgras syndrome is more frequent in women, with the ratio 1.4:1 [1], [4], [5]. Capgras syndrome, as per the ICD-10 classification, is diagnosed when a patient perceives a known person as an imposter, exhibiting sustained and systematized delusions in a context of interpersonal stress, with accompanying emotional responses of anxiety and perplexity, and when no other mental disorder accounts for the delusion [6]. Capgras syndrome symptoms differ based on the type of psychiatric disorder. Organic cases show more visual hallucinations, while functional cases have more auditory hallucinations and violent behavior towards the misidentified person, including homicide [3], [4], [7]. Capgras syndrome typically occurs alongside a comorbid psychiatric disorder, resurfaces during relapses, and disappears after remissions, although it may persist in some cases after the comorbid disorder has resolved [5].
Information about specific treatment for Capgras syndrome is limited. Antipsychotic medications are the most common medications used for treating Capgras syndrome, particularly olanzapine, risperidone, and aripiprazole [1].

Conclusions

In conclusion, Capgras syndrome is a rare condition with uncertain prevalence. It's often comorbid with schizophrenia, organic psychosis, and dementia. Symptoms and delusions vary based on the type of psychiatric disorder, and violent behaviour towards the misidentified person has been reported. Treatment options are limited, but antipsychotic medications are commonly used. Further research is needed to improve understanding and treatment of Capgras syndrome.

References

1. Ventriglio A, Bhugra D, De Berardis D, Torales J, Castaldelli-Maia JM, Fiorillo A. Capgras and Fregoli syndromes: delusion and misidentification. Int Rev Psychiatry. 2020 Aug-Sep;32(5-6):391-395. doi: 10.1080/09540261.2020.1756625. Epub 2020 May 7. PMID: 32378427.
2. Sampathi BR, Sofine A, Alvarez J, Bota R. Capgras syndrome in substance-induced psychosis. Ment Illn. 2018 Nov 6;10(2):7807. doi: 10.4081/mi.2018.7807. PMID: 30542525; PMCID: PMC6240921.
3. Shah K, Jain SB, Wadhwa R. Capgras Syndrome. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan–. PMID: 34033319. Jun 4.
4. Pandis C, Agrawal N, Poole N. Capgras' Delusion: A Systematic Review of 255 Published Cases. Psychopathology. 2019;52(3):161-173. doi: 10.1159/000500474. Epub 2019 Jul 19. PMID: 31326968.
5. Barrelle A, Luauté JP. Capgras Syndrome and Other Delusional Misidentification Syndromes. Front Neurol Neurosci. 2018;42:35-43. doi: 10.1159/000475680. Epub 2017 Nov 17. PMID: 29151089.
6. World Health Organization. The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva: World Health Organization; 1992. p. 89-90.
7. Carabellese F, Rocca G, Candelli C, Catanesi R. Mental illness, violence and delusional misidentifications: The role of Capgras' syndrome in matricide. J Forensic Leg Med. 2014;21:9–13. doi: 10.1016/j.jflm.2013.10.012.

Clinical presentation of autoimmune encephalitis among patients of HLUHS Kauno klinikos

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Introduction

Autoimmune encephalitis (AE) is a group of immune-mediated brain inflammatory syndromes with a difficult diagnosis due to the heterogeneity of the symptoms [1]. Lately, the incidence of AE has been increasing as antibodies against neuronal surface antigens have been increasingly

recognized [2]. AE features differ in patients from different countries, therefore using international diagnostic criteria may challenge early diagnosis [3,4].

Aim

To investigate etiology, clinical, diagnostic, and treatment features in patients hospitalised in HLUHS Kauno klinikos.

Methods

Retrospective data analysis was performed using medical records collected in the HLUHS Kauno klinikos from January 1, 2017, to November 1, 2022. In all, 70 patients were recruited using ICD-10 (International Classification of Diseases Version 10) code G04 (encephalitis, myelitis, and encephalomyelitis). Following the review of medical records, cases that did not meet the diagnostic criteria of AE or with the replaced diagnosis were excluded, and 12 were suitable for analysis. Clinical records, results of serum and cerebrospinal fluids (CSF), electroencephalographic (EEG) and brain magnetic resonance imaging (MRI) findings, and information on treatment were analysed. Statistical analysis was performed using SPSS 22.0.

Results

A total of 12 patients were included in the study, and the mean age at the time of diagnosis was 53 years (±19.65), ranging from 18 to 80 years. Among the patients, 7 were (58,33%) female and 5 (41.66%) were male. Different subtypes of AE were observed: anti-NMDAR (n=5, 41.7%), anti-LGI1 (n=2, 16.7%), anti-CASPR2 (n=1, 8.3%), anti-GABABR (n=1, 8.3%), anti-amphiphysin (n=1, 8.3%), and seronegative (n=2, 16.7%). A patient with anti-GABABR antibodies was diagnosed with paraneoplastic AE in the presence of SCLC and later was found positive for anti-SOX2 and anti-Zic4. The most common clinical manifestations were confusion 10 (83.3%), seizures 8 (66.7%), mental and behavioral disturbances 6 (50%). Other symptoms were memory deficit 5 (41.7%), coordination impairment 5 (41.7%), language disorders 4 (33.3%), and weakness in limbs 3 (25%). In 3 (25%) cases, AE was diagnosed after 6 months to 1 year following the onset of first symptoms, with the initial diagnosis of epilepsy, psychiatric disorder, and electrolyte disbalances. EEG, brain MRI, and CSF studies revealed alterations specific to AE in 75%, 58.3%, and 25% of cases, respectively. Overall, 11 (91.6%) patients received first-line treatment, while 1 patient with anti-NMDAR encephalitis required second-line treatment with tocilizumab due to refractory acute phase disease, and no response to rituximab therapy.

Conclusions

Anti-NMDAR encephalitis was the most frequent. Confusion and seizures were the predominant clinical symptoms of AE. EEG changes were the most common among AE patients compared to the other diagnostic criteria (MRI, CSF changes). First-line treatment was sufficient in most of the cases.

References

1. Lancaster E. The Diagnosis and Treatment of Autoimmune Encephalitis. J Clin Neurol. 2016;12(1):1.

2. Ellul MA, Wood G, Tooren H Van Den, Easton A, Babu A, Michael BD. Update on the diagnosis and management of autoimmune encephalitis. Clin Med (Northfield Il). 2020;20(4):389–392.
3. Qiao S, Wu HK, Liu LL, Zhang RR, Wang ML, Han T, et al. Characteristics and Prognosis of Autoimmune Encephalitis in the East of China: A Multi-Center Study. Front Neurol. 2021;12:755.
4. Graus F, Titulaer MJ, Balu R, Benseler S, Bien CG, Cellucci T, et al. A clinical approach to diagnosis of autoimmune encephalitis. Lancet Neurol. 2016;15(4):391.

Intensive care unit admission in patients with multiple sclerosis: a systematic review

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Introduction

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system which can involve vital neurological structures and result in immobility, respiratory dysfunction, dysphagia, and other dangerous conditions [1]. These conditions, as well as MS medications may heighten the risk of developing fatal complications, such as severe infections, which may require intensive care unit (ICU) admission [2]. Therefore it is necessary to analyze the patterns of ICU admissions, especially in patients with chronic debilitating diseases, such as multiple sclerosis to be able to provide rapid and effective treatment.

Aim

To determine the risk of MS patients being admitted to the ICU, most common causes and rates of admission, duration of treatment and mortality compared with the general population.

Methods

The search was conducted in the PubMed database following PRISMA guidelines. Medical subject headings (MeSH) was used for indexing articles with these keywords: multiple sclerosis+intensive care unit. To be included, the study had to be less than 10 years ago, written in English and involve adult patients with diagnosed MS. Duplicates, irrelevant studies and reviews were excluded. 20 articles were found initially. Finally, 9 articles were included.

Results

A study conducted in Canada showed that the risk of ICU admissions for MS patients is 1.45 times higher compared to the general population ($p<0.0001$) [3]. MS patients are also at a 2.5 times higher risk of multiple admissions ($p=0.04$) [4]. However, this contradicts with the conclusion of an another study, which found that ICU readmission rates for MS patients matched with the general population (7% of both populations). It also found that the length of stay in the ICU is longer for MS patients (RR 3.11; 95% CI: 1.34-5.90) [5]. MS patients are 1.82 times more likely to be admitted for an infection (OR 1.82; 95% CI 1.10–3.02), and more likely to be mechanically ventilated ($p=0.0082$) [3]. Additionally, almost in 1/3 of MS patient ICU admissions, sepsis is present [6]. Most frequent reason for hospitalization into the ICU is infection aggravated by respiratory dysfunction (34%) [4]. The most common cause of death is respiratory complications of infection [7]. Furthermore, 1 year mortality after admission is higher and is especially high when comparing patients younger than 40 years old (HR 3.01; 95% CI 2.09–4.32) [3]. The findings are consistent compared to another similar study in Austria. It also revealed that the risk of 1 year mortality is even higher (OR=4.21, $p=0.04$) [4]. The use of disease modifying therapy (DMT) is associated with a 40% lower risk of ICU admission (RR 0.6; 95% CI: 0.4-0.91) [5]. A study in Finland also associated the decline of hospitalizations of MS patients ($p=0.0024$) with the increased use of DMT [8]. On the other hand, studies carried out in Italy during the COVID19 pandemic found that treatment with anti-CD20 therapy ($p=0.005$), as well as recent use of methylprednisolone ($p=0.001$) was a risk factor for ICU admission and a worse outcome [9,10]. This conflicts with the data of an American study which found no correlation between DMT and severity of the disease ($p=0.123$) [11].

Conclusions

Study results have shown that the risk of ICU admission is higher for MS patients. Most common cause for admission is infection. 1/3 of ICU hospitalizations are complicated with sepsis. Also, hospitalizations are longer, readmission risk and 1-year mortality is higher compared with the general population. The evidence on DMT influence on ICU admissions is conflicting.

References

1. Goodin DS. The epidemiology of multiple sclerosis: insights to disease pathogenesis. Handb Clin Neurol [Internet]. 2014 ;122:231–66. Available from: https://pubmed.ncbi.nlm.nih.gov/24507521/
2. Williamson EM, Berger JR. Infection risk in patients on multiple sclerosis therapeutics. CNS Drugs [Internet]. 2015 Mar 1 ;29(3):229–44. Available from: https://pubmed.ncbi.nlm.nih.gov/25761739/
3. WD F, RA M, A G. Intensive care unit admission in multiple sclerosis: Increased incidence and increased mortality. Neurology [Internet]. 2014 Dec 1 ;83(23):2192–3. Available from: https://pubmed.ncbi.nlm.nih.gov/25452459/
4. Karamyan A, Dünser MW, Wiebe DJ, Pilz G, Wipfler P, Chroust V, et al. Critical Illness in Patients with Multiple Sclerosis: A Matched Case-Control Study. PLoS One [Internet]. 2016 May 1 ;11(5). Available from: https://pubmed.ncbi.nlm.nih.gov/27244560/
5. Marrie RA, Bernstein CN, Peschken CA, Hitchon CA, Chen H, Fransoo R, et al. Health care utilization before and after intensive care unit admission in multiple sclerosis. Mult Scler Relat Disord [Internet]. 2015 Jul 1 ;4(4):296–303. Available from:

http://www.msard-journal.com/article/S2211034815000711/fulltext
6. Oud L, Garza J. The burden of sepsis in critically ill patients with multiple sclerosis: A population-based cohort study. J Crit Care [Internet]. 2022 Jun 1 ;69. Available from: https://pubmed.ncbi.nlm.nih.gov/35026610/
7. Karamyan A, Brandtner H, Grinzinger S, Chroust V, Bacher C, Otto F, et al. Causes of death in critically ill multiple sclerosis patients. Acta Neurol Scand [Internet]. 2017 Oct 1 ;136(4):305–9. Available from: https://pubmed.ncbi.nlm.nih.gov/28008594/
8. Pirttisalo AL, Sipilä JOT, Soilu-Hänninen M, Rautava P, Kytö V. Adult hospital admissions associated with multiple sclerosis in Finland in 2004–2014. Ann Med [Internet]. 2018;50(4):354–60. Available from: https://doi.org/10.1080/07853890.2018.1461919
9. Sormani MP, De Rossi N, Schiavetti I, Carmisciano L, Cordioli C, Moiola L, et al. Disease-Modifying Therapies and Coronavirus Disease 2019 Severity in Multiple Sclerosis. Ann Neurol [Internet]. 2021 Apr 1 ;89(4):780–9. Available from: https://pubmed.ncbi.nlm.nih.gov/33480077/
10. Sormani MP, Schiavetti I, Carmisciano L, Cordioli C, Filippi M, Radaelli M, et al. COVID-19 Severity in Multiple Sclerosis: Putting Data Into Context. Neurol Neuroimmunol neuroinflammation [Internet]. 2021 Jan 1 ;9(1). Available from: https://pubmed.ncbi.nlm.nih.gov/34753829/
11. Chaudhry F, Bulka H, Rathnam AS, Said OM, Lin J, Lorigan H, et al. COVID-19 in multiple sclerosis patients and risk factors for severe infection. J Neurol Sci [Internet]. 2020 Nov 15 ;418. Available from: https://pubmed.ncbi.nlm.nih.gov/32980780/

Efficacy of psilocybin on suicidal ideation. A systematic review

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Introduction

Use of classic psychedelics such as psilocybin is expanding, and psychedelic therapy as a form of psychiatric intervention is receiving increasing attention [1]. According to the world health organization, about 700,000 people die from suicide annually [2]. Since suicidal tendency is a growing public health problem, recent findings showed that psilocybin might be promising as an innovative way of preventing or decreasing suicidality [3]. This systematic review was conducted due to the growing number of studies and the inconclusive results [1].

Aim

To examine whether psilocybin is effective in the treatment of suicidality.

Methods

The systematic literature review was carried out following PRISMA guidelines. PubMed, ScienceDirect, and Cochrane Library databases were used to search scientific literature. Keywords and combinations of possible synonyms used for the search were selected using the Medical Subject Headings dictionary. Databases were last searched on the 8th of January 2023. An electronic search with the keywords “psilocybin” and “suicide,” “suicidality,” and “suicidal behaviours” were used. Inclusion criteria were: research articles published less than ten years ago, full text, written in English, evaluating the psilocybin effect on suicidal ideation. Case reports, literature reviews, systematic reviews, and meta-analyses were excluded from this review. The risk of bias was assessed using the Cochrane Risk of Bias Tool (RoB 2).

Results

Initially, 253 articles were retrieved. After screening and final assessment, seven studies that investigated the effect of psilocybin on suicidal ideation were included in this review. None of the selected studies have shown high risk of bias. All patients received psychological support along with psilocybin. An association between psilocybin use and suicide ideation was found in all included studies. Two studies claim that a single dose of psilocybin may have anti-suicidal properties in patients with life-threatening cancer [4,5]. Findings suggest that a moderate dose of psilocybin with psychological support at least may not increase the risk for suicidality [6]. Other studies have shown a significant effect of psilocybin on suicidal ideation among patients with an episode of major depression [7–9]. Although compared to the baseline visit, the number of suicidal thoughts among the patients decreased, some patients experienced a worsening of the suicidal status [10].

Conclusions

Our results revealed that a single dose of psilocybin might have anti-suicidal properties. However, study designs are created to investigate the effectiveness of treatment of the disorder, not suicidal states; also, it is difficult to compare the effect with placebo because psilocybin has a clear effect, and placebo does not cause a psychedelic effect, so double-blinded studies are contentious. Longer and larger trials are required to determine the efficacy and safety of psilocybin in the suicidal state.

References

1. Zeifman RJ, Singhal N, Breslow L, Weissman CR. On the Relationship between Classic Psychedelics and Suicidality: A Systematic Review. ACS Pharmacol Transl Sci [Internet]. 2021 Apr 9 [cited 2023 Jan 8];4(2):436–51. Available from: https://pubs.acs.org/doi/abs/10.1021/acsptsci.1c00024
2. Suicide [Internet]. [cited 2023 Jan 8]. Available from: https://www.who.int/news-room/fact-sheets/detail/suicide
3. Hendricks PS, Johnson MW, Griffiths RR. Psilocybin, psychological distress, and suicidality. J Psychopharmacol [Internet]. 2015 Sep 23 [cited 2023 Jan 8];29(9):1041–3.

Available from: https://pubmed.ncbi.nlm.nih.gov/26395582/
4. Ross S, Agin-Liebes G, Lo S, Zeifman RJ, Ghazal L, Benville J, et al. Acute and Sustained Reductions in Loss of Meaning and Suicidal Ideation Following Psilocybin-Assisted Psychotherapy for Psychiatric and Existential Distress in Life-Threatening Cancer. ACS Pharmacol Transl Sci [Internet]. 2021 Apr 9;4(2):553–62. Available from: https://pubs.acs.org/doi/10.1021/acsptsci.1c00020
5. Benville J, Agin-Liebes G, Roberts DE, Lo S, Ghazal L, Franco-Corso SJ, et al. Effects of Psilocybin on Suicidal Ideation in Patients With Life-Threatening Cancer. Biol Psychiatry [Internet]. 2021 May;89(9):S235–6. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0006322321006958
6. von Rotz R, Schindowski EM, Jungwirth J, Schuldt A, Rieser NM, Zahoranszky K, et al. Single-dose psilocybin-assisted therapy in major depressive disorder: A placebo-controlled, double-blind, randomised clinical trial. 2022 [cited 2023 Jan 3]; Available from: www.thelancet.com
7. Carhart-Harris R, Giribaldi B, Watts R, Baker-Jones M, Murphy-Beiner A, Murphy R, et al. Trial of Psilocybin versus Escitalopram for Depression. N Engl J Med [Internet]. 2021 Apr 15 [cited 2023 Jan 8];384(15):1402–11. Available from: https://pubmed.ncbi.nlm.nih.gov/33852780/
8. Davis AK, Barrett FS, May DG, Cosimano MP, Sepeda ND, Johnson MW, et al. Effects of Psilocybin-Assisted Therapy on Major Depressive Disorder: A Randomized Clinical Trial. JAMA Psychiatry [Internet]. 2021 May 1 [cited 2023 Jan 8];78(5):481–9. Available from: https://pubmed.ncbi.nlm.nih.gov/33146667/
9. Carhart-Harris RL, Bolstridge M, Day CMJ, Rucker J, Watts R, Erritzoe DE, et al. Psilocybin with psychological support for treatment-resistant depression: six-month follow-up. Psychopharmacology (Berl) [Internet]. 2018 Feb 1 [cited 2023 Jan 8];235(2):399–408. Available from: https://pubmed.ncbi.nlm.nih.gov/29119217/
10. Goodwin GM, Aaronson ST, Alvarez O, Arden PC, Baker A, Bennett JC, et al. Single-Dose Psilocybin for a Treatment-Resistant Episode of Major Depression. New England Journal of Medicine [Internet]. 2022 Nov 3 [cited 2023 Jan 8];387(18):1637–48. Available from: https://www.nejm.org/doi/full/10.1056/NEJMoa2206443

Risk factors of postpartum depression in Europe: a systematic literature review

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Introduction

Pregnancy and childbirth are major life events in woman's life. Becoming a mother induces intense change in responsibilities (1). According to ICD 10, postpartum depression (PPD) is defined as type of depression that occurs within six weeks of giving birth (2). It's prevalence varies from 10% and 20%, and reaches 26% between teenagers and single mothers (3). PPD also leads to changes in spousal relationships - difficulties with intimacy and emotional closeness, which even can lead to separation (4). Mother's condition also affects the infants' cognitive development, language development, and overall health (5).

Aim

To review literature on risk factors of postpartum depression of European women.

Methods

Data search was conducted using PubMed database following PRISMA guidelines. Keywords used: "postpartum depression risk factors". Inclusion criteria: full text articles written in English, published less than 5 years ago, and studies conducted in Europe. Exclusion criteria: articles older than 5 years, studies conducted in other continents, other languages than English, literature reviews. 580 articles were screened. Selection criteria were applied and only 8 (6-13) publications were selected.

Results

Low maternal self – efficacy is strongly associated with a higher risk of depression (OR 6.70). There is also association between poor current physical health of the mother – OR is 5.75. Early cessation of breastfeeding was also associated with higher risk of PPD (OR 1.32) (6). Associations between childhood persistent depression (OR 2.37) and early adult-onset depression (OR 2.39) and PPD were found. It possibly reflects genetic influences as these two trajectories are associated with the polygenic risk score for depression symptoms, which was created from a genome wide association study on depression symptoms (7). Family history is also important – PPD is thought to aggregate in families with no other psychiatric history. Having the first-degree female relative with PPD history was associated with a more than 2.5 times increased risk of PPD (8). Severe fear of childbirth presents a risk factor for maternal mental health after delivery, increasing risk of PPD (9). Body dissatisfaction was positively correlated with postpartum depression, so that for each point increased in body dissatisfaction, depression also increased. Women who reported being on a weight loss diet were 4.71 times more likely to be dissatisfied with their body image (10). Higher level of stress experienced during pregnancy and childbirth, surgical delivery are significantly associated with lower birth satisfaction, which can be considered a risk factor (11). Birth satisfaction is also affected by informal coercion which is experienced by one in four women. Obstetric interventions that women did not agree to or felt pressured to agree increased the risk of PPD 1.3 times (12). Physical health during pregnancy and various conditions such as preeclampsia, gestational diabetes and sleep deprivation during late stages of pregnancy resulted in higher risk of PPD. Any complications that resulted in hospitalization can be considered a risk factor (10). Social factors of PPD include relationship changes with a partner, housing issues, work, financial situation (13).

Conclusions

In reviewed studies risk factors include physical health, low maternal self - efficacy, family history, body image issues, lower birth satisfaction, informal coercion, and various social factors - relationship changes, housing issues, work, financial issues.

References

1. Slomian J, Honvo G, Emonts P, Reginster JY, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. Womens Health (Lond) [Internet]. 2019 [cited 2023 Jan 18];15. Available from: https://pubmed.ncbi.nlm.nih.gov/31035856/
2. ICD-10 Version:2019 [Internet]. [cited 2023 Jan 18]. Available from: https://icd.who.int/browse10/2019/en#/F53.0
3. Cernadas JMC. Postpartum depression: Risks and early detection. Arch Argent Pediatr [Internet]. 2020 Jun 1 [cited 2023 Jan 18];118(3):154–5. Available from: https://pubmed.ncbi.nlm.nih.gov/32470247/
4. Johansson M, Benderix Y, Svensson I. Mothers' and fathers' lived experiences of postpartum depression and parental stress after childbirth: a qualitative study. Int J Qual Stud Health Well-being. 2020 Dec;15(1):1722564. doi: 10.1080/17482631.2020.1722564. PMID: 31990637; PMCID: PMC7034451.
5. Slomian J, Honvo G, Emonts P, Reginster JY, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. Womens Health (Lond). 2019 Jan-Dec;15:1745506519844044. doi: 10.1177/1745506519844044. Erratum in: Womens Health (Lond). 2019 Jan-Dec;15:1745506519854864. PMID: 31035856; PMCID: PMC6492376.
6. van der Zee-van den Berg AI, Boere-Boonekamp MM, Groothuis-Oudshoorn CGM, Reijneveld SA. Postpartum depression and anxiety: a community-based study on risk factors before, during and after pregnancy. J Affect Disord [Internet]. 2021 May 1 [cited 2023 Jan 18];286:158–65. Available from: https://pubmed.ncbi.nlm.nih.gov/33725615/
7. Kwong ASF, López-López JA, Hammerton G, Manley D, Timpson NJ, Leckie G, et al. Genetic and Environmental Risk Factors Associated With Trajectories of Depression Symptoms From Adolescence to Young Adulthood. JAMA Netw Open [Internet]. 2019 [cited 2023 Jan 18];2(6). Available from: /pmc/articles/PMC6604106/
8. Rasmussen MLH, Poulsen GJ, Wohlfahrt J, Videbech P, Melbye M. Familial risk of postpartum depression. Acta Psychiatr Scand [Internet]. 2022 Oct 1 [cited 2023 Jan 18];146(4):340–9. Available from: https://pubmed.ncbi.nlm.nih.gov/35731191/
9. Zejnullahu VA, Ukella-Lleshi D, Zejnullahu VA, Miftari E, Govori V. Prevalence of postpartum depression at the clinic for obstetrics and gynecology in Kosovo teaching hospital: Demographic, obstetric and psychosocial risk factors. European Journal of Obstetrics and Gynecology and Reproductive Biology [Internet]. 2021 Jan 1 [cited 2023 Jan 18];256:215–20. Available from: http://www.ejog.org/article/S0301211520307363/fulltext
10. Riesco-González FJ, Antúnez-Calvente I, Vázquez-Lara JM, Rodríguez-Díaz L, Palomo-Gómez R, Gómez-Salgado J, et al. Body Image Dissatisfaction as a Risk Factor for Postpartum Depression. Medicina (B Aires) [Internet]. 2022 Jun 1 [cited 2023 Jan 18];58(6). Available from: /pmc/articles/PMC9228492/
11. Urbanová E, Škodová Z, Bašková M. The Association between Birth Satisfaction and the

Risk of Postpartum Depression. Int J Environ Res Public Health [Internet]. 2021 Oct 1 [cited 2023 Jan 18];18(19). Available from: https://pubmed.ncbi.nlm.nih.gov/34639758/
12. Oelhafen S, Trachsel M, Monteverde S, Raio L, Müller EC. Informal coercion during childbirth: risk factors and prevalence estimates from a nationwide survey of women in Switzerland. BMC Pregnancy Childbirth [Internet]. 2021 Dec 1 [cited 2023 Jan 19];21(1). Available from: https://pubmed.ncbi.nlm.nih.gov/33971841/
13. Aris-Meijer J, Bockting C, Stolk R, Verbeek T, Beijers C, van Pampus M, et al. What If Pregnancy Is Not Seventh Heaven? The Influence of Specific Life Events during Pregnancy and Delivery on the Transition of Antenatal into Postpartum Anxiety and Depression. Int J Environ Res Public Health [Internet]. 2019 Aug 2 [cited 2023 Jan 19];16(16). Available from: https://pubmed.ncbi.nlm.nih.gov/31405014/

Assessment of medicine students' academic motivation using SAMS-21 questionnaire

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Introduction

It is widely known that you have intense studies and long years to become a doctor. It requires a high level of professional expertise and the establishment of good ethical standards during medical school which lead to improved patient outcomes. Naturally, it is important to maintain motivation during an exhausting road until a doctor’s certificate is received. Even after you have to keep updating your knowledge by participating in various conferences, reading new scientific articles, and constantly refreshing your skills by reading books. Although the medical school selects highly motivated students who excelled in their exams, so they can be trained for this difficult specialty. (1, 2)

Aim

Our aim was to identify motivational aspects of medicine students using Student Academic Motivation Scale (SAMS-21)

Methods

The Student Academic Motivation Scale was administered for the medical students of each year. 237 participants of the Lithuanian University of Health Sciences (LUHS) completed this questionnaire which was created in the "Microsoft Forms" platform. We have used translated and validated to our native language version of SAMS-21. In this questionnaire, we have a motivation model which consists of intrinsic motivation (intrinsic motivation to know, achieve and experience stimulus), extrinsic motivation (external control, introjection, and identification), and amotivation. (3) Data analysis was managed with the statistical platform SPSS Statistics, version 29.

Results

In our study of 237 medicine students, 79.7% (n=189) were women and 20.3% (n=48) were men. 94.18% (n=178) women and 93.75% (n=45) men had intrinsic motivation to know, 77.78% (n=147) women and 66.67% (n=32) men were linked to achieving, and 34.39% (n=65) women and 43.75% (n=21) men had intrinsic motivation to experience stimulus. 65.61% (n=124) women and 60.42% (n=29) men choose extrinsic motivation to external control, 58.73% (n=111) women and 66.67% (n=32) men tend to introjection and 98.84% (n=187) women and 95.83% (n=46) men had the extrinsic motivation to the identification.10.05% (n=19) women and 4.17% (n=2) men were linked to amotivation. There was no significant difference between women and men in the choice of motivational characteristic aspects.

Conclusions

According to the results taken from this survey, majority students of LUHS are motivated to study medicine at this university. This is based on 7 different characteristics (intrinsic motivation to know, to achieve and experience stimulus; external control, introjection and identification and amotivation) of SAMS-21 questionnaire. Most participants of this research indicated that the most important feature of extrinsic motivation is external identification while the most important characteristic of intrinsic motivation is an intrinsic motivation to know. However, survey responders pointed out that the least important feature was amotivation.

References

1. 1., Watari T, Nagai N, Kono K, Onigata K. Background factors associated with academic motivation for attending medical school immediately after admission in Japan: A single-center study. J Gen Fam Med [Internet]. 2022;23(3):164–71. Available from: http://dx.doi.org/10.1002/jgf2.528
2. 2., Sobral DT. What kind of motivation drives medical students' learning quests? Med Educ [Internet]. 2004;38(9):950–7. Available from: http://dx.doi.org/10.1111/j.1365-2929.2004.01913.x
3. 3., Kairys A, Liniauskaitė A, Brazdeikienė L, Bakševičius L, Čepienė R, Mažeikaitė-Gylienė Ž, et al. Studentų akademinės motyvacijos skalės (SAMS-21) struktūra. Psichologija (Vilniaus Univ) [Internet]. 2017;55(55):41–55. Available from: http://dx.doi.org/10.15388/psichol.2017.55.10735

IHS Conference

Surgery: Orthopaedics and trauma, Abdominal surgery, Maxillofacial surgery, Plastic and reconstructive surgery

Effects of adipose tissue and human body characteristics on lipocyte viability

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Introduction

The outcome of fat grafting is still hardly predictable. Complications after fat grafting affect more than 5% of patients and the causes are usually unclear [1]. One of the most important factors for successful fat grafting is thought to be lipocyte viability (LV) [2]. In the last decade, only a handful of studies have looked at the effect of body mass index (BMI) on LV and found no association [3][4]. There have been no studies investigating the relationship between the oil mass (OM) in lipoaspirate, haemoglobin (Hb), total flap weight (TFW) and LV.

Aim

To evaluate the influence of BMI, OM in lipoaspirate, Hb, TFW, and age on LV after fat liposuction.

Methods

The prospective study included 54 women who underwent abdominoplasty with abdominal skin flap removal and underwent Suction-assisted liposuction in a Nordclinic in 2021. Parameters such as BMI, and TFW, Hb were included. Inclusion criteria were age between 20 and 30, no co-morbidities or harmful habits. A total of 108 fat tubes were collected. In the laboratory, adipocytes were isolated from lipoaspirate. Enzymatic isolation and centrifugation methods were used and samples were separated into three fractions: the upper of oil, the middle of mature adipocytes and a lower fraction of water. Then adipocytes were sampled from the central part of the adipocyte layer. The cells were stained with Hoechst nucleus-selective dye. Alamar Blue Assay was used to assess LV. Purified adipocytes were incubated at 37°C. Absorbance was measured with a spectrophotometer (Tecan Sunrise) at 570 and 600 nm. Data analysis was performed using GraphPad Prism 9 software package. The normality of data was assessed with the Kolmogorov- Smirnov test. Spearman and Pearson correlation coefficients were used. For descriptive statistics means (±), and median values (min-max) were used. A significance level of 0.05 was chosen to test statistical hypotheses.

Results

The study included 54 women who underwent abdominoplasty suction-assisted lipectomy and had no side diseases or harmful habits. The median age of 27 (24-29) years.
A total of 108 samples were tested (mean viability, 56.74 ±10.33). The median of OM was 5,78% (0.38% - 17.42%). The median of Hb was 132g/l (117g/l - 145g/l). The median of TFW was 2521g (629g - 5651g). The mean BMI was 29.22 (±2.68).
A positive moderate statistically significant correlation was found between the LV and the amount of OM in lipoaspirate ($r=0.5362$ $p<0.05$). A positive very weak statistically not significant correlation was found between BMI, TWF and LV ($r=0.0191$; $r=0.0058$; $p>0.05$). We found very weak negative not significant correlations between age, Hb and LV ($r=-0.0515$; $r=-0.0428$; $p>0.05$).

Conclusions

Greater LV may be associated with higher OM. Higher OM in lipoaspirate increases the likelihood of good LV in fat grafting if oil were removed from the total lipoaspirate mass.

References

1. Kaur S, Rubin JP, Gusenoff J, Sommers CA, Shamsunder MG, Hume KM, et al. The General Registry of Autologous Fat Transfer: Concept, Design, and Analysis of Fat Grafting Complications. Plast Reconstr Surg [Internet]. 2022 Jun [cited 2022 Dec 16];149(6):1118e-1129e
2. Bellini E, Grieco MP, Raposio E. The science behind autologous fat grafting [Internet]. Vol. 24, Annals of Medicine and Surgery. Elsevier; 2017 [cited 2022 Dec 16]. p. 65–73
3. Geissler PJ, Davis K, Roostaeian J, Unger J, Huang J, Rohrich RJ. Improving fat transfer viability: the role of aging, body mass index, and harvest site. Plast Reconstr Surg [Internet]. 2014 [cited 2022 Dec 28];134(2):227–32
4. Molitor M, Trávníčková M, Měšťák O, Christodoulou P, Sedlář A, Bačáková L, et al. The Influence of Low- and High-Negative-Pressure Liposuction and Different Harvesting Sites on the Viability and Yield of Adipocytes and Other Nucleated Cells. Aesthetic Plast Surg [Internet]. 2021 Dec 1 [cited 2022 Dec 28];45(6):2952–70

Tissue morphology and the preconditions for inguinal hernioplasty complications

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Introduction

Inguinal hernias occur in about 15% of the adult population. Inguinal hernioplasty takes its place among the most frequently performed surgical procedures in the world. The complication rates according to various authors reach up to 27% (Patel N.G., Ratanshi I., et al., 2018). The results of the researches (Kushner B.S., Arefanian S., et al. 2022) prove that the important part in the hernioplasty complications development (dysfunction in particular) play the atrophic changes in tissues of the hernioplasty area linked to chronic ischemia as a result of their involving into the stitch during the own tissues hernioplasty or the allograft fixation. New methods of hernioplasty with the use of own tissues and modern allografts in combination with the latest implantation methods and technical means increasingly require more careful and individualized approach to the choice of surgery type according to clinical and morphological picture.

Aim

To assess the morphological status of hernia sac and adjacent tissues for the determination of risk factors for hernioplasty complications development.

Methods

The biopsies of hernia sac and adjacent tissues (subcutaneous cellular tissue, muscular tissue, and, in some cases, preperitoneal cellular tissue), taken during the inguinal hernia repairs in 28 male patients, were studied according to histological standards. A special attention was paid to muscular tissue atrophy, inflammatory and cicatricial changes. A descriptive method was used for the results assessment.

Results

The major signs of chronic inflammation of hernia sac were detected in all 28 patients. In 9 (32.1%) patients we found the isolated inflammation of hernia sac, and in 19 (67.9%) patients it was combined with the chronic inflammation of adjacent tissues. In 7 (25.0%) patients with the recurrent inguinal hernias the inflammatory changes of hernia sac and adjacent tissues were significant and combined with their cicatricial changes. In all patients we also detected the significant atrophic changes of the muscular tissue. The latter one shows that tissue-suture methods of hernioplasty can cause the further development of ischemia, atrophy and cicatricial changes in muscles of the anterior abdominal wall, leading to hernioplasty inefficacy.

Conclusions

1. The chronic inflammatory changes of hernia sac and adjacent tissues, due to their constant traumatization in process of hernia development and growth, cause the atrophic changes in hernia adjacent tissues and may lead to post-hernioplasty complications.
2. Inflammatory and cicatricial changes after the tissue-suture methods of hernioplasty in postoperative period increase the local ischemia, atrophic and cicatricial changes in muscles taken into the sutures, which can lead to their dysfunction and hernia recurrence development.
3. The “tension-free” techniques wit “non-suture” fixation let to reduce the local ischemia and to improve the course of postoperative period.

References

1. Bendavid R, Mainprize M, Iakovlev V. Pure tissue repairs: a timely and critical revival. Hernia. 2019;23(3):493-502.
2. Burcharth J. The epidemiology and risk factors for recurrence after inguinal hernia surgery. Dan Med J. 2014;61(5):B4846. PMID: 24814748.
3. Dietz UA, Winkler MS, Härtel RW, Fleischhacker A, Wiegering A, Isbert C, Jurowich Ch, Heuschmann P, Germer CT. Importance of recurrence rating, morphology, hernial gap size, and risk factors in ventral and incisional hernia classification. Hernia. 2014;18(1):19-30.
4. Henriksen NA. Systemic and local collagen turnover in hernia patients. Dan Med J. 2016;63(7):B5265.
5. Kushner BS, Arefanian S, McAllister J, Tan WH, Grant M, MacGregor R, Majumder A, Blatnik JA. Examination of abdominal wall perfusion using varying suture techniques for midline abdominal laparotomy closure. Surg Endosc. 2022 Jun;36(6):3843-3851.
6. Patel NG, Ratanshi I, Buchel EW. The Best of Abdominal Wall Reconstruction. Plast Reconstr Surg. 2018;141(1):113e-136e.
7. Thankam FG, Palanikumar G, Fitzgibbons RJ, Agrawal DK. Molecular Mechanisms and Potential Therapeutic Targets in Incisional Hernia. J Surg Res. 2019;236:134-143.

Incisional hernia: three-year retrospective study in Lithuanian University of Health Sciences, Kaunas Clinics

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Introduction

An inability of the fascia to close properly after surgeries leads to the development of postoperative hernias. A meta-analysis of studies from multiple countries has shown that the incidence of incisional hernia varies from 4% to 10% depending on the type of operation [1]. 11-20% of patients who underwent laparotomy during surgical treatment develop postoperative abdominal wall hernia, almost 50% of them within the first 2 years [2]. Numerous patients' characteristics, technical factors have a role in the development of this lesion [3]. Comorbid

illnesses, advanced age, obesity, malnutrition, immunosuppressive medications, and other circumstances hinder wound healing; therefore, patients are at a greater risk of developing postoperative hernias [4]. Postoperative hernias could be repaired via laparoscopic or open surgery (onlay or sublay), which are abdominal wall repair surgery techniques [5].

Aim

To analyse cases of postoperative hernias at LUHS department of Surgery in 2018-2020. To compare the different surgical treatments of postoperative hernias.

Methods

This study was approved by the Bioethics centre of Lithuanian University of Health Sciences (No. BEC-MF-115). This retrospective study was conducted in Lithuanian University of Health Sciences, Kaunas Clinics, The department of Surgery. 180 patients who underwent surgery for an incisional hernia were included in this study. Surgeries techniques, operations times, recurrences, hernias sizes, complications, comorbidities, weight, height, length of hospital stay, gender and age were among the data gathered. Using the IBM SPSS statistics 26.0 program the gathered data was examined.

Results

Overall, there were 180 participants which where operated on for postoperative hernia in 2018-2020 at the Surgery Department of the Hospital of Lithuanian University of Health Sciences Kaunas Clinics. Of all the patients included in this study, 61.7% (n=111) were women and 38.3% (n=69) were men. The mean age was 61.82 (SD 12.123) years. Two categories of hernioplasty techniques were employed for incisional hernia repair: 1) open hernioplasty with a mesh (onlay, sublay), and 2) laparoscopic/endoscopic hernia repair surgery (IPOM, TARM, SCOLA). The most frequent type of surgery was an open hernioplasty with a mesh (91.7%). Laparoscopic/endoscopic hernioplasty had less cases (8.3%). Comparing the operation time of open hernioplasty with a mesh and laparoscopic hernioplasty with a mesh does not differ statistically significantly 136.99 (SD 53.905) min. vs. 135.67 (SD 65.951) min., respectively. Comparing the age of operated patient's - laparoscopic hernia repair with a mesh was performed on younger patients when compared to Open plastic surgery with a mesh, aged 56.20 (SD 19.355) vs 62.36 (SD 11.192), respectively. Comparing the duration of hospitalization in patients operated on using the following techniques, patients who underwent open incisional hernia repair surgery with a mesh (6.00 ± 5.847 days) had a significantly longer time of stay in the hospital compared to patients' group who underwent laparoscopic hernia repair surgery (2.87 ± 3.583 days) ($p<0.001$).

Conclusions

Open hernioplasty with a mesh was typically used more often to treat postoperative hernias.

References

1. Bittner R, Bain K, Bansal VK, Berrevoet F, Bingener-Casey J, Chen D, et al. Update of Guidelines for laparoscopic treatment of ventral and incisional abdominal wall hernias (International Endohernia Society (IEHS))—Part A. T. 33, Surgical Endoscopy. 2019. 3069–3139 p.
2. Dietz UA, Menzel S, Lock J, Wiegering A. The treatment of incisional hernia. Deutsches Arzteblatt International. 2018 m.;115(3):31–7.
3. Misiakos EP, Patapis P, Zavras N, Tzanetis P, Machairas A. Current trends in laparoscopic ventral hernia repair. Journal of the Society of Laparoendoscopic Surgeons. 2015 m.;19(3).
4. Itatsu K, Yokoyama Y, Sugawara G, Kubota H, Tojima Y, Kurumiya Y, et al. Incidence of and risk factors for incisional hernia after abdominal surgery. British Journal of Surgery. 2014 m.;101(11):1439–47.
5. Bosanquet DC, Ansell J, Abdelrahman T, Cornish J, Harries R, Stimpson A, et al. Systematic review and meta-regression of factors affecting midline Incisional hernia rates: Analysis of 14 618 Patients. PLoS ONE. 2015 m.;10(9):1–18.

Impact of the introduction of electric scooter rental on injury rates and the overall incidence

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Introduction

Electric scooters (ES) have become a preferred form of transportation in many cities globally, primarily due to their convenience and environmental friendliness [1][2]. According to "Statista", the number of ES-sharing users in Europe increased 10-fold between 2018 and 2019, from 1.7 million to 17 million [3]. In 2017-2018, ES sharing was launched in major European cities and since then, an increase in traumatisation has been observed [4][5]. Since the introduction of ES rentals in Lithuania in 2019, there have been no studies showing the impact of the introduction of ES rentals on the increase in injuries in Lithuania [6].

Aim

To analyse the impact of the introduction of ES rental points on injury rates and overall incidence.

Methods

We conducted a retrospective study evaluating patients that visited the adult emergency department (ED) of the Republican Vilnius University Hospital for injuries related to ES driving between 1 June and 31 August of the years 2018 and 2019. A data search was performed to identify patients that had been injured by driving an ES. Data were analysed using GraphPad Prism 9. The normality of data was assessed with the Shapiro-Wilk test. Fisher's Exact, Mann-Whitney U, Chi-square and Spearman tests were used. For descriptive statistics, median values (min-max) were used.

Results

The study included 57 people that had an injury with e-scooters in 2018 and 150 in 2019. Injuries caused by ES increased 2.63 times over a year. Demographics were not statistically significantly different in 2018 and 2019. The overall median age was 31 (18-83). Of all 207 subjects, 111 (56.62%) were male and 96 (46.38%) were female.
In 2018 57 patients (100%) used their personal transport. 7 patients (11.29%) were drunk and only 2 (3.23%) were wearing a helmet. The most frequent localisation of trauma was in lower limbs in 20 (35.09%) and head in 15 (26.32%) patients. The most frequent circumstances of the trauma event were uneven road surfaces (URS) in 26 (45.61%) patients and failure to control ES in 21 (33.33%) patients.
In 2019 102 patients (68.67%) used a rented ES and 48 (32%) were using their personal. 17 (11.33%) patients were drunk and only 18 (14%) were wearing a helmet. The most frequent injury region was the upper limbs in 62 (42.67%). The most common circumstance of injury was URS in 48 (39.33%).
In 2019, statistically significantly more people wore a helmet during an injury than in 2018 ($p=0.0448$). Statistically significantly more people suffered head injuries in 2018 than in 2019 (4.361; $p=0.0368$). There was a statistically significant difference in the circumstances of the injury with a higher incidence of not being in control of the ES in 2018 than in 2019 ($x2=5.063$; $p=0.0244$).

Conclusions

The introduction of ES leases has not only led to a significant increase in the incidence of injury, but also to a change in the circumstances of the injury. However, we believe that over time people have become more cautious with the ES and have started to follow the recommendations of ES rental companies to wear a helmet, which has led to fewer head injuries and better vehicle control.

References

1. Shichman I, Shaked O, Factor S, Weiss-Meilik A, Khoury A. Emergency department electric scooter injuries after the introduction of shared e-scooter services: A retrospective review of 3,331 cases [Internet]. Vol. 13, World Journal of Emergency Medicine. World J Emerg Med; 2022 [cited 2023 Jan 15]. p. 5–10.
2. Beck S, Barker L, Chan AN, Stanbridge S. Emergency department impact following the introduction of an electric scooter sharing service. Emerg Med Australas. 2020;32(3):409-15.

3. E-Scooter-sharing - Europe | Statista Market Forecast [Internet]. [cited 2022 Dec 13]. Available from: https://fr.statista.com/outlook/mmo/shared-mobility/shared-rides/e-scooter-sharing/europe
4. Hawkins AJ. The electric scooter craze is officially one year old — what ' s next ? The Verge [Internet]. 2018 [cited 2023 Jan 15];(September 2017). Available from: https://www.theverge.com/2018/9/20/17878676/electric-scooter-bird-lime-uber-lyft
5. Barker R. Electric scooters [Internet]. Vol. 31, EMA - Emergency Medicine Australasia. John Wiley & Sons, Ltd; 2019 [cited 2023 Jan 15]. p. 914–5.
6. Vilniaus gatvės pasipildė 300 „Bolt" elektrinių paspirtukų - Verslo žinios [Internet]. [cited 2023 Jan 15]. Available from: https://www.vz.lt/transportas-logistika/2019/07/26/nuo-siandienos-vilniuje--300-bolt-elektriniu-paspirtuku

The utilization of metal augments in revision total hip arthroplasty

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Introduction

Rising number of primary total hip arthroplasty (THA) procedures leads to increasing necessity of revision surgeries [1]. Regularly indications for this procedure are dislocation, periprosthetic joint infection and aseptic loosening [2]. Management of significant acetabular bone defects and restoration of acetabular center of rotation are most prevalent challenges during revision THA [3]. Regardless of other methods used to re-establish normal hip joint anatomy (jumbo cups, structural allografts, antiprotrusio cages, impaction bone grafting), porous trabecular metal augments (TMA), due to their reliable outcomes, are becoming progressively popular in reconstruction of complex acetabular bone defects [3][4].

Aim

To ascertain the most common indication for revision THA, evaluate severity of acetabular bone defects and find out when TMA was the most suitable method in revision THA.

Methods

The approval (No.: BEC-MF-233) for the research was granted by the Centre for Bioethics of LUHS. This retrospective study included 144 patients who underwent revision THA from 2018 to 2020 and acetabular component was changed during the procedure. Data about patient's gender, age, surgical option for reconstruction of acetabulum (TMA, jumbo cup, bone grafting, custom made implants) and indication for surgery were collected from medical records. Patients were divided into three groups according to their age: <65, 65-79 and ≥80 years old. Based on

radiographic evaluation of pre-op x-rays, acetabular bone defects were classified according to Paprosky classification to types IIA, IIB, IIC, IIIA and IIIB. Results were analyzed using SPSS Statistics software (v. 29.0). Quantitative, not normally distributed data were presented as median values (min-max) and categorical data as numbers and percentages. Categorical data were analyzed using Chi-square. A p-value of <0,05 was considered statistically significant.

Results

Among 144 patients who underwent revision THA, 84 were female (58,3%) and 60 were male (41,7%) with age median of 73 years (30-89). Most prevalent indication for revision procedure was aseptic loosening of the implant (48,6%, n=70), less common indications were periprosthetic joint infection (35,4%, n=51), periprosthetic fracture (7,6%, n=11), dislocation (6,3%, n=9) and others (2,1%, n=3). No significant correlation between indication for revision and patients gender or age was found. Majority (62,5%, n=90) of acetabular bone defects were type IIIA according to Paprosky classification, 15,3% (n=22) – type IIB, 12,5% (n=18) – type IIIB, 9% (n=13) – type IIC and 0,7% (n=1) – type IIA. Severity of bone defects did not correlate with patients age and gender. To reconstruct acetabular bone defects TMA was utilized in 37 cases (25,7%, 95% CI [18,6-32,8]). Utilization of TMA was most common when acetabular bone defect were IIIA (40,5%, n=15) and IIIB (29,7%, n=11). There was no significant correlation between patients age or gender and utilization of TMA. TMA statistically significantly was preferable method to others (jumbo cup, bone graft, custom made) when bone defects were IIC and IIIB (p<0,05). No significant correlations were found between revision indication and utilization of TMA.

Conclusions

Aseptic loosening of an implant is the most common indication for revision THA. Most patients who require revision THA, have Paprosky IIIA acetabular bone defects. Utilization of porous trabecular metal augments is preferable when bone defects are severe (Paprosky type IIC, IIIA and IIIB).

References

1. Fryhofer GW, Ramesh S, Sheth NP. Acetabular reconstruction in revision total hip arthroplasty. J Clin Orthop Trauma. 2020;11(1):22–8.
2. Hinton ZW, Wu CJ, Ryan SP, Cunningham DJ, Green CL, Lachiewicz PF. Current Trends in Revision Hip Arthroplasty: Indications and Types of Components Revised. J Arthroplasty. 2022;37(7):S611-S615.e7.
3. Chang CY, Wu CT, Numan H, Kuo FC, Wang JW, Lee MS. Survival Analysis of Allografting and Antiprotrusio Cage in Treating Massive Acetabular Bone Defects. J Arthroplasty. 2021;36(2):682–7.
4. O'Neill CJ, Creedon SB, Brennan SA, O'Mahony FJ, Lynham R, Guerin S, et al. Acetabular Revision using Trabecular Metal Augments for Paprosky Type 3 Defects. J Arthroplasty. 2018;33(3):823–8.

Comparison of the expression of E-cadherin in the healthy oral mucosa, leukoplakia and oral squamous cell carcinoma: a systematic literature review

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Introduction

Oral squamous cell carcinoma (OSCC) is the most frequent malignancy in oral cavity [1]. Most OSCC cases can develop from premalignant lesions, such as leukoplakia, associated with noticeable clinical and histological changes in oral mucosa [2]. Neoplastic cells undergo a dedifferentiation process, which is followed by a loss of intercellular adhesion [3]. E-cadherin is a glycoprotein, which is an important cell adhesion molecule and signals transduction factor [1]. Its loss of expression has been noted with poorly differentiated morphology in a large number of malignancies [4]. But it remains unclear if E-cadherin could be used as a reliable biomarker to predict malignant processes.

Aim

This study aims to compare the expression of E-cadherin in healthy oral mucosa, leukoplakia and oral cancer to determine the potential for malignancy.

Methods

A systematic search was conducted in three electronic databases, including Pubmed, Wiley Online and ScienceDirect between December 5, 2022 and December 20, 2022. The protocol of the study was conducted in line with the PRISMA statement. Following mesh terms were used: „oral cancer“, „leukoplakia“, „immunohistochemical markers”. According to the PICO schema, the study included healthy adult patients or patients diagnosed with leukoplakia or oral squamous cell carcinoma (OSCC) (P), in which immunohistochemical expression of E-cadherin was investigated (I) in different lesions (C) in order to evaluate the malignant potential of lesions (O). The criteria for the study inclusion were full-text studies published in English, clinical studies with humans and studies not older than 10 years.

Results

In total, 848 articles were initially identified in the electronic databases. Following the primary screening of 156 articles of titles and abstracts, 108 studies were excluded. After the final screening of 48 full texts, 6 studies were included in the final evaluation, which compares the expression of E-cadherin in epithelial cells between healthy oral mucosa, leukoplakia and OSCC [1-6].
E-cadherin staining was greater in the healthy mucosa (51%), and alcohol/tobacco (51%) groups compared to leukoplakia (41%), and oral squamous cell carcinoma (38%) groups [6].
E-cadherin immunoexpression showed a statistically significant gradual decrease in the healthy oral mucosa, leukoplakia (mild and severe), and OSCC groups ($p<0.05$) [1-5].
The group with healthy oral mucosa had a higher percentage of E-cadherin (75-100%) than low-risk and high-risk leukoplakia, which showed results from 51 to 100% and from 1 to 75%, respectively. The most significant decrease in E-cadherin expression was identified in OSCC (0-50%) [2,5].

Conclusions

Study cases have shown a significant gradual decrease in E-cadherin expression evaluating from healthy mucosa, leukoplakia (dysplasia) to oral squamous cell carcinoma, suggesting that the decrease in expression of E-cadherin is closely related to the malignancy processes and its markedly diminished in OSCC tumors.

References

1. Zhou J, Tao D, Xu Q, Gao Z, Tang D. Expression of E-cadherin and vimentin in oral squamous cell carcinoma. Int J Clin Exp Pathol. 2015 Mar 1;8(3):3150-4.
2. de Freitas Silva BS, Yamamoto-Silva FP, Pontes HA, Pinto Júnior Ddos S. E-cadherin downregulation and Twist overexpression since early stages of oral carcinogenesis. J Oral Pathol Med. 2014 Feb;43(2):125-31.
3. López-Verdín S, Martínez-Fierro ML, Garza-Veloz I, Zamora-Perez A, Grajeda-Cruz J, González-González R, Molina-Frechero N, Arocena-Sutz M, Bologna-Molina R. E-Cadherin gene expression in oral cancer: Clinical and prospective data. Med Oral Patol Oral Cir Bucal. 2019 Jul 1;24(4):e444-e451.
4. Sharma J, Bhargava M, Aggarwal S, Aggarwal A, Varshney A, Chopra D. Immunohistochemical evaluation of E-cadherin in oral epithelial dysplasia and squamous cell carcinoma. Indian J Pathol Microbiol. 2022 Oct-Dec;65(4):755-760.
5. von Zeidler SV, de Souza Botelho T, Mendonça EF, Batista AC. E-cadherin as a potential biomarker of malignant transformation in oral leukoplakia: a retrospective cohort study. BMC Cancer. 2014 Dec 17;14:972.
6. da Silva AD, Daroit NB, Cardoso FB, Laureano NK, Maraschin BJ, Bündrich L, Danilevicz CK, Magnusson AS, Visioli F, Rados PV. Epithelial oral mucosal cells: Do they behave differently when exposed to oral carcinogens? Cytopathology. 2018 Feb;29(1):49-57.

The rate of occurrence of Alveolar osteitis after coronectomy compared to surgical extraction of third molars. Systematic literature review

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Introduction

Alveolar osteitis (known as dry socket) is one of the most common complications occurring after the removal of wisdom teeth. The incidence is commonly reported between 0.5% and 5%, but some studies have noted it as high as 68% [1]. Therefore Alveolar osteitis continues to stay in the field of interest of the clinicians. Regardless of the frequency of Alveolar osteitis the pathophysiology of complications raises doubts to the clinicians and impels to find the procedure with least possibility of Alveolar osteitis complication. As a consequence, occurrence rate after coronectomy and surgical extraction of third molars is evaluated.

Aim

The aim of this literature review is to evaluate the impact of coronectomy and surgical extraction of third molar teeth on Alveolar osteitis occurrence rate.

Methods

The systematic review was conducted according to PRISMA requirements. Electronic databases of PubMed, ScienceDirect, Elsevier, ResearchGate were used to perform the search using the keywords “coronectomy”, “surgical extraction”, “complications”, “alveolar osteitis”, “prevalence”. The search was carried out between November 13 and November 18 in the year 2022. Inclusion criteria were: preferably research articles published less than 10 years ago but due to lack of data older articles were included, written in English, articles in which comparison of occurrence rate of alveolar osteitis after coronectomy and surgical extraction were held in one study. Exclusion criteria: systematic reviews, case reports.

Results

After initial search in electronic databases, 73 articles were found related to our topic of concern from which 20 were reviewed fully and examined further. Only 4 articles such as prospective, prospective cohort and randomized controlled trials were chosen for our systematic literature review due to results compatibility for chosen topic. All articles combined 571 patients were examined for alveolar osteitis complication as a result of third molar removal when two different

methods were applied. The results of examined patients were converted to the number of removed teeth which equaled 794 teeth in total. For 372 teeth coronectomy was performed and for 422 surgical extraction of third molars. Occurrence of alveolar osteitis was evaluated. Information in three articles appeared compatible: alveolar osteitis occurrence in coronectomy treatment percentage rate was ranging from 0% to 1.82%, whereas percentage of extraction group was ranging from 1.15% to 5.45% (n1=175, n2=349, n3=110) [2,3,4]. Renton et al, however, found different results: coronectomy group equaled 12.1%, whereas extraction group – 9.8% (n4=160) [5].

Conclusions

Coronectomy is a less invasive procedure compared to surgical extraction, as a result, the possibility of Alveolar osteitis complication has a tendency to occur less frequently after coronectomy of third molar teeth rather than surgical extraction.

References

1. Chow O, Wang R, Ku D, Huang W. Alveolar Osteitis: A Review of Current Concepts. J Oral Maxillofac Surg. 2020;78(8):1288-1296
2. Feiwu K, Zhongxiu X, Xiaokang Z, Xueming Z, Guangyu H, Yanhuizhi F. Coronectomy: A Useful Approach in Minimizing Nerve Injury Compared With Traditional Extraction of Deeply Impacted Mandibular Third Molars. Journal of Oral and Maxillofacial Surgery. 2019;77(11):1-14.
3. Leung YY, Cheung LK. Can coronectomy of wisdom teeth reduce the incidence of inferior dental nerve injury? Ann R Australas Coll Dent Surg. 2008:19:50-1.
4. Cilasun U, Yildirim T, Guzeldemir E, Pektas Z. Coronectomy in Patients With High Risk of Inferior Alveolar Nerve Injury Diagnosed by Computed Tomography. Journal of Oral and Maxillofacial Surgery. 2011;69(6):1557-1561
5. Renton T, Hankins M, Sproate C, McGurk M. A randomised controlled clinical trial to compare the incidence of injury to the inferior alveolar nerve as a result of coronectomy and removal of mandibular third molars. Br J Oral Maxillofac Surg. 2005;43:7-12.

Comparison of PRP and PRF effectiveness for postoperative pain and soft tissue regeneration after third molar extraction. A systematic review

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Introduction

Various modern materials and techniques are used after surgical tooth extraction to fill the socket and accelerate the regeneration of bone and soft tissues [1]. Relatively recently launched platelet-rich plasma (PRP) and platelet-rich fibrin (PRF) materials are currently more and more popular to use for better dental alveoli healing and relieving postoperative pain [2]. PRP contains important growth-promoting factors, and PRF contains cell adhesives such as fibrin, fibronectin, and vitronectin responsible for osteoconduction and used as a matrix for bone, connective tissue, and epithelial migration [3].

Aim

The aim of this study was to compare the properties of two substances PRP and PRF used for postoperative pain relief and soft tissue regeneration after third molar extraction.

Methods

The systematic review was carried out on the basis of the PRISMA criteria [4], and the main question was formulated according to the PICO method: Is PRP usage more effective than PRF for postoperative pain relief and soft tissue regeneration after third molar extraction? The databases used were PubMed, Science Direct, and Cochrane Library. Literature searches were conducted independently by two researchers. Search keywords: Platelet-rich plasma, platelet-rich fibrin, extraction, third molar, visual analogue scale (VAS). Inclusion criteria: studies not older than 10 years (2013-2023), full article available, studies in English, evaluation of VAS, evaluation of soft tissue healing index. Exclusion criteria: clinical case, systematic literature reviews, meta-analyses. The search process returned 575, which were screened. The search process returned 6 relevant prospective or retrospective clinical trials, which were included in qualitative data synthesis.

Results

The search process returned 7 relevant prospective or retrospective clinical trials, which were included in qualitative data synthesis. One study was comparative, four studies were observing VAS and soft tissue regeneration when PRP was used, and 2 studies were when PRF was involved in the process of healing.
Significantly better response was observed when PRF was used, over the PRP, respectively 1.3 and 0.8, when the VAS was observed, as well as soft tissue regeneration 3.3 and 3.7, respectively, with a significant difference being noted ($p<0.05$) [5].
Four studies were observing PRP usage, from which two studies pointed out 0 in the VAS scale ($p<0.05$) [7,8]. The range of the VAS scale in studies that observed PRF was from 0.23 ($p=0.012$) to 3.05 ($p<0.05$) [9, 10].
Studies that observed PRP pointed out the highest soft tissue index of 4.8 ($p= 0.015$), while PRF studies showed 3.83 ($p<0.001$) [6, 9].

Conclusions

Comparing PRP and PRF better results were observed in PRF group. However, in studies where PRP and PRF were observed separately, PRP showed fewer scores in VAS and a higher soft tissue index.

References

1. Osagie O, Saheeb BD, Egbor EP. Do the bioactive effects of platelet-rich plasma and platelet-rich fibrin influence the oral health related quality of life following impacted third molar surgery? A randomized comparative study. Niger J Clin Pract. 2021;24(5):712–7. http://dx.doi.org/10.4103/njcp.njcp_543_20
2. Serafini G, Lopreiato M, Lollobrigida M, Lamazza L, Mazzucchi G, Fortunato L, et al. Platelet rich fibrin (PRF) and its related products: Biomolecular characterization of the liquid fibrinogen. J Clin Med. 2020;9(4):1099. http://dx.doi.org/10.3390/jcm9041099
3. Yelamali T, Saikrishna D. Role of platelet rich fibrin and platelet rich plasma in wound healing of extracted third molar sockets: a comparative study. J Maxillofac Oral Surg. 2015;14(2):410–6. http://dx.doi.org/10.1007/s12663-014-0638-4
4. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Syst Rev. 2021;10(1):89. http://dx.doi.org/10.1186/s13643-021-01626-4
5. Dutta SR, Passi D, Singh P, Sharma S, Singh M, Srivastava D. A randomized comparative prospective study of platelet-rich plasma, platelet-rich fibrin, and hydroxyapatite as a graft material for mandibular third molar extraction socket healing. Natl J Maxillofac Surg. 2016;7(1):45–51. http://dx.doi.org/10.4103/0975-5950.196124
6. Vivek GK, Sripathi Rao BH. Potential for osseous regeneration of platelet rich plasma: a comparitive study in mandibular third molar sockets. J Maxillofac Oral Surg. 2009;8(4):308–11. http://dx.doi.org/10.1007/s12663-009-0075-y
7. Nathani DB, Sequeira J, Rao BHS. Comparison of platelet rich plasma and synthetic graft material for bone regeneration after third molar extraction. Ann Maxillofac Surg. 2015;5(2):213–8. http://dx.doi.org/10.4103/2231-0746.175762
8. Bhujbal R, A Malik N, Kumar N, Kv S, I Parkar M, Mb J. Comparative evaluation of platelet rich plasma in socket healing and bone regeneration after surgical removal of impacted mandibular third molars. J Dent Res Dent Clin Dent Prospects. 2018 Summer;12(3):153–8. http://dx.doi.org/10.15171/joddd.2018.024
9. Dar MM, Shah AA, Najar AL, Younis M, Kapoor M, Dar JI. Healing potential of platelet rich fibrin in impacted mandibular third molar extraction sockets. Ann Maxillofac Surg. 2018;8(2):206–13. http://dx.doi.org/10.4103/ams.ams_181_18
10. Caymaz MG, Uyanik LO. Comparison of the effect of advanced platelet-rich fibrin and leukocyte- and platelet-rich fibrin on outcomes after removal of impacted mandibular third molar: A randomized split-mouth study. Niger J Clin Pract. 2019;22(4):546–52. http://dx.doi.org/10.4103/njcp.njcp_473_18

IHS Conference

Internal medicine, Anaesthesiology, Basic sciences, Cardiology, Gastroenterology, Dermatology poster

Impact of preoperative anxiety and depression on postoperative cognitive decline after coronary artery bypass grafting

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Introduction

Postoperative cognitive dysfunction is a complication following cardiac surgery (1). Moreover, emotional distress including depression, anxiety can often be related to cognitive decline (2). The exact mechanisms of cognitive dysfunction following CABG remain unknown (3). Understanding the predictors associated with the objectionable disorder, and identifying modified risk factors, can accelerate recovery, and improve prevention and treatment after cardiac surgery (4).

Aim

To assess the dynamics of anxiety and depression and their relationship with cognitive impairment before and after coronary artery bypass grafting surgery.

Methods

A clinical, prospective, observational study was conducted at the Lithuanian University of Health Sciences Hospital Kaunas clinics. The study was approved by the Kaunas regional biomedical research ethics committee. Patients who underwent coronary artery bypass surgery were invited to the study. All patients included in the study underwent approved cognitive function tests one day before surgery and on days 7-10 after. Tests used were mini-mental state evaluation (MMSE), Rey auditory verbal learning test, Wechsler Adult Intelligence Scale, WAIS – digit span and WAIS – digit symbol substitution test. Only 65 patients who had not been diagnosed with impaired cognitive functions before the surgery participated in the study. All patients included in the study were also assessed for anxiety and depression before and 7-10 days after surgery by distributing HADS scales. The first stage of the study was attended by 65 patients, the second stage was completed by 45 patients whose data were analyzed with IBM SPSS Statistics 29. Data for qualitative variables are presented by number of respondents (n) and percentage expression. Chi-square (χ^2) and/or Fisher's exact criteria were calculated to assess whether the signs are interrelated. Phi and Cramer's tests were used to assess the relationship between categorical data. McNemar's testing assessed whether the CABG impacted the occurrence of depressive symptoms.

Results

The average age of the respondents was 66.98 years (SD 8.281). After performing the cognitive function assessment after surgery 19 (42.2%) were included in the group of patients with cognitive impairment, other 26 patients (57.8%) had no impairment. Depression was felt by 5 (11.1%) before the operation and 14 (31.1%) after. Symptoms of anxiety appeared in 22 (48.9%) before and in 18 (40%) after. Impairment of cognitive functions is not related to symptoms of anxiety and depression felt before and after operation ($p>0.05$). Patients who experienced depression before the operation were more anxious after ($\chi 2 = 4.994$ Phi=0.333 $p=0.025$). Postoperative anxiety significantly occurs together with postoperative depression ($\chi 2 = 4.994$ Phi= 0.333 $p=0.025$). Patients who had anxiety symptoms before surgery were also anxious after ($\chi 2 = 6.537$ Phi= 0.381 $p=0.011$). The rate of depression after surgery was higher - CABG was significantly associated with the occurrence of postoperative depression ($p=0.012$).

Conclusions

The study revealed that preoperative and postoperative depression and anxiety had no impact on cognitive function decline. The surgery was significantly associated with the occurrence of postoperative depression.

References

1. Bowden T, Hurt CS, Sanders J, Aitken LM. Predictors of cognitive dysfunction after cardiac surgery: a systematic review. Vol. 21, European Journal of Cardiovascular Nursing. Oxford University Press; 2022. p. 192–204.
2. Lindert J, Paul KC, Lachman ME, Ritz B, Seeman TE. Depression-, Anxiety-, and Anger and Cognitive Functions: Findings From a Longitudinal Prospective Study. Front Psychiatry. 2021 Aug 6;12.
3. Yuan SM, Lin H. Postoperative cognitive dysfunction after coronary artery bypass grafting. Vol. 34, Brazilian Journal of Cardiovascular Surgery. Sociedade Brasileira de Cirurgia Cardiovascular; 2019. p. 76–84.
4. Danilevych TD, Rasputina L v, Mostovoy YM, Belinskiy A v. Features of structure and predictors of cognitive disorders in patients after cardiac surgery. Eur Heart J [Internet]. 2021 Oct 1;42(Supplement_1):ehab724.2074. Available from: https://doi.org/10.1093/eurheartj/ehab724.2074

Echocardiographic characteristics predicting the prolonged in-hospital stay in patients with heart failure and ischemic heart disease

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Introduction

Heart failure (HF) is a global health problem that remains the leading cause of hospitalizations, especially in elderly patients [1]. A prolonged length of stay (LOS) in hospital due to HF is associated with recurrent hospitalizations and high mortality [2]. Echocardiographic examination is frequently performed in hospitalized HF patients, furthermore, it has an important role in diagnostics, management, risk stratification, and prognosis in these patients [3]. The established echocardiographic predictors for prolonged in-hospital stay of HF patients may be beneficial and profitable in daily work of clinicians.

Aim

To identify echocardiographic characteristics that predict the prolonged in-hospital stay in patients with HF and ischemic heart disease (IHD).

Methods

The data of 130 patients (51 (39.2%) men) with HF and IHD, who were admitted to the Department of Cardiology, Kaunas Hospital of Lithuanian University of Health Sciences because of decompensated HF between March 2021 and May 2021, were enrolled into this study. A conventional 2-D echocardiography with color and tissue Doppler was done according to the protocol during the first 48 hours since hospitalisation. Median LOS was 8 [6-10] days, and patients were stratified in two groups above and below median. The patients (n=72) with in-hospital stay from 1 to 8 days were assigned to the 1st group, and the patients (n=58) with in-hospital stay more than 9 days – to the 2nd group. IBM SPSS Statistics 22.0 software was used for all statistical analyses. Kolmogorov–Smirnov test, Mann–Whitney U test and Student's t-test were performed. Continuous variables were presented as means (SD) and medians [25th and 75th percentiles]. Data differences were considered statistically significant at $p<0.05$.

Results

Most morphometric echocardiographic parameters did not differ between the groups: left ventricular mass index (113.2 ± 35.5 g/m2 and 118.6 ± 32.0 g/m2, p=0.368), left ventricular end-diastolic diameter (48.5 ± 7.4 mm and 48.2 ± 8.5 mm, p=0.789), interventricular septal thickness (11.8 [10-13] mm and 12 [11-13] mm, p=0.288), relative wall thickness (0.47 [0.43-0.53] and 0.49 [0.44-0.57], p=0.214), and E/A ratio (0.9 [0.7-1.9] and 0.7 [0.6-1.8], p=0.133). However, left ventricular ejection fraction (LVEF) was lower in 2nd group (40 [25-50] % and 47 [40-51] %, p=0.001), as well as left atrial volume index (LAVI) and mean pulmonary arterial pressure (mPAP) values were higher in 2nd group (48.8 [39.1-61.3] ml/m2 and 38.6 [30.5-48.1] ml/m2, p=0.003 and 38.5 [31.0-43.0] mmHg and 32.5 [22.5-38.3] mmHg, p=0.003, respectively). Tricuspid annular plane systolic excursion (TAPSE) was lower in 2nd group (16.5 ± 4.7 mm and 19.3 ± 5.5 mm, p=0.017). According to the logistic regression, decreased LVEF was a significant predictor of prolonged in-hospital stay in patient with HF and IHD (OR 1.1; 95% CI 1.014-1.107, p=0.010).

Conclusions

The findings of this study revealed that LVEF, LAVI, mPAP and TAPSE were different between the groups, however, only LVEF was a significant prognostic marker of prolonged in-hospital stay in HF patients with aethiology of IHD.

References

1. Lahoz R, Fagan A, McSharry M, Proudfoot C, Corda S, Studer R. Recurrent heart failure hospitalizations are associated with increased cardiovascular mortality in patients with heart failure in Clinical Practice Research Datalink. ESC Heart Fail. 2020;7(4):1688-1699. doi:10.1002/ehf2.12727.
2. Tigabe Tekle M, Bekalu AF, Tefera YG. Length of hospital stay and associated factors among heart failure patients admitted to the University Hospital in Northwest Ethiopia. PLoS One. 2022;17(7):e0270809. Published 2022 Jul 22. doi:10.1371/journal.pone.0270809.
3. Modin D, Andersen DM, Biering-Sørensen T. Echo and heart failure: when do people need an echo, and when do they need natriuretic peptides?. Echo Res Pract. 2018;5(2):R65-R79. doi:10.1530/ERP-18-0004.

How successful percutaneous coronary intervention changes the arterial pulse waveform

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Introduction

Invasive blood pressure (IBP) monitoring is widely used in terminally ill patients‘ management in intensive care units due to its intuitive, accurate and sensitive nature and real-time expression of vital changes (1). Hemodynamic monitoring using pulse contour waveform analysis has become widely accepted in clinical practice in the past decade (2). It was recently noticed that pulse waveforms change themselves after successful percutaneous coronary intervention (PCI), although the certain changes are not investigated yet (3).

Aim

The goal of the research was to investigate how the characteristics of the pulse waveform of IBP change after a successful PCI procedure, and to compare any differences in these changes between patients who were treated due to acute and stable ishaemic heart disease.

Methods

The invasive arterial pulse waveforms (APW) and electrocardiogram (ECG) of 184 patients, both shortly before and just after successful PCI procedures of all patients were analysed in this research. Collected data analysed using a specialized software package, ImageJ 1.53t. To analyse APW and ECG following parameters were used: (1) the pulse waveform angle (PWA) (in degrees,°) near the anacrotic limb, (2) the area under the pulse waveform (AUPW) (mm2), (3) the pulse waveform perimeter (PWP) (mm), (4) the distance between the R wave of ECG and the beginning of APW (mm), and (5) the ECG area (mm2). For each patient, APW and ECG curves were manually analyzed and observed parameters averaged from five measurements twice - once just before and once just after the procedure. In addition, patients' clinical, demographic, and laboratory test information was collected. The severity of coronary artery disease was assessed using the GENSINI score. Statistical analysis performed using IBM SPSS 28.0 statistical package. Paired-Samples T-test and linear regression were the chosen statistical methods.

Results

The average age of the research participants was 69±11 years and the majority of them were men. Of all, 59% (N=109) procedures were executed in acute settings. The study found that there was no significant difference in any of the pulse waveform parameters between elective and urgent PCI, $p>0.05$. However, there was a significant change observed in the PWA and AUPW values when comparing pre-PCI and post-PCI measurements. Specifically, the PWA increased from an average of 53±11 before the procedure to 59±11 after the procedure ($p<0.001$) and AUPW increased from 42±20 to 52±22 ($p<0.001$). Additional examination of the data indicated that there was a linear relationship between the AUPW and GENSINI score (β 0.077; C.I. 0.013; 0.142; $p=0.019$). No other demographic factors or laboratory test results were found to be statistically significant.

Conclusions

As a result of Improved intracoronary blood flow, a successful PCI enhanced the pulse waveform angle and area under the pulse waveform. However, the results did not differ between urgent and elective procedures. This study did not include unsuccessful PCIs, so the effect of procedure's success on these changes could only be suspected, but not fully determined. Further research is required to fully understand these findings and their relationship to long-term outcomes, in order to assist clinicians in managing patients undergoing PCI. The study is still ongoing.

References

1. Roach JK, Thiele RH. Perioperative blood pressure monitoring. Best Pract Res Clin Anaesthesiol. 2019 Jun 1;33(2): 127-38.
2. He H wu, Liu D wei, Long Y, Wang X ting, Zhao M ling, Lai X Ii. The effect of variable arterial transducer level on the accuracy of pulse contour waveform-derived measurements in critically ill patients. J Clin Monit Comput. 2016;30(5):569-75.
3. Avolio AP, Kuznetsova T, Heyndrickx GR, Kerkhof PLM, Li JKJ. Arterial flow, pulse pressure and pulse wave velocity in men and women at various ages. Adv Exp Med Biol. 2018;1065: 153--68.

Carotid intima-media thickness and atherosclerotic burden relation with Dutch Lipid Clinic Network Score values in patients with suspected familial hypercholesterolemia diagnosis

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Introduction

One of the most common genetic disorder in general population is familial hypercholesterolemia (FH) which is associated with premature atherosclerosis onset with an overall prevalence of 1:311 [1,2]. In those with ischemic heart disease (IHD) prevalence is 10fold higher, in those with premature IHD – 20-fold higher and in those with severe hypercholesterolemia – 23-fold higher among compared with a general population [3]. One of the diagnostic methods for confirming the diagnosis of FH is Dutch Lipid Clinic Network Score (DLCNS) [4]. Carotid intima-media thickness (cIMT) measurement is another diagnostic method which is commonly used as a marker for cardiovascular disease (CVD) risk evaluation [5,6].

Aim

To assess whether the cIMT and atherosclerotic burden correlates with different DLCNS in patients with suspected FH.

Methods

In total, 46 patients were included in this study. Patients who have suffered from acute coronary syndrome – unstable angina pectoris, myocardial infarction or were hospitalized due to chronic coronary syndrome in Lithuania University of Health sciences (LUHS) Kaunas clinics, Cardiology department, were selected. Men and women, respectively <55 and <60 years old at the day of event, were included in the study. Those with a history of pancreatitis, nephrotic syndrome, and older than above-mentioned were excluded from the study. The DLCNS was calculated for all patients. According to the DLCNS value, patients were divided into 4 groups: those with a value from 1 to 3 (excluding) were assigned an unlikely diagnosis of FH, those with a value from 3 to 5 as a possible diagnosis of FH, those with a value from 6 to 8 (excluding) as a probable diagnosis of FH and those with a value more than 8 as a definite diagnosis of FH. cIMT and atherosclerotic burdens (atherosclerotic plaque thickness) were measured of left and right carotids in 29 out of 46 patients. For the remaining 17 patients, cIMT and atherosclerotic burden was not measured due to not attendance to examination. The statistical analysis was performed using SPSS 29.0 and Microsoft Excel software. Data was analyzed with the descriptive statistics, Kruskal-Wallis test. The p value less than 0.05 was considered as a significantly important.

Results

Out of 29 patients, 0 patients DLCNS value were less than 3, 14 patients DLCNS value were between 3 and 5, 12 between 6 and 8, 3 patients DLCNS value were more than 8. cIMT of the left and the right carotid arteries did not differ statistically (p=0.762). cIMT between the four groups of DLCNS differed statistically insignificant (H(2)=1.912, p=0.34). The atherosclerotic burdens among the four groups of DLCNS differed statistically significant: the higher value of atherosclerotic burden, the higher DLCNS value (H(2)=6.243, p=0.044).

Conclusions

Size of an atherosclerotic burden (atherosclerotic plaque thickness) is statistically related to DLCNS value. However, large-scale studies are needed to conclude that cIMT could be an

additional prognostic factor for the suspicion and diagnosis of FH. Moreover, cIMT showed no significant relation with different DLCNS values.

References

1. Kim YR, Han KH. Familial hypercholesterolemia and the atherosclerotic disease. Korean Circ J. 2013 Jun;43(6):363–7.
2. Hu P, Dharmayat KI, Stevens CAT, Sharabiani MTA, Jones RS, Watts GF, et al. Prevalence of Familial Hypercholesterolemia Among the General Population and Patients With Atherosclerotic Cardiovascular Disease: A Systematic Review and Meta-Analysis. Circulation. 2020 Jun;141(22):1742–59.
3. Beheshti SO, Madsen CM, Varbo A, Nordestgaard BG. Worldwide Prevalence of Familial Hypercholesterolemia: Meta-Analyses of 11 Million Subjects. J Am Coll Cardiol. 2020 May;75(20):2553–66.
4. Al-Rasadi K, Al-Waili K, Al-Sabti HA, Al-Hinai A, Al-Hashmi K, Al-Zakwani I, et al. Criteria for Diagnosis of Familial Hypercholesterolemia: A Comprehensive Analysis of the Different Guidelines, Appraising their Suitability in the Omani Arab Population. Oman Med J. 2014 Mar;29(2):85–91.
5. Willeit P, Tschiderer L, Allara E, Reuber K, Seekircher L, Gao L, et al. Carotid Intima-MediaThickness Progression as Surrogate Marker for Cardiovascular Risk: Meta-Analysis of 119 Clinical Trials Involving 100 667 Patients. Circulation. 2020 Aug;142(7):621–42.
6. Posadas-Sánchez R, Vargas-Alarcón G, Pérez-Méndez Ó, Pérez-Hernández N, RodríguezPérez JM. Increased Carotid Intima-Media Thickness in Asymptomatic Individuals Is Associated with the PCSK9 (rs2149041) Gene Polymorphism in the Mexican Mestizo Population: Results of the GEA Cohort. Life. 2022;12(10).

Monkeypox outbreak in Europe 2022: A Systematic Review

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Introduction

Human monkeypox - a zoonotic orthopoxvirus with presentation similar to smallpox was initially diagnosed in 1970 in the Democratic Republic of the Congo, and is endemic in a number of African nations [1;2]. However, since early May 2022, cases of monkeypox (mpox) have been documented in countries where the disease is very uncommon, and as of December 6, 2022, there have been 20 934 confirmed cases of mpox reported from 29 EU/EEA countries [3;4]. Considering the fast rate of spread to the non-endemic countries, there is an urgent need of better understanding of the mpox virus and it‘s clinical presentation.

Aim

To present the most common symptoms and clinical characteristics of patients with mpox that were a part of monkeypox outbreak in Europe in 2022.

Methods

A systematic review was conducted according to the PRISMA guidelines by two independent researchers. Electronic search was carried out from year 2022 on PubMed and Science Direct platforms. Search keywords were “Monkeypox ”, “Monkeypox outbreak”,” Monkeypox 2022”, “Monkeypox Europe”. Inclusion criteria: adults with polymerase chain reaction confirmed monkeypox infection, European countries, English language. Exclusion criteria: studies concerning children or lacking necessary data. The risk of bias was assessed using the Cochrane Risk of Bias Tool [5].

Results

After an initial search in electronic databases 646 results were displayed, and 8 articles were included in this review with a combined total of 529 patients with confirmed monkeypox virus infection from several different European countries [2;6-12]. 527 of those patients were males and 96% of them identified as homosexual or bisexual. More than half of them claimed having multiple sex partners, while nearly 30% had unprotected sex within 3 weeks. 46% of the patients had a concurrent sexual transmitted infection (STI) and 38% were living with HIV. Only one fourth had history of travel abroad within 4 weeks. Severe pain from mucosal lesions/rash (described as macules, papules, vesicles, pustules, umbilication, crust, or scab) or high fever were the most frequent causes for hospitalization. Most prevalent sites of those typical lessions appeared on the genitals (55%), anus/perianal area (38%), arms or legs (37,5%), followed by face, trunk, palms/soles and oropharynx. 57% of patients presented with lymphadenopathy (mainly inguinal), systematic symptoms prior to a rash (44%), myalgia (36%), respiratory symptoms (16%) and proctitis (11%). Less than 10% experienced penile edema, arthralgia, hemorrhage/discharge per rectum, or conjunctivitis. Fortunately, none of the patients from Europe who were included in this review have passed away.

Conclusions

Mpox is spreading rapidly in Europe, mostly between men that have unprotected intercourse or multiple sex partners. Mucosal lessions/rash on genitals, high fever and lymphadenopathy were the most common symptoms in patients with mpox. However, only small amount of cases had severe complications and zero deaths were reported.

References

1. Rizk JG, Lippi G, Henry BM, Forthal DN, Rizk Y. Prevention and Treatment of Monkeypox. Drugs. 2022 Jun;82(9):957-963.
2. Perez Duque Mariana, Ribeiro Sofia, Martins João Vieira, Casaca Pedro, Leite Pedro Pinto, Tavares Margarida,et al. Ongoing monkeypox virus outbreak, Portugal, 29 April to 23 May 2022. Euro Surveill. 2022;27(22):2200424.
3. World Health Organization. Emergencies. Available at:

https://www.who.int/emergencies/situations/monkeypox-oubreak-2022
4. European Centre for Disease Prevention and Control. News-events. Available at: https://www.ecdc.europa.eu/en/news-events/monkeypox-situation-update
5. [bias] Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.1 (updated September 2020). Cochrane, 2020.
6. Patel A, Bilinska J, Tam JCH, Da Silva Fontoura D, Mason CY, Daunt A et al. Clinical features and novel presentations of human monkeypox in a central London centre during the 2022 outbreak: descriptive case series. BMJ. 2022 Jul 28;378:e072410.
7. Orviz E, Negredo A, Ayerdi O, Vázquez A, Muñoz-Gomez A, Monzón S et al. Monkeypox outbreak in Madrid (Spain): Clinical and virological aspects. J Infect. 2022 Oct;85(4):412-417.
8. Loconsole D, Sallustio A, Centrone F, Casulli D, Accogli M, Saracino A et al. Monkeypox Virus Infections in Southern Italy: Is There a Risk for Community Spread? Int J Environ Res Public Health. 2022 Sep 17;19(18):11719.
9. Hornuss D, Daehne T, Goetz V, Mueller M, Usadel S, Lorz A et al. Transmission characteristics, replication patterns and clinical manifestations of human monkeypox virus-an in-depth analysis of four cases from Germany. Clin Microbiol Infect. 2023 Jan;29(1):112.e5-112.e9.
10. Antinori Andrea, Mazzotta Valentina, Vita Serena, Carletti Fabrizio, Tacconi Danilo, Lapini Laura Emma et al. The INMI Monkeypox Group. Epidemiological, clinical and virological characteristics of four cases of monkeypox support transmission through sexual contact, Italy, May 2022. Euro Surveill. 2022;27(22):2200421.
11. Girometti N, Byrne R, Bracchi M, Heskin J, McOwan A, Tittle V et al. Demographic and clinical characteristics of confirmed human monkeypox virus cases in individuals attending a sexual health centre in London, UK: an observational analysis. Lancet Infect Dis. 2022 Sep;22(9):1321-1328.
12. Català A, Clavo-Escribano P, Riera-Monroig J, Martín-Ezquerra G, Fernandez-Gonzalez P, Revelles-Peñas L,et al. Monkeypox outbreak in Spain: clinical and epidemiological findings in a prospective cross-sectional study of 185 cases. Br J Dermatol. 2022 Nov;187(5):765-772.

New-onset of autoimmune bullous skin diseases following COVID-19 vaccination: a systematic literature review

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Introduction

Autoimmune bullous skin diseases (AIBD) are a group of rare, chronic inflammatory skin diseases that present clinically with blisters and painful erosions of the skin and/or mucosa [1]. COVID-19 vaccines have been demonstrated to have a high level of efficacy in preventing infection and severe illness caused by the virus, but with any medical intervention, there is a possibility of developing certain side effects, particularly autoimmune diseases [2]. The manifestation of AIBD following vaccination for COVID-19 is a rare but potentially severe adverse event [3]. Further research is necessary to gain a deeper understanding of this phenomenon and to ensure the safety and efficacy of the vaccines.

Aim

To review and systematize clinical cases of AIBDs which developed after COVID-19 vaccination and were published in the literature.

Methods

A comprehensive search of scientific literature was conducted using the PubMed and ScienceDirect databases up to January 2023 and following the PRISMA guidelines. The search included a combination of keywords: “autoimmune bullous disease” and “COVID-19 vaccine”. The inclusion criteria for the publications were clinical case reports of new-onset AIBD after COVID-19 vaccination, with a clinically, histopathologically, and direct immunofluorescence confirmed diagnosis of AIBD.

Results

A total of 58 cases of AIBDs triggered by the COVID-19 vaccination were identified in the search. The sub-epithelial diseases were the most frequent, accounting 43 cases (74.1%), specifically 39 cases of bullous pemphigoid (BP) (67.2%) and 4 case of linear IgA bullous dermatosis (LABD) (6.9%). The intra-epithelial diseases were accounted 15 cases (25.9%), specifically 11 cases (19%) of pemphigus vulgaris (PV) and 4 cases of pemphigus foliaceus (PF) (6.9%). The average age of patients who were diagnosed with sub-epithelial diseases was 74.3 years, and those patients with intra-epithelial diseases had an average age of 62.2 years. Most of patients were men (n=34). The onset of AIBD symptoms occurred on average 11 days after vaccination, with a range of 1 to 28 days. In 36 (62.1%) cases, the disease developed after Pfizer vaccine, 10 (17.2%) after Moderna, 8 (13.8%) after AstraZeneca, 4 (6.9%) after CoronaVac. AIBD was observed in an equal number of patients following both the first (n=24) and second (n=24) doses, after the third dose in 9 patients. All patients were treated with topical and/or systemic corticosteroids. Treatment led to a positive outcome in the majority cases, with 88% (n=44) showing a good clinical response or full recovery.

Conclusions

A review of the literature has identified 58 cases of bullous diseases following COVID-19 vaccination, with bullous pemphigoid being the most commonly reported condition. While this finding is concerning, it is important to note that only clinical cases have been published thus far. To better understand the potential risks associated with the COVID-19 vaccine and bullous

diseases, further clinical trials and continued monitoring of vaccine recipients are needed. These efforts will be critical in developing evidence-based recommendations to guide clinical practice and ensure the safety of the public.

References

1. Witte M, Zillikens D, Schmidt E. Diagnosis of Autoimmune Blistering Diseases. Front Med (Lausanne). 2018 Nov 2;5:296. doi: 10.3389/fmed.2018.00296.
2. Cairoli E, Espinosa G. Autoimmune diseases and vaccines against COVID-19. Decision making in uncertain scenarios. Med Clin (Engl Ed). 2021 Sep 10;157(5):247-252. doi: 10.1016/j.medcle.2021.05.003.
3. Calabria E, Canfora F, Mascolo M, Varricchio S, Mignogna MD, Adamo D. Autoimmune mucocutaneous blistering diseases after SARS-Cov-2 vaccination: A Case report of Pemphigus Vulgaris and a literature review. Pathol Res Pract. 2022 Apr;232:153834. doi: 10.1016/j.prp.2022.153834.

Fecal microbiota transplantation for ulcerative colitis: systematic literature review

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Introduction

Ulcerative colitis (UC) is a chronic disease characterized by inflammation of the colon mucosal layer [1]. It is proven that patients with UC have specific changes in gut microbiome composition [2]. Over the last several years, fecal microbiota transplantation (FMT) has been successfully used as a treatment for recurrent Clostridium difficile infection. However, the efficacy of FMT for inflammatory bowel disease (IBD) is unclear [1].

Aim

To review current data on the possible benefits of FMT for UC treatment.

Methods

This systematic review was conducted complying with PRISMA reporting standards. Literature search was performed using keywords "Fecal microbiota transplantation" and "Ulcerative colitis"

on the PubMed and ScienceDirect databases. Articles about the patients with UC who have had FMT and were published in English in high impact factor (≥ 10) journals from 2017-2022 were included. We excluded reports of children and non-full text articles. We identified 45 articles using specific keywords.

Results

A total of 27 articles (n = 1445 patients) were enrolled in this review. 26 researches were done on the patients with mild to moderate UC, 1 - with severe UC. In 12 studies investigators used FMT infusion during colonoscopy which was the most frequently used method, the second most common FMT administration was enema. Majority of studies used fresh 7 (53 %) feces for FMT while frozen stools were used by 4 (31 %) studies, 1 (8%) study used a combination of mentioned types, which showed a tendency of frozen stools being more effective, and 1 (8%) study used lyophilized feces. Among the clinical studies, a pooled proportion of patients that achieved clinical remission was 46,42 %. Two randomized controlled trials demonstrated remission in patients (n = 5) who had placebo infusions (10,4 %). In three studies with a low rate of remission clinical effect (a decrease in frequency of defecation, a decrease in rectal bleeding and lower intensity of abdominal pain) was noticed in 38,9 % cases. Endoscopic remission after FMT had an average rate of 47,9 % according to three clinical trials (n = 49 patients). Time to relapse varied from 6 weeks to over 12 months, and we noticed a tendency that continuous treatment with FMT may prolong the time to relapse. Donor's feces microbial diversity showed to be a significant factor for FMT effectiveness. Patients in remission after FMT had enrichment of Eubacterium hallii and Roseburia inulivorans compared with those who did not achieve remission. Therefore, richness of the donor's microbiota, mild or moderate UC, FMT chronic treatment, anti-inflammatory diet, FMT combined with drug treatment were factors that improved remission. While severe UC and Streptococcus species in donor stools were associated with lower chance of remission. Most common adverse effects after FMT were diarrhea, bloating, abdominal pain, fever, constipation and other mild gastrointestinal symptoms, associated with the procedure, but severe symptoms were extremely rare.

Conclusions

This literature review reveals that clinical remission rate of UC was 46,42 % after FMT. The time of relapse varied from 6 to 12 weeks. According to the literature, successful remission was associated with chronic administration of enriched with microbiota stools through lower gastrointestinal tract which was combined with drugs or anti-inflammatory diet. However, multicentre randomized placebo controlled clinical trials with long term examinations are necessary in order to evaluate the effectiveness of this treatment for UC.

References

1. Narula N, Kassam Z, Yuan Y, Colombel JF, Ponsioen C, Reinisch W, Moayyedi P. Systematic Review and Meta-analysis: Fecal Microbiota Transplantation for Treatment of Active Ulcerative Colitis. Inflamm Bowel Dis. 2017 Oct;23(10):1702-1709. doi: 10.1097/MIB.0000000000001228.
2. Cammarota G, Ianiro G. FMT for ulcerative colitis: closer to the turning point. Nat Rev Gastroenterol Hepatol. 2019 May;16(5):266-268. doi: 10.1038/s41575-019-0131-0.
3. Paramsothy S, Nielsen S, Kamm MA, Deshpande NP, Faith JJ, Clemente JC et al.

Specific Bacteria and Metabolites Associated With Response to Fecal Microbiota Transplantation in Patients With Ulcerative Colitis. Gastroenterol. 2019 Apr;156(5):1440-1454.e2. doi: 10.1053/j.gastro.2018.12.001
4. Moayyedi P, Surette MG, Kim PT, Libertucci J, Wolfe M, Onischi C et al. Fecal Microbiota Transplantation Induces Remission in Patients With Active Ulcerative Colitis in a Randomized Controlled Trial. Gastroenterol. 2015 Jul;149(1):102-109.e6. doi: 10.1053/j.gastro.2015.04.001
5. Rossen NG, Fuentes S, van der Spek MJ, Tijssen JG, Hartman JH, Duflou A et al. Findings From a Randomized Controlled Trial of Fecal Transplantation for Patients With Ulcerative Colitis. Gastroenterol. 2015 Jul;149(1):110-118.e4. doi: 10.1053/j.gastro.2015.03.045.
6. Haifer C, Paramsothy S, Kaakoush NO, Saikal A, Ghaly S, Yang T et al. Lyophilised oral faecal microbiota transplantation for ulcerative colitis (LOTUS): a randomised, double-blind, placebo-controlled trial. Lancet Gastroenterol Hepatol. 2022 Feb;7(2):141-151. doi: 10.1016/S2468-1253(21)00400-3.
7. Kedia S, Virmani S, K Vuyyuru S, Kumar P, Kante B, Sahu P et al. Faecal microbiota transplantation with anti-inflammatory diet (FMT-AID) followed by anti-inflammatory diet alone is effective in inducing and maintaining remission over 1 year in mild to moderate ulcerative colitis: a randomised controlled trial. Gut. 2022 Dec;71(12):2401-2413. doi: 10.1136/gutjnl-2022-327811.
8. Smits LP, Bouter KE, de Vos WM, Borody TJ, Nieuwdorp M. Therapeutic potential of fecal microbiota transplantation. Gastroenterol. 2013 Nov;145(5):946-53. doi: 10.1053/j.gastro.2013.08.058.
9. Chen T, Zhou Q, Zhang D, Jiang F, Wu J, Zhou JY et al. Effect of Faecal Microbiota Transplantation for Treatment of Clostridium difficile Infection in Patients With Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis of Cohort Studies. J Crohns Colitis. 2018 May 25;12(6):710-717. doi: 10.1093/ecco-jcc/jjy03
10. Colman RJ, Rubin DT. Fecal microbiota transplantation as therapy for inflammatory bowel disease: a systematic review and meta-analysis. J Crohns Colitis. 2014 Dec;8(12):1569-81. doi: 10.1016/j.crohns.2014.08.006.
11. Paramsothy S, Paramsothy R, Rubin DT, Kamm MA, Kaakoush NO, Mitchell HM et al. Faecal Microbiota Transplantation for Inflammatory Bowel Disease: A Systematic Review and Meta-analysis. J Crohns Colitis. 2017 Oct 1;11(10):1180-1199. doi: 10.1093/ecco-jcc/jjx063.
12. Green JE, Davis JA, Berk M, Hair C, Loughman A, Castle D et al. Efficacy and safety of fecal microbiota transplantation for the treatment of diseases other than Clostridium difficile infection: a systematic review and meta-analysis. Gut Microb. 2020 Nov 9;12(1):1-25. doi: 10.1080/19490976.202
13. Qazi T, Amaratunga T, Barnes EL, Fischer M, Kassam Z, Allegretti JR. The risk of inflammatory bowel disease flares after fecal microbiota transplantation: Systematic review and meta-analysis. Gut Microb. 2017 Nov 2;8(6):574-588. doi: 10.1080/19490976.2017.1353848.
14. Cui B, Li P, Xu L, Peng Z, Xiang J, He Z et al. Step-up fecal microbiota transplantation (FMT) strategy. Gut Microbes. 2016 Jul 3;7(4):323-328. doi: 10.1080/19490976.2016.1151608.
15. Sood A, Singh A, Mahajan R, Midha V, Kaur K, Singh D et al. Clinical Predictors of response to Faecal Microbiota Transplantation in patients with active ulcerative colitis. J Crohns Colitis. 2020 Aug 9. doi: 10.1093/ecco-jcc/jjaa163.

16. Nishida A, Imaeda H, Ohno M, Inatomi O, Bamba S, Sugimoto M et al. Efficacy and safety of single fecal microbiota transplantation for Japanese patients with mild to moderately active ulcerative colitis. J Gastroenterol. 2017 Apr;52(4):476-482. doi: 10.1007/s00535-016-1271-4.
17. Steube A, Vital M, Grunert P, Pieper DH, Stallmach A. Long-term Multidonor Faecal Microbiota Transfer by Oral Capsules for Active Ulcerative Colitis. J Crohns Colitis. 2019 Oct 28;13(11):1480-1481. doi: 10.1093/ecco-jcc/jjz073
18. Angelberger S, Reinisch W, Makristathis A, Lichtenberger C, Dejaco C, Papay P et al. Temporal bacterial community dynamics vary among ulcerative colitis patients after fecal microbiota transplantation. Am J Gastroenterol. 2013 Oct;108(10):1620-30. doi: 10.1038/ajg.2013.257.
19. Ianiro G, Bibbò S, Porcari S, Settanni CR, Giambò F, Curta AR et al. Fecal microbiota transplantation for recurrent C. difficile infection in patients with inflammatory bowel disease: experience of a large-volume European FMT center. Gut Microb. 2021 Jan-Dec;13(1):1994834. doi: 10.1080/19490976.2021.1994834.
20. Vermeire S, Joossens M, Verbeke K, Wang J, Machiels K, Sabino J et al. Donor Species Richness Determines Faecal Microbiota Transplantation Success in Inflammatory Bowel Disease. J Crohns Colitis. 2016 Apr;10(4):387-94. doi: 10.1093/ecco-jcc/jjv203.
21. Sood A, Mahajan R, Singh A, Midha V, Mehta V, Narang V et al. Role of Faecal Microbiota Transplantation for Maintenance of Remission in Patients With Ulcerative Colitis: A Pilot Study. J Crohns Colitis. 2019 Sep 27;13(10):1311-1317. doi: 10.1093/ecco-jcc/jjz060.
22. Brace C, Gloor GB, Ropeleski M, Allen-Vercoe E, Petrof EO. Microbial composition analysis of Clostridium difficile infections in an ulcerative colitis patient treated with multiple fecal microbiota transplantations. J Crohns Colitis. 2014 Sep;8(9):1133-7. doi: 10.1016/j.crohns.2014.01.020.
23. Quraishi MN, Iqbal TH, Hart AL. Precision Medicine with FMT for Ulcerative Colitis: Are We There Yet? J Crohns Colitis. 2021 Apr 6;15(4):519-520. doi: 10.1093/ecco-jcc/jjaa190.
24. Haifer C, Luu LDW, Paramsothy S, Borody TJ, Leong RW, Kaakoush NO. Microbial determinants of effective donors in faecal microbiota transplantation for UC. Gut. 2022 Jul 25:gutjnl-2022-327742. doi: 10.1136/gutjnl-2022-327742.
25. Thomas H. IBD: FMT induces clinical remission in ulcerative colitis. Nat Rev Gastroenterol Hepatol. 2017 Apr;14(4):196. doi: 10.1038/nrgastro.2017.27.
26. Siegmund B. Is intensity the solution for FMT in ulcerative colitis? Lancet. 2017 Mar 25;389(10075):1170-1172. doi: 10.1016/S0140-6736(17)30313-6.
27. Haifer C, Saikal A, Paramsothy R, Kaakoush NO, Leong RW, Borody TJ et al. Response to faecal microbiota transplantation in ulcerative colitis is not sustained long term following induction therapy. Gut. 2021 Nov;70(11):2210-2211. doi: 10.1136/gutjnl-2020-323581.
28. Rubin DT. Curbing our enthusiasm for fecal transplantation in ulcerative colitis. Am J Gastroenterol. 2013 Oct;108(10):1631-3. doi: 10.1038/ajg.2013.279.

The effect of gemcitabine on viability and survival of different pancreatic cancer cells, in vitro

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Introduction

Pancreatic cancer (PC) is emerging as one the most fatal types of cancer with only a 10% five-year survival rate [1]. This is attributed to the fact that most incidences of PC are diagnosed in advanced or metastatic stages [2]. In such cases, gemcitabine (GEM) remains one of the first-line drugs used for treatment [2,3]. One of the biggest problems of PC treatment is tumour heterogeneity and its acquired resistance to chemotherapies [4]. Due to poor future projections, low survival rates, limited treatment options and commonly observed resistance to drugs, it's imperative to get a better understanding of the currently available treatments' strengths and shortcomings with the objective of discovering ways to ultimately improve upon them.

Aim

The aim of this research was to determine the IC50 doses of GEM of different PC cell lines and investigate how these doses affect their colony formation.

Methods

Two PC cell lines were selected: BxPC-3 and Su.86.86. The former was developed from the adenocarcinoma of the body of the pancreas of a 61-year-old woman, while the latter was obtained from the liver metastasis of a 57-year-old woman with adenocarcinoma of the head of the pancreas. The cell lines were treated with varying doses of GEM for 48-hours to determine IC50 doses by 3-(4,5-Dimethylthiazol-2-yl)-2,5-Diphenyltetrazolium Bromide metabolism (MTT) assay. After determining the IC50 doses, the cells were treated with their respective doses for 48 hours, after which they were seeded for clonogenic assay for 7 days with the intent of observing the long-term effect of GEM on cell survival.

Results

The results indicated an irreparable effect on the viability of both cell lines when treated with IC50 doses of GEM, signified by cells dying even after the drug had been removed. Calculating the IC50 doses of GEM according to MTT assay resulted in IC50 of BxPC-3 being 24,14 +/- 1,69

nM and Su.86.86 - 36,91 +/- 1,40 nM. In regards to clonogenic assay, the IC50 dose of GEM decreased BxPC-3 colony formation to 18,3 +/-7,3 % and Su.86.86 to 30,3 +/- 4,2 % when compared to control cells. The results showed that Su.86.86 is more resistant to GEM both by MTT assay and colony formation assay.

Conclusions

GEM is a potent drug with detrimental effect on PC cell viability and colony formation, however different responses of different cell lines show that the effect can vary depending on the profile of the cancer cells. Further investigation into these differences of various cell lines can potentially help understand the underlying mechanisms of resistance to gemcitabine. Subsequently, this can lead to improvements of available treatments, making them more effective in accordance with specific PC tumour cell profiles.

References

1. Hu JX, Zhao CF, Chen WB, Liu QC, Li QW, Lin YY, Gao F. Pancreatic cancer: A review of epidemiology, trend, and risk factors. World J Gastroenterol. 2021 Jul 21;27(27):4298-4321. doi: 10.3748/wjg.v27.i27.4298.
2. Kamisawa T, Wood LD, Itoi T, Takaori K. Pancreatic cancer. The Lancet. 2016 Jul 2;388(10039):73-85.
3. Buscail L, Bournet B, Cordelier P. Role of oncogenic KRAS in the diagnosis, prognosis and treatment of pancreatic cancer. Nat Rev Gastroenterol Hepatol. 2020 Mar;17(3):153-168. doi: 10.1038/s41575-019-0245-4.
4. Juiz NA, Iovanna J, Dusetti N. Pancreatic cancer heterogeneity can be explained beyond the genome. Frontiers in oncology. 2019 Apr 5;9:246.

Carotuximab treatment does not affect endoglin expression in mouse nash model

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Introduction

Nonalcoholic steatohepatitis (NASH) is a progressive liver disease characterized by steatosis, inflammation, and fibrosis that leads to cirrhosis and liver failure. NASH is currently the leading cause for liver transplant [1] for which there are currently no approved pharmacotherapies and

its management is limited to lifestyle changes and auxiliary therapies for amelioration of comorbidities [2]. Endoglin (CD105, Eng) is a transmembrane glycoprotein and a coreceptor for binding to the TGFβ superfamily. Several papers demonstrated that Eng would possibly play an important role in the process of liver fibrosis, inflammation, or endothelial dysfunction [3]. Cell adhesion molecules ICAM-1 and VCAM-1 are hallmarks of inflammation and endothelial dysfunction in the liver. Alpha-smooth muscle actin (α-SMA) is the hallmark of hepatic stellate cell activation and hepatic fibrosis. Carotuximab (TRC105) is a novel monoclonal antibody that binds Eng with high affinity and affects Eng expression and signaling [4].

Aim

To investigate whether TRC105 treatment would affect NASH development by affecting Eng in the liver.

Methods

6 mice per group were used in this study. C57BL/6J male mice were fed for 6 months with chow diet (PicoLab Rodent Diet20 and water ad libitum) in control group, and NASH was induced by FFC diet (AIN-76A WD, TestDiet) containing 45% kcal fat (milk fat), 0.2% cholesterol, 15.4% protein (casein), and 44.5% carbohydrate with additional glucose (18.1 g/L) and fructose (24 g/L) added in drinking water. FFC diet mice were treated with either Carotuximab (TRC105) (15mg/Kg i.p.) or vehicle (physiological solution (0.9% NaCl)), intraperitoneally twice a week for the last 4 weeks. Biochemical analysis of plasma was performed. Liver sections were fixed in 4% paraformaldehyde, embedded in paraffin, and serial cross-sections (7 μm) were cut for immunohistochemical analysis. Immunohistochemistry method is used to detect antigens of interest in the tissue by using antibodies. Normal distribution of the data was confirmed by Shapiro-Wilk test and statistical analysis was carried out using One-way ANOVA and unpaired t-test [5].

Results

FFC diet feeding resulted in NASH with hepatocyte ballooning, inflammation, and fibrosis with high fidelity to human NASH. Biochemical analysis showed increased ALT (FFC diet average ALT = 5.04 μkat/L) when compared to control (average ALT = 0.30 μkat/L); however, it was not significantly affected by TRC105 treatment (average ALT = 6.23 μkat/L). Immunohistochemical analysis showed increased endoglin expression, mostly in sinusoidal endothelial cells in FFC-fed mice. Moreover, expression of inflammation (VCAM-1 and Mac-2, a macrophage marker), as well as fibrosis (α-SMA) markers were increased after NASH development. TRC105 treatment did not significantly affect staining pattern or intensity of Endoglin and other inflammation and fibrosis related proteins.

Conclusions

In conclusion, based on biochemical and immunohistochemical analysis, TRC105 treatment did not affect Endoglin expression and NASH development. However, other molecular analyses of endoglin and other markers including Western blot analysis will follow in order to elucidate the potential effects of TRC105 on NASH.

References

1. Noureddin M, Vipani A, Bresee C, Todo T, Kim IK, Alkhouri N, et al. NASH Leading Cause of Liver Transplant in Women: Updated Analysis of Indications For Liver Transplant and Ethnic and Gender Variances. Am J Gastroenterol [Internet]. Springer US; 2018;113:1649–59. Available from: http://dx.doi.org/10.1038/s41395-018-0088-6
2. Cotter TG, Rinella M. Nonalcoholic Fatty Liver Disease 2020: The State of the Disease. Gastroenterology [Internet]. The American Gastroenterological Association; 2020;158:1851–64. Available from: https://doi.org/10.1053/j.gastro.2020.01.052
3. Vicen M, Igreja Sá IC, Tripská K, Vitverová B, Najmanová I, Eissazadeh S, et al. Membrane and soluble endoglin role in cardiovascular and metabolic disorders related to metabolic syndrome. Cell Mol Life Sci [Internet]. Springer International Publishing; 2021;78:2405–18. Available from: https://doi.org/10.1007/s00018-020-03701-w
4. Tripska K, Igreja Sá IC, Vasinova M, Vicen M, Havelek R, Eissazadeh S, et al. Monoclonal anti-endoglin antibody TRC105 (carotuximab) prevents hypercholesterolemia and hyperglycemia-induced endothelial dysfunction in human aortic endothelial cells. Front Med. 2022;9:1–15.
5. Varsha A V., George G, Sahajanandan R. Lutembacher syndrome: Dilemma of doing a tricuspid annuloplasty. Ann Card Anaesth. 2017;20:456–8.

IHS Conference

Obstetrics & Gynaecology, Paediatrics

The impact of gestational diabetes mellitus and maternal obesity on obstetric complications

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Introduction

Gestational diabetes mellitus (GDM) is a carbohydrate metabolism disorder, manifested by varying degrees of hyperglycaemia, first detected during pregnancy [1]. About one-third of all women of reproductive age are overweight or obese. Obesity is associated with the increased risk of developing GDM during pregnancy. Obese women are more likely to experience pregnancy and childbirth complications as well as complications for the foetus [2].

Aim

To determine obstetric complications for obese women with GDM.

Methods

A retrospective study was performed using the data from the Department of Obstetrics and Gynaecology of the Lithuanian University of Health Sciences (LUHS) Birth Registry in 2020 and 2021. GDM was diagnosed in the first antenatal visit if fasting glycemia is 5,1-6,9 mmol/l or in the second trimester using OGTT if at least one of the samples is pathological (fasting glycemia 5,1-6,9 mmol/l, glycemia after one hour after 75 g of glucose >10 mmol/l, glycemia after one hour after 75 g of glucose 8,5-11 mmol/l). Two groups of women with GDM were compared: BMI 18.5-24.9 - group I (909 women) and obese - group II (451 women). Women who had a BMI greater than 30 kg/m2 in the first antenatal visit, were considered obese. Data was analysed using IBM Statistics SPSS for frequencies, T and $\chi 2$ tests. Results with values of $p < 0.05$ were considered statistically significant.

Results

One third of patients were obese (33.2 %). GDM was diagnosed using fasting glucose test more often in group II ($p = 0.004$), OGTT – in group I ($p = 0.001$). Treatment with lifestyle changes was more often used in group I ($p = 0.001$), insulin therapy – group II ($p = 0.001$). Hypertensive disorders in pregnancy ($p = 0.001$) – gestational hypertension and preeclampsia ($p = 0.001$, $p = 0.001$), polyhydramnios ($p = 0.049$) were commonly diagnosed in group II. There were more vaginal births in group I ($p = 0.001$), Caesarean sections – in group II ($p = 0.032$). Large for

gestational age newborns and macrosomia were more often found in group II (p = 0.001, p = 0.039). Foetal abnormalities were not statistically significant. Induction of labour was more used in group II (p = 0.001). Premature births had no statistical significance. Caesarean section after failed induction of labour was more often performed in group II (p = 0.002).

Conclusions

GDM for obese women is more frequently diagnosed using the fasting glucose test and requires insulin therapy. There were more obstetric complications (hypertensive disorders in pregnancy, polyhydramnios, foetal macrosomia, large for gestational age newborns) in the obese women group.

References

1. Ministry of Health of The Republic of Lithuania, "NĖŠČIŲJŲ DIABETAS.", 2019.
2. Stubert J, Reister F, Hartmann S, Janni W. The Risks Associated With Obesity in Pregnancy. Dtsch Arztebl Int. 2018;115(16):276-283. doi: 10.3238/arztebl.2018.0276. PMID: 29739495; PMCID: PMC5954173.

Correlation between obesity, hypertension and pregnancy outcomes

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Introduction

The number of obese pregnant women is increasing. The proportion of pregnant women with body mass index (BMI) ≥ 30 kg/m2 surged from 9,9 % to 20 % from 1990 to 2019 in Europe [1][2]. Obese women have a higher risk to develop gestational hypertension during pregnancy or have chronic hypertension diagnosed before conception [3]. Both pathologies individually, obesity and hypertension, are known to cause negative obstetric and neonatal complications [4][5]. However, there are insufficient studies investigating obstetric outcomes in obese pregnant women who have hypertension.

Aim

To determine obstetric and neonatal complications caused by obesity and hypertensive disorders during pregnancy.

Methods

The retrospective case-control study was conducted using the data from the Department of Obstetrics and Gynecology of the Lithuanian University of Health Sciences (LUHS) Birth Registry from 2020 to 2021. Two groups of patients were compared in the research: obese pregnant women diagnosed with hypertension (group 1; n = 196) and obese pregnant patients without hypertension (group 2; n = 472). Data processing and analysis were performed with IBM Statistics SPSS. Results with values of $p < 0.05$ considered statistically significant.

Results

In total there were 668 cases analysed. 17,7 % (n = 118) of patients developed gestational hypertension and 11,7 % (n = 78) - have been diagnosed with primary hypertension. Comparing the method of delivery (Cesarean section, vacuum extraction and natural labor), no significant differences were observed between the groups. Obese women without hypertension delivered notably more newborns with fetal macrosomia (≥ 4000 g) than the group diagnosed with hypertension, respectively 30,9 % and 18,4 % (p = 0,019). Significantly more newborns were small for gestational age (SGA) (weight < 10 percentile for gestational age) in group 1 (13,3 %), than in group 2 (p < 0,001), therefore hypertension is a risk factor of small gestation weight. The results confirm, that women with hypertension had nearly twice as many premature infants (< 37 weeks) (17,3 %) compared to the patients without the pathology (9,7 %) (p = 0,049) with the mean gestation of 37,21 ± 3,9 weeks in group 1 and 38,41 ± 2,4 weeks in group 2 respectively.

Conclusions

The study indicates that obese women with the diagnosis of hypertension deliver less newborns with fetal macrosomia. In addition, they tend to have more small for gestational age infants, compared to those without hypertension. The diagnosis of hypertension is significantly linked with the tendency to have a preterm newborn.

References

1. Devlieger R, Benhalima K, Damm P, Van Assche A, Mathieu C, Mahmood T, et al. Maternal obesity in Europe: where do we stand and how to move forward?: A scientific paper commissioned by the European Board and College of Obstetrics and Gynaecology (EBCOG). Eur J Obstet Gynecol Reprod Biol. 2016 Jun; 201:203–8.
2. World Health Organization. Regional Office for Europe. WHO European regional obesity report 2022. World Health Organization. Regional Office for Europe; 2022 [cited 2023 Jan 5]. Available from: https://apps.who.int/iris/handle/10665/353747
3. Santos S, Voerman E, Amiano P, Barros H, Beilin LJ, Bergström A, et al. Impact of maternal body mass index and gestational weight gain on pregnancy complications: an individual participant data meta-analysis of European, North American and Australian cohorts. BJOG. 2019 Jul;126(8):984–95.
4. Fakhraei R, Denize K, Simon A, Sharif A, Zhu-Pawlowsky J, Dingwall-Harvey ALJ, et al. Predictors of adverse pregnancy outcomes in pregnant women living with obesity: A systematic review. Int J Environ Res Public Health. 2022 Feb;19(4):2063.
5. Wu D-D, Gao L, Huang O, Ullah K, Guo M-X, Liu Y, et al. Increased adverse pregnancy outcomes associated with stage 1 hypertension in a low-risk cohort: Evidence from 47 874 cases: Evidence from 47 874 cases. AHA Journals. 2020Jan;75(3):772–80.

Correlation between otitis media with effusion and speech and language development delay in children

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Introduction

Otitis media with effusion (OME) – is the presence of fluid in the middle ear without signs of infection [1]. 90 % of children have OME before school age [2]. The known leading cause of OME is Eustachian tube dysfunction, which leads to poor middle ear ventilation [1, 3]. It is still unclear why some children constantly experience OME, and some have it rarely or do not. One of the hypotheses of the onset of OME was made in 2008 by Charles D. Bluestone who speculated that speech development and anatomical changes during the evolution of the human articulatory instrument is the only apparent difference, and it could determine the worse function of Eustachian tube [4]. This hypothesis was not confirmed or denied by other researchers except for a study done in LSMU KK in 2021 which revealed the negative statistical correlation between speech and language delay and OME [5]. Based on these findings, we hypothesize that children with speech and language development delay (SLDD) should have OME significantly less often than children with normal speech and language development (NSLD).

Aim

To evaluate the frequency of OME in children diagnosed with speech and language development delay and in children with normal speech and language development and compare these results between the groups.

Methods

The research data were obtained prospectively from 2-6-year-old patients examined in 2022 in the Department of Otorhinolaryngology, Hospital of Lithuanian University of Health Sciences, Kaunas clinics. In the first part of the study, parents of the patients had to fill out a survey where we asked if patients have ever had OME, if they had speech and language development delay diagnosed by professionals, how often they have upper respiratory tract infections per year, and if they have confirmed allergies. Based on survey data, participants have been divided into two groups: 1) children with normal speech and language development (n=23); 2) children with delayed speech and language development (n=21). The second part of the study was to evaluate these patients' audiological assessment. We evaluated their pneumootoscopic view and audiological examination. Statistical analysis was performed using IBM SPSS 27.0 program. The correlation between OME and speech and language development delay was evaluated by the Pearson correlation coefficient (r). A p-value of 0.05 or lower was considered statistically significant.

Results

A total of 44 patients agreed to participate in the study, male to female ratio of 6:5 (p=0,156). The mean age of the SLDD participants was 3,52±1,21 years, and the NSLD group - was 4,39±1,08 (p=0,053). Twenty children with SLDD and 23 with NSLD attended daycare centers (p=0,301). Four children with SLDD and ten with NSLD had confirmed allergies (p=0,086), and the frequency of upper respiratory tract infections between groups did not differ significantly (p=0,150). Seven children in the SLDD group and 18 in the NSLD group were diagnosed with OME in anamnesis, a statistically significant difference between groups (p=0,002; r=-0,453). Normal pneumootoscopy results in patients with SLDD were found more often compared with patients with NSLD (p=0,016; r=-0,360). The audiological evaluation results did not differ between groups statistically significantly (p>0,05).

Conclusions

Despite being affected by similar environmental factors, children with normal speech and language development are likelier to have OME. In addition, having speech and language development delay is negatively related to the presence of OME.

References

1. Simon F, Haggard M, Rosenfeld RM, Jia H, Peer S, Calmels MN, et al. International consensus (ICON) on management of otitis media with effusion in children. Eur Ann Otorhinolaryngol Head Neck Dis [Internet]. 2018;135(1):S33–9. Available from: http://dx.doi.org/10.1016/j.anorl.2017.11.009
2. Rosenfeld RM, Shin JJ, Schwartz SR, Coggins R, Gagnon L, Hackell JM, et al. Clinical Practice Guideline. Vol. 154, Otolaryngology - Head and Neck Surgery (United States). 2016. 1–41 p.
3. Vanneste P, Page C. Otitis media with effusion in children: Pathophysiology, diagnosis, and treatment. A review. J Otol [Internet]. 2019;14(2):33–9. Available from: https://doi.org/10.1016/j.joto.2019.01.005
4. Bluestone CD. Impact of evolution on the eustachian tube. Laryngoscope. 2008;118(3):522–7.
5. Prosevičiūtė R, Petkutė S, Kuzminienė A. Correlation between serous otitis and speech and language delay Serozinio otito ir kalbos raidos sutrikimo ryšys. 2021;9(1):23–32.

Conservative treatment of pelvic organ prolapse: women's satisfaction and continuation rate

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Introduction

Pelvic organ prolapse (POP) is a common problem in women. About 40% of women experience prolapse in their lifetime. Treatment for prolapse includes surgery, pelvic floor muscle training (PFMT) and vaginal pessaries. Conservative treatment allows for women to avoid surgery. However, pessary treatment continuation after 12 months is about 60% and women with pessaries are feeling prolapse symptoms more frequently than those who have undergone surgery [1,2].

Aim

The aim of this study was to assess women‘s satisfaction and continuation rate of conservative treatment of pelvic organ prolapse.

Methods

The study to validate Lithuanian version of the prolapse quality-of-life (P-QoL) questionnaire was carried out in Lithuanian University of Health Sciences, Department of Obstetrics and Gynaecology from January 1 to December 31, 2020 and included 274 women. Here we present follow-up study of symptomatic women who had complaints of POP (n=137) and who were treated either by giving recommendations (lifestyle and behaviour changes, PFMT and local estrogen use) or vaginal pessary, or surgery. On December of 2022, we reached 116 women out of 137 (84.6%) by telephone call and asked about their satisfaction with the treatment of prolapse using Patient Global Impression of Improvement (PGI-I) scale and whether they are continuing primary treatment method. The PGI-I is a simple scale to assess the effectiveness of a treatment for a disease. In our study, a PGI-I score ≤2 was considered a positive response. All analyses were done with IBM SPSS statistics version 27.

Results

We enrolled 116 women aged 63.6±10.5, range 39-84 years. The mean follow-up time was 24.9±6.5 months, range 14-35 months. The most often primary treatment of POP was surgery (n=48, 41.4%), followed by recommendations (n=35 30.2%) and pessary use (n=33, 28.4%). PGI-I score ≤2 was reached for 89.6% of women after surgery, for 66.7% using pessaries and for 22.8% using recommendations, showing a global satisfaction of the patients. During follow-up, continuation rate for the recommendations was 48.5% (17/35) and for pessary use 75.8% (25/33). Another treatment was chosen by 14.3% of the patients from recommendations group (5/35; one – has chosen surgery, four – vaginal pessary) and by 12% from pessary group (4/33; all – surgery). Overall, 37.1% of women from recommendations group and 24.2% from pessary group discontinued primary treatment of prolapse without any additional interventions.

Conclusions

Vaginal pessary seems to be an effective treatment for POP with high continuation rate at 24 months (75.8%) and high patient satisfaction. Less than half of women continued to adhere to treatment recommendations for POP, and satisfaction with this method was lower.

References

1. Coolen ALWM, Troost S, Mol BWJ, Roovers JPWR, Bongers MY. Primary treatment of pelvic organ prolapse: pessary use versus prolapse surgery. International Urogynecolology Journal. 2018 Jan 1 29(1):99–107. doi: 10.1007/s00192-017-3372-x
2. Bugge C, Adams EJ, Gopinath D, Stewart F, Dembinsky M, Sobiesuo P, et al. Pessaries (mechanical devices) for managing pelvic organ prolapse in women. Cochrane database Systematic Review. 2020 Nov 18;11(11). doi: 10.1002/14651858.CD004010.pub4.

Donor human milk impact on necrotizing enterocolitis surgical procedures in hospital of Lithuanian university of health sciences

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Introduction

Necrotizing enterocolitis (NEC) is a life-threatening illness and one of the most severe diseases of premature newborns. NEC has a mortality rate as high as 50% (1). Existing data suggest neonatal diet is a very important modifiable factor (2). Providing infants with breast milk has been the main way of nutritional therapy in NEC prevention and also shows positive outcomes for infants following surgery in stage III NEC(3). The disease is 6-10 times more common in exclusively formula-fed infants than in those fed only breast milk (4). A donor human milk bank (DHMB) was opened in Lithuanian University of Health Sciences (LUHS) Hospital, in December 2016 (5).

Aim

The aim of the study was to determine the impact of donor human milk on prevalence, features and surgical needs of necrotizing enterocolitis.

Methods

We performed a retrospective study of 135 patients' data. Patients were treated in LUHS Hospital Neonatal intensive care unit in 2010-2021 yrs. Inclusion criteria: 1) gestational age (GA) ≤32 weeks 2) diagnosis of NEC 3) no congenital anomalies of the digestive tract. Patients were divided into two groups - control group (n=73) – treated before DHM was available (2010 – 2016 yrs.), intervention group (n=62) – after DHM became available (2017-2021 yrs.). Groups were compared considering stages and outcomes of disease, surgical needs, duration of parenteral feeding, and need of erythrocyte mass transfusions. Statistical analysis was performed using IBM SPSS Statistics 27.0. Results were considered significant where $p<0,05$.

Results

Patients diagnosed with NEC (n=73) composed 7,52% of all patients (n=971) ≤32 weeks GA before DHM was available and 6,51% (n=62) of all patients (n=843) after DHM became available. . We found 85,7% (n=18) of NEC-related deaths in the control group, respectively – 60,86% (n=14) in the intervention group. The difference was not significant. NEC stages varied among groups, however, there was no significant difference. Average number of NEC-related surgical procedures (0,93±1,17 vs 0,52±0,80) was significantly lower in the intervention group ($p=0.020$). Duration of parenteral feeding (8,00±9,45 vs 8,29±5,35) and number of erythrocyte mass transfusions (3,60±3,38 vs 3,11±3,40) did not differ significantly among groups.

Conclusions

According to the statistics, the number of NEC-related surgical procedures was significantly lower once DHM became available. NEC prevalence and stages did not differ significantly among groups, as well as NEC-related deaths. Also, there were no significant differences in erythrocyte mass transfusion numbers and duration of parenteral feeding.

References

1. Hal NJ, Pierro A. Necrotizing Enterocolitis. Operative Pediatric Surgery: Seventh edition [Internet]. 2022 Aug 8 [cited 2023 Jan 11];487–97. Available from: https://www-ncbi-nlm-nih-gov.ezproxy.dbazes.lsmuni.lt/books/NBK513357/
2. Lapidaire W, Lucas A, Clayden JD, Clark C, Fewtrell MS. Human milk feeding and cognitive outcome in preterm infants: the role of infection and NEC reduction. Pediatr Res [Internet]. 2022 Apr 1 [cited 2023 Jan 11];91(5):1207–14. Available from: https://pubmed-ncbi-nlm-nih-gov.ezproxy.dbazes.lsmuni.lt/34168271/
3. Ou J, Courtney CM, Steinberger AE, Tecos ME, Warner BW. Nutrition in Necrotizing Enterocolitis and Following Intestinal Resection. Nutrients [Internet]. 2020 Feb 1 [cited 2023 Jan 11];12(2). Available from: /pmc/articles/PMC7071274/
4. Lucas A, Cole TJ. Breast milk and neonatal necrotising enterocolitis. Lancet [Internet]. 1990 Dec 22 [cited 2023 Jan 11];336(8730):1519–23. Available from: https://pubmed-ncbi-nlm-nih-gov.ezproxy.dbazes.lsmuni.lt/1979363/
5. Pancekauskaitė G, Ivanauskienė V, Tamelienė R. Donorinio motinos pieno įtaka nekrozinio enterokolito dažniui Lietuvos sveikatos mokslų universiteto ligoninėje Kauno klinikose = Donor human milk impact on prevalence and features of necrotizing enterocolitis in hospital of LUHS. 2018;

The epidemiology of congenital and acquired cytomegalovirus infection in very low birth weight infants

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Introduction

Cytomegalovirus (CMV) is a common virus and usually is harmless. [RB1] In people with weakened immune system, like very low birth weight (<1500 g, VLBW) infants, CMV can manifest with more serious symptoms affecting the eyes, lungs, liver, digestive tract, in some cases disease may be fatal CMV can be congenital (cCMV) and acquired (aCMV). In systematic review conducted in 2014, thirty-seven studies were included. The prevalence of cCMV in developed countries is 0.58%. Among these newborns 12.6% will experience hearing loss: 1 out of 3 symptomatic children and 1 out of 10 are asymptomatic children (1). The prevalence of aCMV among VLBW infants was estimated 19%, a sepsis-like syndrome occurs in approximately 15% and is associated with hepatosplenomegaly, hepatitis, and abnormalities of blood counts (lymphopenia, neutropenia, and/or thrombocytopenia) (2). aCMV is transmitted by direct contact with breast milk.. The incidence of congenital and acquired CMV infection among very low birth weight infants in Lithuania is not known.

Aim

The aim of this study was to determine the incidence of congenital and acquired CMV infection in very low birth weight infants.

Methods

The study was conducted in LUHS Kauno klinikos, Department of Neonatology. 48 VLBW infants born <32 weeks were included into the prospective observational study. Blood samples for CMV PCR were drawn at two time points during hospitalisation. For congenital virus it was drawn before day 21 after birth, for acquired CMV – at 6–8 weeks or at any time CMV was suspected. Blood tests and clinical symptoms were assessed ±2 days when samples for CMV PCR were taken. Patients were compared for gestation age, sex, clinical status, and changes in

complete blood count (leukopenia, leukocytosis, thrombocytopenia) regarding development of cytomegalovirus infection. Statistical analysis was performed. Nonparametric tests were used for analysis because of the small sample size and absence of the normal distribution of the variables.

Results

Median gestational age of included infants was 27 weeks (IQR 26; 28), median birth weight was 901 grams (IQR 804–1068). Out of 48 VLBW infants 56,25% were males, 43,75% were females. Blood tests for congenital CMV PCR were drawn at a time of 14 days (IQR 10–18). Zero infants were tested positive for cCMV. At the time of the blood draw for cCMV 83.3% infants showed no clinical symptoms, 3 infants (6.3%) had fever and 5 infants had sepsis-like symptoms (10.4%). 28 (58.3%) VLBW infants showed no changes in complete blood count when tested for cCMV. Second blood test for acquired CMV PCR was drawn at a median time of 44 days (IQR 41–47). 12 (25%) infants were tested positive for acquired CMV, 25 (52,1%) were tested negative and 11 (22.9%) infants were not tested for aCMV. Thus, 12 out of 37 (32.4%) infants were found positive for aCMV. The median amount of CMV copies were 312 (IQR 161–2309). Out of 37 VLBW infants tested for acquired CMV 75.7% showed no clinical symptoms, 5.4% had necrotizing enterocolitis (NEC) and were CMV negative, 2.7% had fever and were CMV positive. 2.7% infants were diagnosed with NEC and had sepsis-like symptoms, however, were CMV negative, 4 (10.8%) VLBW infants had sepsis-like symptoms and 2 of them were CMV positive, 1 (2.7%) CMV positive infant had seizures.

Conclusions

No cCMV infection was found in VLBW infants. aCMV was found in 32.4% of tested infants. aCMV may manifest with fever, sepsis-like symptoms, seizures. aCMV infection should not be overlooked immunocompromised patients such as VLBW infants.

References

1. Goderis J, de Leenheer E, Smets K, van Hoecke H, Keymeulen A, Dhooge I. Hearing loss and congenital CMV infection: A systematic review [Internet]. Vol. 134, Pediatrics. American Academy of Pediatrics; 2014 [cited 2021 Jan 13]. p. 972–82. Available from: https://pediatrics.aappublications.org/content/134/5/972
2. Lanzieri TM, Dollard SC, Josephson CD, Schmid S, Bialek SR. Breast Milk-Acquired Cytomegalovirus Infection and Disease in Very Low Birth Weight and Premature Infants. Pediatrics [Internet]. 2013 [cited 2023 Jan 11];131(6):e1937. Available from: /pmc/articles/PMC4850548/

Women's mental health evaluated by Edinburgh Postnatal Depression Scale (EPDS) depending on gestational age, mode of birth and self-esteem

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Introduction

Postpartum depression encompasses major and minor depressive episodes that occur during the first 12 months after delivery [1]. It is important to identify women with risk for depression because untreated depression and other mood disorders can have devastating effects [2]. The Edinburgh Postnatal Depression Scale (EPDS) is most frequently used screening tool for postnatal depression [3].

Aim

To evaluate women's mental health using EPDS and compare scores by gestational age, mode of birth and women's self-esteem.

Methods

The study was approved by the Bioethics center of Lithuanian University of Health Sciences (No.: BEC-MF-485). An online survey was conducted from August to October 2022. Women who gave birth within previous year were invited to fill the structured anonymous questionnaire available on the Facebook groups for pregnant and postpartum women. Based on EPDS scores women were divided into 3 groups: group 1 - women who have distress but the risk of depression is low (≤ 9 points), group 2 - women who have long-term distress that may be discomforting and the risk of depression is moderate (10-12 points) and group 3 - women who have high risk for depression and should see the health specialist (≥ 13 points). Self-esteem was measured by Rosenberg self-esteem scale: 0-15 points indicated low self-esteem, more than 15 – moderate and high self-esteem. Other data included demographic characteristics, gestational age, mode of birth. Statistical analysis was performed using the data collection with IBM SPSS 27.0. A value of $p < 0.05$ was considered significant.

Results

Sample comprised 221 women aged 30.1±5.0, range 18-44 years. The majority of women (95.5%) gave birth within previous six months, 70.6% - within previous three months. Group 1 consisted

of 98 women (44.3%), group 2 (probable distress) – 46 women (20.8%), group 3 (probable depression) – 77 women (34.8%). Mean gestational age at birth was similar in all groups: in group 1 - 38,9±2,6 weeks, in group 2 – 38,4±3,0 weeks and in group 3 – 38,9±2,6 weeks (p=0,790). A total of 73 (74.5%) women from group 1 gave birth naturally and 25 (25.6%) had caesarean section (CS). In probable distress group, 27 (58.7%) women gave birth naturally and 19 (41.3%) had CS, while in probable depression group, 55 (71.4%) women gave birth naturally and 22 (28.6%) had CS. There was no significant difference among the groups regarding the mode of birth (p=0,148). Low self-esteem was identified for 3 women (3.1%) in group 1, 3 women (6.5%) in probable distress group and 25 women (32.4%) in probable depression group. Women with high risk for depression (group 3) had low self-esteem more frequently when compared with group 1 (p<0,001).

Conclusions

More than third (34.8%) had high EPDS scores (≥ 13) indicating high risk for depression and a need for detailed consultation. Gestational age at birth and mode of birth did not differ between study groups. Women with high risk for depression had low self-esteem more frequently.

References

1. Anokye R, Acheampong E, Budu-Ainooson A, Obeng EI, Akwasi AG. Prevalence of postpartum depression and interventions utilized for its management. Ann Gen Psychiatry. 2018, 17, 18.
2. ACOG Committee Opinion No. 757. American College of Obstetricians and Gynecologists. Screening for perinatal depression. 2018, 132, 208-212.

IHS Conference

Public Health

Burnout prevalence and its association with psychosocial risk factors at work among physicians in Kaunas region

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Introduction

Psychosocial risk factors at work cause stress to employees, which result the development of burnout syndrome [1]. Burnout at work has already reached epidemic levels. In China, burnout among physicians is between 66.5% to 87.8% [2], in USA – 44% [3], so creating a suitable psychosocial work environment must be a priority for the health care system worldwide in the 21st century.

Aim

To investigate burnout prevalence and its association with psychosocial risk factors at work among physicians in Kaunas region, Lithuania.

Methods

The cross-sectional epidemiologic study was conducted in 2017. The participation of physicians in the research was voluntary and anonymous. The study population (N = 2353) included all physicians working in 6 hospitals in the Kaunas region. A total of 830 questionnaires were distributed among them, and 647 respondents agreed to participate in the study and completed the questionnaire properly (response rate 81.3%). To evaluate burnout among physicians and their psychosocial work environment we used two questionnaires: Copenhagen Burnout Inventory and Job Content Questionnaire. Statistical data analysis was performed using the SPSS 20.0 software package. The chi-square ($\chi 2$) criteria, the z criteria, and the Spearman correlation coefficient (r) were calculated. The study protocol was approved by the Kaunas Regional Ethics Committee for Biomedical Research (No. BE-2-41).

Results

44.2% of surveyed physicians said that there is a high job skill discretion. 22.2% of respondents chose job decision-making authority as small. 28.9% of physicians felt that job decision latitude was too low. Almost a third of respondents thought that there is a lack of support of co-workers (28.9%) and supervisors (26.0%). A poor psychosocial environment at work causes stress, as a result of which employees begin to feel burnout. The study found that 46.7% of respondents have

work-related burnout. We found that respondents with low job decision-making authority and low job decision latitude were significantly more likely to experience work-related burnout compared with respondents with high job decision-making authority and high job decision latitude. A statistically significant relationship was found between supervisor support, job skill discretion, job decision-making authority, job decision latitude and work-related burnout in women ($p<0.05$). Men are also more likely to experience work-related burnout when they have lower job decision-making authority, job decision latitude and higher job skill discretion ($p<0.05$).

Conclusions

More than a third of physicians working in Kaunas region inpatient treatment institutions experience work-related burnout syndrome. A statistically significant relationship was found between job skill discretion, job decision-making authority and job decision latitude with work-related burnout in men and women.

References

1. Gluschkoff K, Hakanen JJ, Elovainio M, Vänskä J, Heponiemi T. The relative importance of work-related psychosocial factors in physician burnout. Occup Med 2022; 72(1):28-33.
2. Zhang XJ, Song Y, Jiang T, Ding N, Shi TY. Interventions to reduce burnout of physicians and nurses: An overview of systematic reviews and meta-analyses. Medicine 2020; 99(26): e20992.
3. West CP, Dyrbye LN, Sinsky C, Trockel M, Tutty M, Nedelec L, Carlasare LE, Shanafelt TD. Resilience and Burnout Among Physicians and the General US Working Population. JAMA 2020; 3(7): e209385.

Associations Between Anxiety and Emotion Regulation Strategies in Lithuanian Medical Students

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Introduction

Appropriate emotion regulation is crucial for medical students to properly prepare for the practical part of their career. Emotion dysregulation, however, is associated with maladaptive emotion regulation strategies, which in turn often causes higher levels of anxiety [2,3]. This could lead to difficulties concerning the studying process and preparation for the future career [1]. This research is conducted due to the lack of previous studies.

Aim

The aim of this study is to assess the relationship between emotion regulation and anxiety in medical students of the Lithuanian University of Health Sciences.

Methods

Medical students (year 1-6) of Lithuanian University of Health Sciences participated in an online survey. There were a total of 116 students (Female 84,48%), mean participant age M = 21,6 (SD = 2,21). Response rate was not evaluated because it is unknown how many students deliberately decided not to participate in the study. Chosen type of sampling - non-probability convenience sample.
3 questionnaires were used – Cognitive Emotion Regulation Questionnaire – Short Form (CERQ-SF), Generalized Anxiety Disorder Scale (GAD-7) and sociodemographic questions.
The statistical analysis was conducted using IBM SPSS Statistics for Windows, Version 27.0. To assess the differences between genders concerning emotion regulation use and anxiety levels, a non-parametric Mann Whitney U test for independent samples, was used. Differences in year of study groups were calculated using Analysis of Variance (ANOVA); the relationship between the use of emotion regulation strategies and anxiety was also calculated using Spearman correlation since distributions did not fulfill Gaussian distribution conditions.

Results

Anxiety characteristics. No statistical significance was found when comparing gender or year of study. Median result in male group was found to be Median=15.5 (Q1-Q3 =11.75–21); female – Median=19 (Q1-Q3 =13.75–22.25), p=0.089; 1st year (M=10.74, SD=5.71), year 2-3 (M=11.06, SD=5.90), year 4-6 (M=11.68, SD=5.44) students, p=0.515.
ER characteristics. Overall, medical students are more likely to use adaptive emotion regulation strategies (M = 35.86, SD = 5.49) compared to maladaptive strategies (M = 24.88, SD = 4.88), p < 0,001.
Results between year of study or genders, concerning the use of adaptive ER strategies did not differ significantly: first year students (M=36.84, SD=4.72), 2-3 year students (M=35.05, SD=6.10), as well as 4-6 year students (M=35.74, SD=5.53), p=0,352; Median result in male group was found to be Median=35 (Q1-Q3 =30-40), female – Median=36 (Q1-Q3 =32-40), p=0.53.
Furthermore, the results between year of study or genders, concerning the use of maladaptive ER strategies also did not differ significantly: 1 year students (M=24.39, SD=4.73), 2-3 year students (M=25.20, SD=5.25), as well as 4-6 year students (M=25.03, SD=4.7), p=0.751; male group – Median=21, Q1-Q3 =16-24, female group – Median = 25, Q1-Q3=22-29), p=0.092.
Relationship between anxiety and ER. Results suggest a weak negative correlation between adaptive ER strategies and anxiety (r = -0.228, p = 0.014), and a moderate positive correlation between maladaptive ER strategies and anxiety (r = 0.444, p < 0.01).

Conclusions

Findings suggest that medical students are similarly likely to use adaptive and maladaptive ER strategies, whilst experiencing similar anxiety. Correlations between anxiety and different ER strategies were found to be statistically significant.

References

4. Ardenghi S, Russo S, Bani M, Rampoldi G, Strepparava MG. The role of difficulties in emotion regulation in predicting empathy and patient-centeredness in pre-clinical medical students: a cross-sectional study. Psychology, Health & Medicine. 2021 Nov 11:1-5.
5. Saleem S, Khan IA, Saleem T. ANXIETY AND EMOTIONAL REGULATION;: ANXIETY AND EMOTIONAL REGULATION AMONG PUPILS OF A STATE-OWNED MEDICAL INSTITUTION: A GENDER PERSPECTIVE. The Professional Medical Journal. 2019 May 10;26(05):734-41.
6. Tian-Ci Quek T, Wai-San Tam W, X. Tran B, Zhang M, Zhang Z, Su-Hui Ho C, Chun-Man Ho R. The global prevalence of anxiety among medical students: a meta-analysis. International journal of environmental research and public health. 2019 Aug;16(15):2735.

SCORE versus SCORE2 in multimorbidity patients

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Introduction

The Systematic Coronary Risk Evaluation (SCORE), scoring system measures cardiovascular disease (CVD) event risk [1]. In 2021, SCORE has been updated to a new predictive model SCORE2 [2]. SCORE2 evaluates the risk of the combined outcome of fatal and non-fatal CVD events whereas SCORE only evaluates CVD mortality [3].

Aim

To compare the prediction of SCORE 2 versus SCORE calculators for cardiovascular disease risk in family medicine practice in multimorbid patients.

Methods

Retrospective data analysis was performed. The study sample consisted of 317 multimorbidity patients who participated in the TELELISPA project in 2020 – 2022. Anthropometric and laboratory test data were analyzed. Statistical data analysis was performed using the SPSS program. Chi-criterion was used to assess the statistical significance between SCORE and SCORE2 groups. The chosen criterion of statistical significance is $p < 0.05$. The SCORE risk assessment system has been divided into four categories: low (<1%), moderate (1–4%), high (5–9%), and very high (>10%) risk. The 2021 European Society of Cardiology (ESC) Guidelines

lowered the SCORE2 risk categories to three (low to moderate, high, and very high) and different numerical cutoff levels based on age groups (< 50, 50–69 years of age). In the < 50 years age group risk is divided into: low to moderate (< 2.5%), high (2.5 – <7.5%), and very high (≥7.5%). In the 50-69 years old group: low to moderate (< 5%), high (5 – <10%), and very high (≥10%).

Results

The study involved 317 patients: 120 (37.9 %) men and 197 (62.1%) women. Diabetes mellitus (DM) was diagnosed in 72 women and 58 men. 218 patients are non-smokers and 53 are current smokers. According to SCORE, the average established risk of CVD is 6.95% (s = 6.82), while using SCORE2 – 22.6% (s = 12.24). Men have a statistically significantly higher risk of developing CVD and experiencing a fatal and non-fatal CVD event within 10 years than women ($p < 0.001$). Using SCORE, 28 (23.3%) of men have very high risk, which increases to 114 (95%) calculated with SCORE2 ($p < 0.05$). Out of the 197 women evaluated, 20 (10.2%) were classified as very high risk using the SCORE tool, while 171 (87.3%) were classified as very high risk using the SCORE2 calculator ($p < 0.05$). Based on the SCORE calculator 2 patients with DM were categorized into a low risk category, 54 into moderate, 36 into high risk, and 26 have a very high risk category. There were statistically significantly more patients with DM in the very high risk category calculated with the SCORE2 calculator compared to the SCORE algorithm (121, 93.1% vs 26, 20%, $p < 0.001$), and there was no one patient with low to moderate risk based on SCORE2. The risk calculated by the SCORE2 calculator was statistically significantly higher than the risk calculated by the SCORE calculator in the groups of smokers and non-smokers ($p < 0.001$). In the group of smokers, a very high risk according to SCORE was calculated for 13 (25.5%) people, and according to SCORE2, 47 (88.7%) patients have very high risk. In the group of non-smokers, a very high risk according to SCORE was calculated in 52 (23.9%) patients, and according to SCORE2, 190 (87.2%) non-smokers have very high risk.

Conclusions

CVD risk calculated with the SCORE2 calculator is higher compared to the SCORE calculator in multimorbidity patients. In multimorbidity patients, a higher risk of CVD was observed in males compared to females in both the SCORE and SCORE2 groups. SCORE2 better reflects Lithuania's current CVD statistics and future prognoses.

References

1. Csenteri O, Jancsó Z, Szöllösi GJ, et al. Differences of cardiovascular risk assessment in clinical practice using SCORE and SCORE2. Open Heart 2022; 9: e002087.
2. Chipayo-Gonzales D, Ramakrishna H, Nuñez-Gil IJ. Score2: A New Updated Algorithm to Predict Cardiovascular Disease Risk in Europe. J Cardiothorac Vasc Anesth 2022; 36: 18–21.
3. Hageman S, Pennells L, Ojeda F, et al. SCORE2 risk prediction algorithms: new models to estimate 10-year risk of cardiovascular disease in Europe. Eur Heart J 2021; 42: 2439–2454.

Attitudes of healthcare professionals towards hepatitis C virus screening program

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Introduction

Hepatitis C virus (HCV) newly affects about 1.5 million people per year [1]. Symptoms mainly occur only when life-threatening complications, such as liver cirrhosis and hepatocellular carcinoma, develop and they cause over 60 thousand deaths in Europe every year [2]. Early diagnostics in screening program is necessary to identify and cure patients completely and prevent complications [3]. In 2022, HCV screening program was launched in Lithuania. The positive attitude of healthcare professionals (HCPs) can make a significant impact on a successful screening program.

Aim

To evaluate the attitude towards HCV screening program of Lithuanian healthcare professionals.

Methods

An anonymous online survey, that consisted of 15 original questions that were prepared by authors, was conducted from November to December of 2022 in Lithuania. All willing healthcare professionals could participate in the survey. The study included 225 Lithuanian healthcare workers: physicians, resident physicians, nurses and nursing assistants. Statistical calculations were performed using SPSS 28.0 software. Statistically significant findings were assumed with $p < 0.05$. Chi-square was used to determine a relationship between categorical variables ($\alpha = 0,05$).

Results

Out of 225 HCPs, 89.3% were female, 10.7% - male, 35.6% - nurses, 32.4% - physicians, 22.2% - resident physicians, 9.8% - nursing assistants. The average age was 34.2 years. 73.3% of participants stated that their knowledge about HCV is insufficient, 98.2% of them would like to know more. Most HCPs (44.9%) rate their knowledge about HCV as average. Top 3 ways HCPs

get information about HCV are: scientific literature - 80.9%, other HCPs - 59.6%, media - 25.8%. 64.4% of physicians, 61.3% of nurses, 56.0% of resident physicians and 36.4% of nursing assistants knew about HCV screening program before this survey. 39.6% of HCPs found out about the program from this survey, 36.9% - from other HCPs, 24.9% - from the order of the Ministry of Health, 12.4% - from media, 6.7% - from scientific literature, 3.1% - from their relatives, friends. 37.3% of HCPs did not know that in order to participate in this program they need to contact their family physician. 35.1% of HCPs are planning to participate in the program, 33.8% do not belong to the target group, 14.2% have participated already, 9.8% of the respondents do not know yet, 7.1% are not planning to participate in the HCV screening program. 95.1% of HCPs would recommend participating in this program to patients, 94.2% - to their relatives, physicians would recommend this program the most (95.9% and 97.3%, respectively). If there was a hepatitis C vaccine, 70.7% of HCPs would get it. Nurses were significantly more often likely to get vaccinated than not to vaccinate (53.8% vs. 12.5%, respectively; $p<0.05$). 85.3% of HCPs think that public awareness of HCV screening program is insufficient.

Conclusions

According to HCPs, only 26.7% of them have sufficient knowledge about HCV. HCPs mostly get information about HCV from scientific literature, other HCPs and media. 41.3% of respondents did not know about HCV screening program before this survey. Most HCPs, who are in the target group, plan to participate in HCV screening program. Physicians were most likely to recommend this program to their relatives and patients. More than two-thirds of HCPs would get vaccinated if there was a hepatitis C vaccine, especially nurses. The majority stated that society lacks information about the HCV screening program.

References

1. World Health Organization (WHO). Hepatitis C (24 June 2022), https://www.who.int/news-room/fact-sheets/detail/hepatitis-c.
2. Mårdh O., Quinten C., Amato-Gauci A.J., Duffell E. Mortality from liver diseases attributable to hepatitis B and C in the EU/EEA—Descriptive analysis and estimation of 2015 baseline. Infect. Dis. 2020; 52:625–637. doi: 10.1080/23744235.2020.1766104.
3. Miller MH, Dillon JF. Early diagnosis improves outcomes in hepatitis C. Practitioner. 2015 Nov;259(1787):25-7, 3. PMID: 26753270.

Evaluation of breastfeeding motivation among Lithuanian mothers: an application of the Breastfeeding Motivation Scale

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Introduction

In the decision-making process of women, motivation is one of the factors that help to "manage" breastfeeding. Between the desire to breastfeed one's baby and the practical realization of this desire, motivation is what positively or negatively participates in this maternal decision-making process (1). According to recent researches, breastfeeding motivation is an important variable to assess before health professionals provide information and support on breastfeeding issues. Health care professionals should be familiar with psychological theories that can help explain the central role of motivation and the reasons why some women are more motivated to initiate and continue breastfeeding than other women (2–5).

Aim

To evaluate the breastfeeding motivation of mothers who carried to full-term and gave birth to a healthy baby.

Methods

Data was collected in June 2022 using a quantitative research method an anonymous questionnaire survey. The minimum sample size (with 95% confidence and 5% Margin of error) was 378 (7). 572 Lithuanian mothers who gave birth to a full-term and healthy baby were interviewed about breastfeeding motivation by online questionnaire between the second and the sixth month postpartum. Their mean age was 29.5 years (standard deviation (SD) 4.74). Breastfeeding motivation scale (BMS) which consists of 24 items was developed by Kestler–Peleg et al. (6). BMS is a four-point Likert scale, and each item is scored from 1 (Strongly disagree) to 4 (Strongly agree). At first, BMS was adapted into Lithuanian by the translation model of Brislin (1970, 1986) (8,9). An exploratory factor analysis was conducted for the validity of the BMS, Cronbach's alpha was created to measure the internal consistency of the BMS. All the calculations were performed using the SPSS 27.0 software.

Results

A factoring analysis with varimax rotation yielded four factors explaining 63% of the variance of breastfeeding motivations. The 1st factor Enjoyment and bonding, and Maternal self-perception described the pleasure and closeness with babies that mothers gained from breastfeeding and maternal self-perception which showed breastfeeding to be a contributing factor to personal self-esteem in maternal perception (consisted of 14 items). The 2nd factor Baby's health and Instrumental needs related to the health benefits that babies derive from breastfeeding and pertaining to the concrete benefits of breastfeeding (consisted of 8 items). The 3rd factor Social pressure which described seeking to meet expectations from others through breastfeeding (consisted of 4 items). The 4th factor Mother's health and well-being explaining the benefits of breastfeeding for mother (consisted of 4 items). To assess which factors most encouraged the mothers to breastfeed, the mean of the factors of the BMS were calculated. Baby's health and Instrumental needs scored the highest mean of the factors 3.47 (SD 0.75) out of 4. Four items of 2nd factor scored the highest valuation (strongly agree) – "Healthy for baby" (82.9%), "Boosts baby's immune system" (82.0%), "It is more convenient" (65.4%), "It seems natural to me to breastfeed a baby who was nurtured in my body before it was born" (63.8%). Mothers were the least motivated to breastfeed by Social pressure factor (mean 2.22 (SD 0.76) scored out of 4).

Conclusions

Factors related to Baby's health and Instrumental needs had the greatest influence on mothers' breastfeeding motivation. However, factors related to Social pressure had the least influence on mothers' breastfeeding motivation.

References

1. Takushi SAM, Tanaka AC d'Andretta, Gallo PR, Machado MAM de P. Motivating breastfeeding among expectant mothers. Rev Nutr. 2008 Oct;21(5):491–502.
2. Stockdale DJ, Sinclair M, Kernohan W, Keller J. Understanding motivational theory and the psychology of breastfeeding. Theory Midwifery Pract. 2011;2:92–106.
3. Sardo D. Intrinsic and Extrinsic Motivation to Breastfeed Scale: Adaptation and Validation for Portuguese Population. Procedia - Soc Behav Sci. 2016;217:1133–41.
4. Kadzikowska-Wrzosek R. Autonomous motivation, self-efficacy, and psychophysical wellbeing in a group of Polish breastfeeding mothers- preliminary communication. Arch Psychiatry Psychother. 2016;18(3):58–67.
5. Lau CYK, Fong DYT, Choi AYY, Ng JWY, Sing C, Tarrant M. Development and measurement properties of the Chinese breastfeeding self-regulation questionnaire. Midwifery. 2017;44:24–34.
6. Kestler-Peleg M, Shamir-Dardikman M, Hermoni D, Ginzburg K. Breastfeeding motivation and Self-Determination Theory. Soc Sci Med. 2015;144:19–27.
7. OpenEpi - Toolkit Shell for Developing New Applications [Internet]. [cited 2023 Feb 20]. Available from: https://www.openepi.com/SampleSize/SSPropor.htm
8. Brislin RW. Back-Translation for Cross-Cultural Research. J Cross-Cult Psychol. 1970;1:185–216.
9. Brislin RW. A culture general assimilator: Preparation for various types of sojourns. Int J Intercult Relat. 1986;10(2):215–34.

Awareness of healthcare specialists towards intravenous iron use in primary care

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Introduction

Anemia is a global issue affecting around 2.36 billion people [1]. The main contributing factor is iron deficiency (ID) [2]. Iron is an essential element, therefore it is important for a primary health care (PHC) specialist to recognize the signs of ID and treat it [2, 3]. Although oral iron is a simple first-line treatment method, it can be intolerable or ineffective [4]. Intravenous (IV) iron therapy is an alternative treatment option [5]. This method is more tolerable and effective, but it requires more resources and PHC specialists tend to avoid the potential risks [3].

Aim

We aim to evaluate the awareness and work experience on IV iron use of healthcare specialists working in the Family medicine (FM) department of Lithuanian University of Health Sciences hospital Kauno Klinikos (LUHSKK) and to assess the main reasons for using IV iron.

Methods

Our online survey was conducted from December 2022 to January 2023 in the LUHSKK FM department. The survey consisted of 20 questions including demographic features, knowledge about IV iron, and detailed information on IV use in PHC. We invited all FM doctors and resident doctors of LUHSKK FM to participate in this study. Descriptive statistical analysis and chi-square ($\chi 2$) were used to analyze data with IBM SPSS Statistics 29.0.

Results

Out of 43 respondents, 20.9% were doctors, 79.1% resident doctors with a median age of 27 (24-56) years, more women (76.7%) than men (23.3%).The median self-reported score of awareness towards IV iron use and knowledge about indications and contraindications on a 10-point scale (0 - no knowledge, 10 – excellent) was 7 (0-9). 100% correctly chose that IV iron is indicated when oral iron is ineffective or intolerable, 14% correctly selected all indications. Increased sensitivity to the active ingredient was the best-known (100%) and respiratory failure was the least-known (9.3%) contraindication. All three IV iron dosage calculation methods were selected by 14% of the respondents. The most well-known method (72.1%) included body weight and hemoglobin level. 11.6% successfully identified the IV iron administering techniques. The respondents believed that IV iron is more effective (81%) and causes fewer adverse effects (53.5%) than oral iron. More respondents with less work experience (≤5 years) reported they need more information on IV iron use than those with more work experience, 82.4% and 33.3%, respectively ($p=0.004$). In clinical practice, 41.9% reported administering IV iron infusions, everyone less than 5 times per month. IV iron infusions were used more by respondents with better self-reported awareness of IV iron infusion indications and contraindications (>5 points) than those with poorer knowledge (≤5 points), 65.4% and 5.9% respectively ($p<0.001$). Those with higher knowledge (80.8% vs. 29.4%) reported that IV iron infusions should be used in PHC more frequently ($p=0.002$). The respondents believed that IV iron should be used in PHC the most when the use of oral iron is ineffective or intolerable (100%), for malabsorption disorders (79.1%) or before/after major operations (46.5%).

Conclusions

Although respondents reported their awareness towards IV iron use in PHC great, only the minority correctly chose indications and contraindications, dosage and administration technique features of IV iron use. IV iron was used less than 5 times per month and more frequently by respondents whose self-reported knowledge was better. FM doctors and resident doctors should be educated more to encourage the use of IV iron infusions in PHC.

References

1. Jericho C, Beverina I, Quintana-Diaz M, Salvadori U, et al. Efficacy and safety of high-dose intravenous iron as the first-choice therapy in outpatients with severe iron deficiency anemia. Transfusion. 2020; 60(7): 1443-9.
2. Varcher M, Zisimopoulou S, Brailard O, Favrat B, Perron NJ. Iron deficiency intravenous substitution in a Swiss academic primary care division: analysis of practices. International Journal of General Medicine. 2016; 9(1): 221-7.
3. Aung T, Coleman J, Davidson PW, Hetzel DJ, Aung ST. Intravenous iron infusion and newer non-dextran formulations. New Zealand Medical Journal. 2021; 134(1524): 118-27.
4. Meier R, Keizer E, Rosemann T, Markun S. Indications and associated factors for prescribing intravenous iron supplementation in Swiss general practice: a retrospective observational study. Swiss Medical Weekly. 2019; 149: 20127.
5. Aksan A, Zepp F, Anand S, Stein J. Intravenous ferric carboxymaltose for the management of iron deficiency and iron deficiency anemia in children and adolescents: a review. European Journal of Pediatrics. 2022; 181: 3781–93.

Alcohol misuse screening and prevention in primary care: a literature review

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Introduction

Alcohol misuse (AM) and alcohol-related harm (ARH) is a tremendous socio-economic and health problem, that challenges health care specialists every day and is one of the leading risk factors for poor health and death worldwide [1]. ARH affects families, communities and health systems [2]. Screening for alcohol use disorders during routine primary care (PC) visits has the potential to assist clinicians to identify ARH early on, provide appropriate prevention tools and improve overall health outcomes [3]. In this systematic literature review literature was collected to review the importance of early detection and prevention of AM, to identify and suggest new

approaches for PC physicians in integrating alcohol prevention tools in their every day work with patients.

Aim

To review alcohol misuse screening and prevention in primary care, identify the main problems in why some of the prevention tools might not be working in todays society and suggest new ways to approach a patient at risk.

Methods

A literature review of articles was conducted by using PubMed restricted to 2014-2023. Keywords were used for the research: “alcohol misuse”, "alcoholism", "prevention", "primary care". Inclusion criteria: access to full free articles in English. Single case reports, abstracts were excluded. 346 articles were found, out of which 7 matched criteria [2-8].

Results

Out of the 7 conducted articles, each one suggested that AM has a huge negative impact to individuals physical and mental health. All of the articles suggest that the prevention of AM is very important and should partake in PC. Screening and brief interventions (SBI) have been proved to be effective and beneficial, highly cost-effective, easy for patients to use and trusted by the youth [2, 4, 6-7]. As standart SBI can add up to 15 minutes to the primary consultation, requires training and special skills [7], online and digital alcohol SBI (eSBI) would let to not prolong the consultation and still be effective. This approach could be particularly useful for groups less likely to access traditional alcohol-related services [4]. The consumer health information technologies (CHITs) are identified as patient-focused technological platforms aimed to improve patient engagement in health care. CHITs helps people to easily access health-related content and partake in assessment, prevention, treatment and recovery of substance abuse [5]. Alcohol care teams (ACTs) provides a specialized help for people in need and helps to reduce acute hospital admissions, readmissions, mortality, improve the quality and efficiency of alcohol care [6]. Authors suggest that AM and ARH can be prevented even before a patient seeks for medical care at general practitioners (GP) office or emergency care unit. Pharmacists could partake in reducing ARH by putting or giving out advisory labels when dispensing and counsel consumers about the impact of alcohol on their medicines [8]. GP should be trained to have a beneficial conversation with a patient, especially now, when the new generation is wanting to discuss these sensitive issues with their PC practitioner [3].

Conclusions

Nowadays there is a huge number or prevention and screening possibilities for alcohol misuse, but requires training for GP and more resources. The new preventive approach could be integration of eSBI, which would give patients in need easy access to preventive health care. Alcohol misuse and ARH could be managed by forming Alcohol care teams and incorporating other health care specialists such as pharmacists.

References

1. Alcohol. World Health Organization. [Internet]. Available from: https://www.who.int/health-topics/alcohol#tab=tab_1.
2. Pussig B, Pas L, Li A, Vermandere M, Aertgeerts B, Matheï C. Primary care implementation study to scale up early identification and brief intervention and reduce alcohol-related negative outcomes at the community level (PINO): study protocol for a quasi-experimental 3-arm study. BMC Fam Pract. 2021 Jul 1;22(1):144.
3. Webb MJ, Kauer SD, Ozer EM, Haller DM, Sanci LA. Does screening for and intervening with multiple health compromising behaviours and mental health disorders amongst young people attending primary care improve health outcomes? A systematic review. BMC Fam Pract. 2016 Aug 4;17:104.
4. Wallace P, Bendtsen P. Internet applications for screening and brief interventions for alcohol in primary care settings - implementation and sustainability. Front Psychiatry. 2014 Oct 30;5:151.
5. Pradhan AM, Park L, Shaya FT, Finkelstein J. Consumer Health Information Technology in the Prevention of Substance Abuse: Scoping Review. J Med Internet Res. 2019 Jan 30;21(1):e11297.
6. O'Donnell A, Wallace P, Kaner E. From efficacy to effectiveness and beyond: what next for brief interventions in primary care? Front Psychiatry. 2014;5:113.
7. Moriarty KJ. Alcohol care teams: where are we now? Frontline Gastroenterol. 2019;11(4):293-302.
8. Hattingh HL, Tait RJ. Pharmacy-based alcohol-misuse services: current perspectives. Integr Pharm Res Pract. 2018;7:21-31.

Influence of physical activity on blood pressure in prehypertensive and hypertensive patients.

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Introduction

Elevated blood pressure or hypertension leads to increased risk of cardiovascular disease (1). Also, it is one of the leading risk factors in mortality (2). According to “Eurostat”, 1 in 5 people in Europe have high blood pressure (3). Nonetheless, hypertension is one of the most significantly modifiable risk factor. Even if pharmacological interventions are often relied on to reduce blood pressure, lifestyle modification, especially sleep, nutrition, and physical activity, is the starting point of hypertension treatment (4).

Aim

The aim of this study is to determine if physical activity is efficient in reducing blood pressure and to review the best kind of training method for hypertension.

Methods

A systematic review was written according to the PRISMA guidelines by two independent researchers. Literature search was carried out from 2014-2023 on PubMed platform. Search keywords were "Physical activity effects on blood pressure", "Aerobic, resistance based exercises and training in hypertensive adults", "Physical activity effects on cardiovascular disease risks and complications". Inclusion criteria: clinical trial duration from 4 to 16 weeks, physical activity influence on resting, casual blood pressure, people who had a higher blood pressure than 130/80 mmHg, English language. Exclusion criteria: Acute physical activity effects, studies concerning healthy, physically active adults or lacking necessary information. The risk of bias was assessed using the Cochrane Risk of Bias Tool (5).

Results

After an initial search in electronic databases, 1071 were shown, 57 potentially relevant studies were left after elimination of duplicates and a brief analysis of methods, abstracts and titles. Full texts were further read for final inclusion and 11 studies were included in this review with a total of 447 participants, ages 35-80 (6–16). Every participant had either elevated blood pressure or hypertension. All 447 participants were divided into 4 groups: Aerobic training (AT) (n = 141), resistance training (RT) (n = 52), combined training (CT) (n = 95) and control group (CG) (n = 159). Resting blood pressure was measured before and after each training regime. The results are as follows, systolic blood pressure (SBP) in AT group reduced by 7,24 mmHg from baseline, 9,125 mmHg in RT group and 7,22 mmHg in CT group, although, in CG group SBP remained the same. Diastolic blood pressure (DBP) had a reduction of 3,7 mmHg in AT group, 4,2 mmHg in RT group and 3,9 in CT group, CG group's DBP has remained the same.

Conclusions

All in all, our results show that participants, who were physically active displayed a significant decrease in blood pressure compared to people, who were inactive. Although the difference of results between groups AT, RT and CG were slim to none, this study demonstrates that physical activity, despite the chosen method, is a reliable remedy to treat elevated blood pressure or hypertension.

References

1. Fuchs FD, Whelton PK. High Blood Pressure and Cardiovascular Disease. Hypertension. 2020;285–92.
2. Causes of death - Our World in Data. Available from: https://ourworldindata.org/causes-of-death
3. 22% of people in the EU have high blood pressure - Products Eurostat News - Eurostat. Available from: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20210929-1

4. 10 ways to control high blood pressure without medication - Mayo Clinic. Available from: https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/in-depth/high-blood-pressure/art-20046974
5. Cochrane Handbook for Systematic Reviews of Interventions | Cochrane Training. Available from: https://training.cochrane.org/handbook/current
6. Masroor S, Bhati P, Verma S, Khan M, Hussain ME. Heart Rate Variability following Combined Aerobic and Resistance Training in Sedentary Hypertensive Women: A Randomised Control Trial. Indian Heart J. 2018 Dec.
7. Schroeder EC, Franke WD, Sharp RL, Lee D chul. Comparative effectiveness of aerobic, resistance, and combined training on cardiovascular disease risk factors: A randomized controlled trial. PLoS One. 2019 Jan 7.
8. Park W, Jung WS, Hong K, Kim YY, Kim SW, Park HY. Effects of Moderate Combined Resistance- and Aerobic-Exercise for 12 Weeks on Body Composition, Cardiometabolic Risk Factors, Blood Pressure, Arterial Stiffness, and Physical Functions, among Obese Older Men: A Pilot Study. Int J Environ Res Public Heal 2020, Vol 17, Page 7233. 2020 Oct 3.
9. Masoumi-Ardakani Y, Najafipour H, Nasri HR, Aminizadeh S, Jafari S, Moflehi D. Effect of Combined Endurance Training and MitoQ on Cardiac Function and Serum Level of Antioxidants, NO, miR-126, and miR-27a in Hypertensive Individuals. Biomed Res Int. 2022;2022.
10. Caminiti G, Perrone MA, Volterrani M, Iellamo F, Marazzi G, Selli S, et al. Effects of Concurrent Aerobic Plus Resistance Training on Blood Pressure Variability and Blood Pressure Values in Patients with Hypertension and Coronary Artery Disease: Gender-Related Differences. J Cardiovasc Dev Dis 2022, Vol 9, Page 172. 2022 May 27.
11. Skrypnik D, Bogdański P, Mądry E, Karolkiewicz J, Ratajczak M, Kryściak J, et al. Effects of Endurance and Endurance Strength Training on Body Composition and Physical Capacity in Women with Abdominal Obesity. Obes Facts. 2015 Jul 22.
12. Nascimento D da C, Tibana RA, Benik FM, Fontana KE, Neto FR, de Santana FS, et al. Sustained effect of resistance training on blood pressure and hand grip strength following a detraining period in elderly hypertensive women: a pilot study. Clin Interv Aging. 2014 Jan 20.
13. Dantas FFO, Do Socorro Brasileiro-Santos M, Batista RMF, Do Nascimento LS, Castellano LRC, Ritti-Dias RM, et al. Effect of Strength Training on Oxidative Stress and the Correlation of the Same with Forearm Vasodilatation and Blood Pressure of Hypertensive Elderly Women: A Randomized Clinical Trial. PLoS One. 2016 Aug 16.
14. Liang J, Zhang X, Xia W, Tong X, Qiu Y, Qiu Y, et al. Promotion of Aerobic Exercise Induced Angiogenesis Is Associated with Decline in Blood Pressure in Hypertension: Result of EXCAVATION-CHN1. Hypertension. 2021 Apr 1.
15. Taati B, Arazi H, Kheirkhah J. Interaction effect of green tea consumption and resistance training on office and ambulatory cardiovascular parameters in women with high-normal/stage 1 hypertension. J Clin Hypertens. 2021 May 1.
16. Trachta P, Drápalová J, Kaválková P, Toušková V, Cinkajzlová A, Lacinová Z, et al. Three Months of Regular Aerobic Exercise in Patients With Obesity Improve Systemic Subclinical Inflammation Without Major Influence on Blood Pressure and Endocrine Production of Subcutaneous Fat. Physiol Res. 2014.

A decline in daily function and self-awareness in patients with Mild Cognitive Impairment (MCI)

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Introduction

As the population ages, dementia is becoming one of the leading challenges for the healthcare system in both developing and developed countries (1). Dementia is a progressive disorder associated with the decline in different areas of cognitive function and the inability to carry out complex, as well as basic daily activities (2,3). The transitory period between a normal cognitive state to dementia is represented by Mild Cognitive Impairment (MCI) (4).
Based on DSM V criteria, patients with MCI, unlike dementia patients, tend to show no decline in complex daily activities; however, recent studies showed that patients with MCI also demonstrate some degree of decreased self-awareness while comparing the results of patients' self-reports and the results of their caregiver/family members.

Aim

The aim of this study is to investigate the correlation between self-reported IADL (Instrumental Activities of Daily Living) scores by patients with MCI and their caregiver or family member-reported scores. It is important for improving diagnosis and management, enabling better planning, support, and efficient use of healthcare resources.

Methods

The current study is part of a 7-year longitudinal community-based study conducted to identify the cognitive changes over time among the Georgian population.
To assess the participants' abilities for daily living and performing complex activities, the IADL assessment test was given to the MCI(n=35; mean age=62.4; st.dev= 8.4; p=0.03) and dementia(n=26; mean age=65.8; st.dev=9.1; p=0.002) patients and their caregivers. A difference was calculated by subtracting patient IADL results from the family member score. Statistical analyses were conducted using SPSS. Chi-square test was used for comparing nominal data and for IADL results - ANOVA.

Results

Statistical analysis showed that caregivers/family members reported more decline in the everyday functioning of patients, compared to the self-reports among the dementia group (F=-10.21 p< 0.0001), among the amnestic MCI group (F=-5.23, p<0.002) and among the non-amnestic MCI group (F=- 6.57, p<0.001). A higher score indicated that the family member reported more impairment of complex instrumental daily activities compared to the patients' report.

Conclusions

The results of the study indicate that patients with aMCI, naMCI, or dementia tend to report less functional decline compared to their caregiver/family member reported IADL results. This suggests that patients may have decreased self-awareness of their functional abilities due to their cognitive impairment. As a result, it is important to interview the caregiver/family member in addition to the patient to obtain a more comprehensive understanding of the patient's disability level.

References

1. Suzman, Richard, and John Beard. 2016. "Global Health and Aging." World Health Organization.
2. Portet F. Mild cognitive impairment (MCI) in medical practice: a critical review of the concept and new diagnostic procedure. Report of the MCI Working Group of the European Consortium on Alzheimer's Disease. Journal of Neurology, Neurosurgery & Psychiatry. 2006 Jun 1;77(6):714–8.
3. Nasreddine ZS, Phillips NA, Bedirian V, Charbonneau S, Whitehead V, Collin I, et al. The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. Journal of the American Geriatrics Society. 2005 Apr;53(4):695–9.
4. Petersen RC, Smith GE, Waring SC, Ivnik RJ, Tangalos EG, Kokmen E. Mild Cognitive Impairment. Archives of Neurology. 1999 Mar 1;56(3):303.

IHS Conference

Public Health poster

Attitudes of teachers of Mažeikiai schools towards the flu vaccine and vaccination-related behavior

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Introduction

Influenza is a viral airborne infection of the respiratory tract [1]. During the period of 2016–2019 in Lithuania, 40–52 thousand people had the flu and 14–54 people died from it [2,3]. Employees of health care, education, trade institutions, sellers and other target groups have a particularly high risk of getting the flu [1]. Vaccines are one of the most effective means to prevent influenza and its complications [4]. However, there is a lack of research on teachers' vaccination and their attitudes towards flu vaccine.

Aim

To assess the attitudes of teachers of Mažeikiai city schools towards the flu vaccine and vaccination-related behavior.

Methods

The study was conducted in November 2021 – February 2022 in the schools of Mažeikiai city. During the instant questionnaire survey, 91 teachers were interviewed (response rate – 37.1%). 6 schools were selected from the alphabetical list of schools in Mažeikiai city using a random number generator. The principals of these schools were sent a link to the anonymous questionnaire by e-mail with a request to forward it to all the teachers. The z-criterion was used for pairwise comparison of data. The difference is considered statistically significant when $P<0.05$.

Results

Most of the respondents knew that influenza is a dangerous (85.7%), easily contagious infectious disease (81.3%), and that the flu vaccine eases the course of this disease (75.8%). In 2020–2021, 31.9% of respondents were vaccinated, but only 18.7% were vaccinated in 2021–2022. The respondents got vaccinated in the last year to protect themselves and their close people from catching the flu (82.4%) and were afraid of serious complications caused by this disease (47.1%). The following reasons for non-vaccination were observed: possible side effects of the vaccine (15.4%), lack of time (14.3%), belief that the disease will not occur (6.6%) and negative previous experience with vaccination (6.6%). It was found that even 60.4% of the respondents did not intend to get vaccinated against the flu in 2022–2023. Of these, 33% of respondents had no reason for such a choice, 15.4% of respondents did not plan to get vaccinated due to side effects of the vaccine, 7.7% of respondents believed they would not get the flu, 6.6% of respondents did not plan to get vaccinated because of negative experiences with vaccines. Men more often (33.3%) than women (4.9%) said they would not get the flu vaccine because they thought they would not get the disease ($P<0.05$). 41.8% of respondents said that a doctor's recommendation would encourage flu vaccination and 38.5% of respondents said that a free vaccine would be a great stimulus to increase vaccination rate among teachers.

Conclusions

The majority of the respondents – teachers in the city of Mažeikiai understand the importance and necessity of the flu vaccine, but vaccination rate with this vaccine was low.

References

1. World Health Organisation. How can I avoid getting the flu? Available from: https://www.who.int/news-room/q-a-detail/how-can-i-avoid-getting-the-flu?gclid=CjwKCAjw9MuCBhBUEiwAbDZ-7h2dCMbcke2tHAAdVaTTLVCxXJEpc03Ybd5czcoTA6sc5cFHa3Ld9BoCzTQQAvD_Bw.
2. Institute of Hygiene. The Health Indicators of Lithuania. Available from: http://www.hi.lt/en/the-health-indicators-of-lithuania.html.
3. ULAC. Gripas. Available from: http://www.ulac.lt/ligos/G/gripas.
4. Smith TC. Vaccine rejection and hesitancy: A review and call to action. Open Forum Infectious Diseases. 2017;4(3).

Effectiveness of face masks in COVID-19 pandemic management and Lithuanians' attitudes towards wearing masks

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Introduction

Wearing masks is a very important way to prevent the spread of COVID-19. A risk assessment model adapted from for the influenza epidemic has shown that without wearing a mask, approximately 35 35% of people would contract influenza. If 50% of the population wears masks, the prevalence of infection is reduced by 50% and the risk of becomes negligible if 80% of the population wearing masks.1-5

Aim

1. To study the Lithuanian population's opinion on wearing face masks and the factors influencing this opinion, such as the age of the respondents, the presence of chronic diseases, the duration of wearing the masks, their gender, and their level of education.
2. To find out what discomfort masks cause in people with different chronic diseases and to determine whether there is a correlation between these indicators.

Methods

A single-center prevalence study was conducted in November 2020 with an anonymous online questionnaire survey which was shared on social media i.e. LinkedIn, Twitter. The study population consisted of adults in Lithuania. The survey sample consisted of a random sample. 3992 respondents were interviewed. The poll was done using a survey instrument made by the researchers which had 3 parts: (1) sociodemographic part, (2) attitude toward mask wearing, and (3) the respondents' subjective assessment of the changes in health status after wearing a mask. Data analysis was performed using the SPSS 20 program. Data analysis was performed using descriptive statistical methods, calculated frequencies, and 95% confidence intervals (CI).

Results

The poll's findings show that younger people usually have a positive attitude toward the use of masks to stop the spread of the virus: only (28.20%; n=240, p0.001) of those under the age of 29 say that masks are useless. Middle-aged people are more sceptical (35.40%; n=782, $p<0.001$) and more than half of people over 50 years of age (n=517, $p<0.001$) do not think that masks are an appropriate method of suppressing pandemics.The results of the survey show that the number of health complaints increases exponentially with the length of time the mask is worn per day. Individuals wearing face masks for up to 2 hours a day complain the least (51%; n=647, $p<0.001$). Adverse effects of face masks are more frequent in those who wear them between 3 and 9 hours a day (82%; n=1255, $p<0.001$). Clearly people who wear masks for the longest periods of time experience the most health problems (93%; n=359 , $p<0.001$). This may be due to the fact that long use of a mask causes a larger buildup of moisture inside the mask which obstructs airflow through the material and impairs respiratory function. Also prolonged contact of the mask with the face can lead to increased skin irritation.6 The majority of individuals with chronic diseases

perceive health changes when wearing masks (59.7%; n=1138, p<0.001). In contrast, those without a disease are significantly less likely to experience changes, only 33.9% (n=707, p<0.001). This is supported by the Kyung SY study, which demonstrates that wearing masks in COPD patients reduces O2 saturation.7

Conclusions

As respondents' ages increase, the proportion of those who evaluate masks positively decreases. Prolonged wearing of masks leads to a more pronounced manifestation of the associated discomfort.

When wearing a face mask, chronic respiratory illnesses can cause shortness of breath. Chronic diseases of certain systems are more likely to produce corresponding changes in the health of these systems. Therefore, those who are chronically sick should be allowed to not wear masks.

References

1. Scheid JL, Lupien SP, Ford GS, West SL. Commentary: Physiological and Psychological Impact of Face Mask Usage during the COVID-19 Pandemic. Int J Environ Res Public Health 2020;17(18):6655; https://doi.org/10.3390/ijerph17186655
2. Tabatabaeizadeh SA. Airborne transmission of COVID-19 and the role of face mask to prevent it: a systematic review and meta-analysis. Eur J Med Res 2021;26(1):1. https://doi.org/10.1186/s40001-020-00475-6
3. Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ; COVID-19 Systematic Urgent Review Group Effort (SURGE) study authors. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARSCoV-2 and COVID-19: a systematic review and meta-analysis. Lancet 2020;395(10242):1973-1987. https://doi.org/10.1016/S0140-6736(20)31142-9
4. Jefferson T, Del Mar C, Dooley L, Ferroni E, Al-Ansary LA, Bawazeer GA, van Driel ML, Foxlee R, Rivetti A. Physical interventions to interrupt or reduce the spread of respiratory viruses: systematic review. BMJ 2009;339:b3675. https://doi.org/10.1136/bmj.b3675
5. Abdullahi L, Onyango JJ, Mukiira C, Wamicwe J, Githiomi R, Kariuki D, Mugambi C, Wanjohi P, Githuka G, Nzioka C, Orwa J, Oronje R, Kariuki J, Mayieka L. Community interventions in Low-And Middle-Income Countries to inform COVID-19 control implementation decisions in Kenya: A rapid systematic review. PLoS One 2020;15(12):e0242403. https://doi.org/10.1371/journal.pone.0242403
6. Szepietowski JC, Matusiak Ł, Szepietowska M, Krajewski PK, Białynicki-Birula R. Face Mask-induced Itch: A Self-questionnaire Study of 2,315 Responders During the COVID-19 Pandemic. Acta Derm Venereol. 2020 May 28;100(10):adv00152. doi: 10.2340/00015555-3536. PMID: 32449781.
7. Kyung SY, Kim Y, Hwang H, Park JW, Jeong SH. Risks of N95 Face Mask Use in Subjects With COPD. Respir Care. 2020 May;65(5):658-664. doi: 10.4187/respcare.06713. Epub 2020 Jan 28. PMID: 31992666. https://pubmed.ncbi.nlm.nih.gov/31992666/

SCORAD and DLQI association in adult patients with atopic dermatitis in Kaunas Clinics, Lithuania

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Introduction

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by recurrent eczematous lesions and pruritus. The intense itching and rash can be bothersome and decrease a patient's quality of life [1]. The impact of AD can be evaluated by the Dermatology Quality Life Index (DLQI) [2]. The Scoring of AD (SCORAD) index is a composite score that measures the activity and burden of the disease by evaluating both objective and subjective symptoms and the impact on quality of life [3].

Aim

To evaluate and determine the association between the severity of AD and DLQI in adult patients with atopic dermatitis.

Methods

A case-control study was performed in the Skin and Venereal Diseases Clinic, Kaunas Clinics, Lithuania (bioethics approval 2020-07-15 Nr. BE-2-74). This study focused on the case group. The sample consisted of 32 patients with AD of Caucasian origin, aged between 18 – 56 years. The diagnosis of AD was confirmed by the Hanifin Raika criteria and evaluated by trained dermatologists. AD was grouped into a mild (<25), moderate (≥25), and severe (>50) phenotype as defined by SCORAD [4]. Quality of life was assessed using DLQI, which has been divided into 5 categories: no impairment of quality of life (0–1), mild impairment (2–5), moderate (6–10), severe (11–20) and very severe impairment (21–30) [5]. Height and weight for body mass index (BMI) were measured. We used the BMI classification by the World Health Organization (WHO) and assembled all participants into 4 groups: underweight (BMI <18.5 kg/m2), normal (BMI 18.5–24.9 kg/m2), overweight (25-29.9 kg/m2) and obesity (>30.0 kg/m2) [6]. Statistical data analysis was performed using the SPSS program. Spearman's correlation coefficient was used to

evaluate the correlation. In this abstract, we will present the demographic data of the case group and the association between SCORAD and DLQI.

Results

32 subjects with a mean ± SD age 32 ± 10.43 were enrolled in the study. 65.5% of patients were women (n=21) and 34.4% were men (n=11). Among all participants, the mean BMI in women was 23.23 ± 4.32 and 24.04 ± 2.67 in men. 23 (71.9%) patients had a normal BMI, 1 (3.1%) female patient had too low BMI, 4 (12.5%) patients were overweight, and 4 (12.5%) had first-degree obesity. The mean SCORAD – 34.22 ± 18.86. According to SCORAD, 13 (40.6%) patients had mild AD (3 men and 10 women), 13 (40.6%) had moderate AD (5 men and 8 women), 6 (18.8%) had severe AD (3 men and 3 women). The DLQI scores ranged from 0 to 28 (median=8). SCORAD and DLQI were moderately but significantly correlated (Spearman's $\rho = 0.742$, $p < 0.001$). Out of 13 patients diagnosed with mild AD, 4 (30.8%) had no impairment in their life, 4 (30.8%) had mild impairment, and 5 (38.5%) – moderate. Of the 13 patients diagnosed with moderate AD, 15.4% (n=2) had a mild impairment, 30.8% (n=4) had a moderate impairment, 38.5% (n=5) had a severe impairment, and 15.4% (n=2) had a very severe impairment, as assessed using the DLQI. 6 patients were diagnosed with severe AD. Of these, 33.3% (n=2) had a moderate impairment, 33.3% (n=2) had a severe impairment, and 33.3% (n=2) had a very severe impairment of quality of life.

Conclusions

This study represents the first study in the Baltics to determine SCORAD and DLQI associations in adult patients with AD. Assessing the data of adult patients with AD, it is apparent that higher AD severity is associated with a poorer DLQI score.

References

1. Fishbein AB, Silverberg JI, Wilson EJ, Ong PY. Update on Atopic Dermatitis: Diagnosis, Severity Assessment, and Treatment Selection. J Allergy Clin Immunol Pract. 2020 Jan;8(1):91–101.
2. Ali F, Vyas J, Finlay A. Counting the Burden: Atopic Dermatitis and Health-related Quality of Life. Acta Dermato Venereologica. 2020;100(12):adv00161.
3. Wollenberg A, Christen-Zäch S, Taieb A, Paul C, Thyssen JP, Bruin-Weller M, et al. ETFAD/EADV Eczema task force 2020 position paper on diagnosis and treatment of atopic dermatitis in adults and children. Journal of the European Academy of Dermatology and Venereology. 2020 Dec 17;34(12):2717–44.
4. Faye O, Meledie N'Djong AP, Diadie S, Coniquet S, Niamba PA, Atadokpede F, et al. Validation of the Patient-Oriented <scp>SCOR</scp> ing for Atopic Dermatitis tool for black skin. Journal of the European Academy of Dermatology and Venereology. 2020 Apr;34(4):795–9.
5. Jorge MFS, Sousa TD, Pollo CF, Paiva BSR, Ianhez M, Boza JC, et al. Dimensionality and psychometric analysis of DLQI in a Brazilian population. Health Qual Life Outcomes. 2020 Dec 5;18(1):268.
6. Itani L, Kreidieh D, El Masri D, Tannir H, Chehade L, El Ghoch M. Revising BMI Cut-Off Points for Obesity in a Weight Management Setting in Lebanon. Int J Environ Res Public Health. 2020;17(11):3832. Published 2020 May 28. doi:10.3390/ijerph17113832

The attitude of family physicians to the quality of patient teleconsultations

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Introduction

The number of teleconsultations increased significantly during the COVID-19 pandemic (since 2019) [1]. To reduce the flow of patients in medical institutions and to allow patients to consult a doctor, primary care providers in many countries have started to consult patients remotely [2,3]. Teleconsultations have created new opportunities for patient care. Remote consultations can be available in a variety of ways: video calls, telephone or other [4]. Despite the increasing number of teleconsultations in primary health care, more scientific data about the quality of remote consultations are needed.

Aim

To assess the attitude of the family physicians working in private and public institutions on the quality of patients' teleconsultations'.

Methods

An anonymous questionnaire created by the authors, consisting of 16 questions (7 questions were used to find out the attitude of family physicians about the quality of remote consultations). The study was conducted from February to June 2022, anonymous questionnaire was sent to the email addresses of family physicians specified on public websites and shared on social network "Facebook" in medical groups in which family physicians participated. 243 family physicians working in private and public personal health care institutions participated in the study. The statistical data analysis was performed using "Microsoft Office Excel'' 365 and SPSS Version 27.0 software packages. The difference was considered statistically significant when $p<0.05$. Research was approved by the Bioethics Center (No. BEC-MF-249) of the Lithuanian University of Health Sciences.

Results

Out of 243 family physicians, 54.3% were doctors from private institutions and 45.7% physicians from public institutions. The attitude of family physicians about the duration of teleconsultations

differed as follows: 55.3% of doctors from private institutions chose the most appropriate duration of remote consultation was from 10 to 20 min., 55.9% of doctors from public institutions chose shorter duration - until 10 min. (p=0.04). Most respondents from each group indicated that the accuracy of diagnosis during teleconsultation depends on the complaints and contact consultation is needed to inform patients about bad test results, also the teleconsultations affect the quality of treatment and increase occurrence of medical errors, the most important communication difficulty is informing patients in teleconsultations, the main advantage of teleconsultation is avoiding contact with infectious diseases. The attitude of both groups did not differ statistically significantly in these aspects.

Conclusions

This study revealed that the attitude of family physicians about the appropriate duration of teleconsultations differed depending on the institution where they worked. Based on other quality criteria, the majority attitude of respondents coincided in this survey.

References

1. Verhaeghe H, Chellum N, Tressières B, Ouissa R, Roger PM. Teleconsultation in family medicine amid the Covid-19 pandemic: An adequate tool? Infectious Diseases Now. 2022 Jun;52(4):230-232.
2. Tran C, Archibald D, Humphrey-Murto S, et al. eConsult Specialist Quality of Response (eSQUARE): A novel tool to measure specialist correspondence via electronic consultation. Journal of Telemedicine and Telecare. 2022;28(4):280-290. DOI:10.1177/1357633X2.
3. Falgarone G, Bousquet G, Wilmet A, Brizio A, Faure V, Guillouet C, Baudino F, Roque I, Mayol S, Pamoukdjian F. A Teleconsultation Device, Consult Station, for Remote Primary Care: Multisite Prospective Cohort Study. J Med Internet Res. 2022;24(5):e33507.
4. Alhajri N, Simsekler MCE, Alfalasi B, Alhashmi M, AlGhatrif M, Balalaa N, Al Ali M, Almaashari R, Al Memari S, Al Hosani F, Al Zaabi Y, Almazroui S, Alhashemi H, Baltatu OC. Physicians' Attitudes Toward Telemedicine Consultations During the COVID-19 Pandemic: Cross-sectional Study. JMIR Med Inform. 2021;9(6):e29251.

Association between physiological variables and morbidity of carpal tunnel syndrome adult patients

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Introduction

Carpal tunnel syndrome – a medical condition, which causes pain, numbness, and tingling in the hand and arm. Syndrome occurs when the median nerve is compressed [1]. Many factors such as systemic, anatomical, idiopathic, and ergonomic could be important in the etiology such as age, gender, and body mass index [2]. The prevalence of an entrapment neuropathy is higher in females than in males, and it often occurs bilaterally with a peak age between 45 and 60 years old [3].

Aim

To assess the prevalence, morbidity pattern and dependence of age and gender among patients with carpal tunnel syndrome in the Hospital of Lithuanian University of Health Sciences Kaunas Clinics from 2014 to 2021.

Methods

Data of study was used from the Health Information Center of the Institute of Hygiene and was calculated from the State Health Insurance Fund under the information system SVEIDRA of the Ministry of Health of Lithuania. 12,584 cases of carpal tunnel syndrome were detected in the period from 2014 till 2021 in Kaunas Clinics. IBM SPSS statistics 23.0 software was used to statistically analyse the data. The incidence of carpal tunnel syndrome was compared - using the Student t test, t-test for independent samples, Mann-Whitney U and Kruskal-Wallis's criteria based on percentage distributions. Statistical significance - $p<0.05$. According to the World Health Organization (WHO), the subjects were divided into three groups by age: patients under 18, from 18 to 65 years and over 65 years of age. In this study only 2 groups were analysed – adults and seniors.

Results

From 2014 to 2021, 12,58 cases of carpal tunnel syndrome were identified and 99.83 % of them belonged to adults. Analysing the general trend of morbidity of the carpal tunnel syndrome the overall incidence decreased from 13.5 % to 11.0 % throughout the review period. Statistically significant difference was found between age groups ($p<0.05$) in the overall trend of morbidity of the condition.

18 – 64 aged group accounted for 71.64%, of which 17.74% were men and 53.77% - women ($p = 0.000$). The prevalence of carpal tunnel syndrome cases decreased from 13.5 % up to 11,1 %. The cases diminished from 14.3 % to 10.7 % in the group of women. In the group of men, the total number decreased from 14.3 % to 12.1 %. Carpal tunnel syndrome morbidity is more common among the group of women than the group of men. There was a statistically significant difference between women and men groups ($p<0.05$).

65+ aged group accounted for 28.36%, of which 7.33% were men and 20.99% women ($p = 0.000$). The number of carpal tunnel syndrome cases decreased from 11.7 % to 10.7 %. In the group of senior women, a drop in cases of carpal tunnel syndrome from 11.9 % to 10.0 % was observed. In the group of senior men, a trend of inconsistency in incidence was seen (ranging from 9.5 % to 15.1 % throughout the years). Carpal tunnel syndrome morbidity is a more common occurrence among the group of senior women. There was a statistically significant difference between senior women and men ($p<0.05$).

Conclusions

Carpal tunnel syndrome cases at the Hospital of Lithuanian University of Health Sciences Kaunas Clinics have been on the decline over the eight-year period of the study. The adult group have the greatest morbidity rate of carpal tunnel syndrome and women, mainly 18-64 year olds, made up the majority of the patients diagnosed with it.

References

1. Genova A, Dix O, Saefan A, Thakur M, Hassan A. Carpal Tunnel Syndrome: A Review of Literature. 2020; 12(3), 316-320.
2. Padua L, Coraci D, Erra C, Pazzaglia C, Paolasso I, Loreti C, Caliandro P, Hobson-Webb L.D. Carpal tunnel syndrome: Clinical features, diagnosis, and management. Lancet Neurol. 2016; 15, 1273 –1284.
3. Gervasio A, Stelitano C, Bollani P, Giardini A, Vanzetti E, Ferrari M. Carpal tunnel sonography. J Ultrasound. 2020; 23(3), 337–47.

Is breast cancer mortality affected by education and marital status in Lithuania?

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Introduction

Breast cancer may arise in the lining cells of the ducts or lobules in the glandular tissue of the breast. It is estimated that in 2020 there were 2.3 million women diagnosed with breast cancer and 685 000 deaths globally - making it the most common cancer in women and the leading cause of cancer deaths [1]. In 2020, Germany had the highest mortality rates among all the countries in the European Union, whereas Malta recorded the lowest mortality rates from breast cancer [2]. Evidence to clarify the role of marital status and education in mortality of patients

with women's cancers is still lacking, that is why we conducted research to determine if there is a correlation between them.

Aim

To evaluate the mortality rate of breast cancer in Lithuania between 2001-2014, based on the educational and marital status of the individuals.

Methods

Information on deaths (in population aged ≥30 years) from breast cancer (ICD-10 code C50) was obtained from Statistics Lithuania. Mortality rates from these causes were calculated by the level of education (preprimary or no education, primary, lower secondary and upper secondary, post-secondary non-tertiary, tertiary) and marital status (married, never married, divorced, widowed) per 100,000 person-years and were age-standardized using the European standard. For the assessment of trends of mortality between 2001 and 2014, the Joinpoint regression analysis was applied.

Results

The mortality rate from breast cancer among women who have tertiary education has decreased from 64.91 to 31.96 per 100,000 person-years (on average by 4.51% per year, $P<0.05$) in Lithuania during 2001-2014. Only a decreasing mortality trend was observed among women who have preprimary or no education, primary, and upper secondary education. During the analyzed period, the mortality rate among women with lower secondary and post-secondary non-tertiary education was uneven, and one cut-off point was found, but mortality did not change significantly in all periods between cut-off points. The mortality rate among women with lower secondary education decreased from 41.71 to 34.58 per 100,000 person-years from 2003 to 2014 (on average by 3.54% per year, $P<0.05$). Among those with post-secondary non-tertiary education, the mortality rate decreased from 45.50 to 33.75 per 100,000 person-years from 2004 to 2014 (on average by 2% per year, $P<0.05$). The mortality rate among married women has decreased from 44.87 to 33.42 per 100,000 person-years (on average by 1.49% per year, $P<0.05$) during 2001-2014. A decreasing mortality trend was observed among divorced and never married women, while an increasing trend was observed among widowed from 32.56 to 37.07 per 100,000 per person-years during 2001-2014.

Conclusions

The mortality from breast cancer by the level of education and marital status decreased in Lithuania during 2001-2014. Married women exhibited the highest decrease in mortality rates based on marital status, while women with tertiary education demonstrated the highest decrease in mortality rates based on educational status.

References

1. World Health Organization. Factsheet on Breast cancer. [accessed 10 Jan 2023] Available from: https://www.who.int/news-room/fact-sheets/detail/breast-cancer
2. European Commission. ECIS – European Cancer Information System. [accessed 10 Jan 2023] Available from: https://ecis.jrc.ec.europa.eu

IHS Conference

Odontology

The evaluation of knowledge of pregnant woman of the association between periodontal status and adverse pregnancy outcomes

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Introduction

Periodontitis is a chronic multifactorial inflammatory disease associated with dysbiotic plaque biofilms and manifested through clinical attachment loss, radiographically assessed bone loss, presence of periodontal pockets and gingival bleeding [1]. It is well established that pregnancy causes numerous hormonal, metabolic, and immunological changes in women's bodies that impact the composition of the oral microbiome [2]. Pregnant women may be more susceptible to periodontal infections [3]. Periodontal diseases may attribute to various complications during pregnancy [4]. In particular, it has been demonstrated that oral microbial dysbiosis with gingival inflammation can cause preterm births [5], preeclampsia [6], miscarriages [7] and low birth weight [8]. Periodontal infections are important in the pathogenesis of adverse pregnancy outcomes; therefore, awareness and treatment of these infections should reduce the incidence of these outcomes [2,3].

Aim

To evaluate the knowledge regarding the association of periodontal status and adverse pregnancy outcomes among pregnant women.

Methods

A cross-sectional questionnaire-based study was conducted from December 2022 to January 2023. A self-administered validated questionnaire was distributed among pregnant woman vising for regular check-ups Republican Siauliai Hospital, Lithuania. Respondents were asked about the connection between mother's oral health and negative pregnancy outcomes. Calculations were performed using Microsoft Excel and IBM SPSS 27.0 software. Descriptive analysis and chi-squared test was used for comparison. Values of $p<0.05$ were considered statistically significant.

Results

92 pregnant women (mean age 28.1±4.7 years) participated in the survey. 32 woman (34.8%) were in the first trimester, 26 (28.3%) in the second, and 33 (35.9%) in the third trimester of pregnancy. 45 (48.9 %) women lived in the city, whereas 47 (51.1 %) in rural area.
According to the results of the survey, 18 woman (19.6%) claimed that there is a link, 46 (50%) were unaware, and 28 (30.4%) stated that there is no relation between oral health and negative pregnancy outcomes.

Statistically significantly more woman that lived in rural area (42.6%) believed that there is no relationship between oral health during pregnancy and negative pregnancy outcomes, compared to woman living in the city (17.8 %) ($p<0.001$)
Based on the results of the interviewed woman, poor periodontal status could be a risk for: miscarriages (8.7%), preterm birth (7.6%), disorders of fetus development (7.6%), preeclampsia (5.4%), low birth weight (4.3%). During pregnancy, only 29.3% of respondents underwent preventive oral examination. 66.7% of women living in the city went to the dentist during pregnancy, while 44.7% living in the region/village have seen a specialist ($p=0.034$).

Conclusions

Majority of pregnant women that participated in the survey in Republican Siauliai Hospital were unaware about the link between maternal periodontal health and adverse pregnancy outcomes, therefore, it is vitally important to educate the expecting women regarding oral health and its consequences for pregnancy outcomes.

References

1. Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH, Flemmig TF, Garcia R, Giannobile WV, Graziani F, Greenwell H, Herrera D, Kao RT, Kebschull M, Kinane DF, Kirkwood KL, Kocher T, Kornman KS, Kumar PS, Loos BG, Machtei E, Meng H, Mombelli A, Needleman I, Offenbacher S, Seymour GJ, Teles R, Tonetti MS. Periodontitis: Consensus report of workgroup 2 of the 2017 world workshop on the classification of periodontal and peri-implant diseases and conditions. J Periodontol 2018;89 Suppl 1:S173-S182.
2. Wang, Q., Würtz, P., Auro, K. et al. Metabolic profiling of pregnancy: cross-sectional and longitudinal evidence. BMC Med 14, 205 (2016). https://doi.org/10.1186/s12916-016-0733-0. doi: 10.1111/cdoe.12450.
3. Balan P, Chong YS, Umashankar S, Swarup S, Loke WM, Lopez V, He HG, Seneviratne CJ. Keystone Species in Pregnancy Gingivitis: A Snapshot of Oral Microbiome During Pregnancy and Postpartum Period. Front Microbiol. 2018 Oct 9; 9:2360. doi: 10.3389/fmicb.2018.02360.
4. Saadaoui M, Singh P, Al Khodor S. Oral microbiome and pregnancy: A bidirectional relationship. J Reprod Immunol. 2021 Jun; 145:103293. doi: 10.1016/j.jri.2021.103293.
5. Manrique-Corredor EJ, Orozco-Beltran D, Lopez-Pineda A, Quesada JA, Gil-Guillen VF, Carratala-Munuera C (2019) Maternal periodontitis and preterm birth: Systematic review and meta-analysis. Community Dent Oral Epidemiol 47:243–251.
6. Boggess KA, Berggren EK, Koskenoja V, Urlaub D, Lorenz C (2013) Severe Preeclampsia and Maternal Self-Report of Oral Health, Hygiene, and Dental Care. J Periodontol 84:143–151. doi: 10.1902/jop.2012.120079.
7. Choi SE, Choudhary A, Ahern JM, Palmer N, Barrow JR. Association between maternal periodontal disease and adverse pregnancy outcomes: an analysis of claims data. Fam Pract. 2021 Nov 24;38(6):718-723. doi: 10.1093/fampra/cmab037.
8. Teshome A, Yitayeh A. Relationship between periodontal disease and preterm low birth weight: systematic review. Pan Afr Med J. 2016 Jul 12; 24:215. doi: 10.11604/pamj.2016.24.215.8727

Does implantoplasty decrease fracture resistance of dental implants? A systemic literature review

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Introduction

One of the most prevalent complications is peri-implantitis, which Lee et al reported at 19,83 % of the population [1]. It is defined as progressive destruction of hard and soft tissue around an implant [2]. One of the treatment options for peri-implantitis is a procedure called implantoplasty (IP) [3-4]. The main objective of IP is to polish the surface of an implant, which would stop further peri-implantitis progression avoiding implant failure [5-7]. However, some studies reported negative effect of implantoplasty on implant fracture.

Aim

To review current research articles if implantoplasty decreases the fracture resistance of dental implants.

Methods

The systemic literature review was carried out in compliance with PRISMA. The focus question was based on PICO: (P) dental implants, (I) implantoplasty, (C) healthy dental implant fracture resistance compared with dental implants with implantoplasty, (O) fracture after implantoplasty: does implantoplasty significantly decrease fracture resistance of dental implants? The Search with keywords “implantoplasty“ AND “fracture“ AND “implant“ AND “dental“ was performed on November 26th, 2022 on PubMed, ScienceDirect, Wiley‘s online library, Web of Science, and SpringerLink databases. The inclusion criteria were: studies written only in English, full-text research articles not older than 10 years. The exclusion criteria were: master thesis, dissertations, conference abstracts, and posters.

Results

In total 97 articles were found. After removing duplicates 65 articles remained.12 were selected for full-text analysis. 11 studies were included in the final screening. One full-text article was not included in the final screening due to the inability to access it through databases. All studies were performed in vitro. Every study compared new, unused dental implants. The main difference

between the control groups and test groups was that the control group wasn‘t exposed to implantoplasty.

1. 4 studies concluded that implantoplasty decreases fracture resistance of internal connection narrow diameter (3.00-3.75mm) titanium dental implants [9,11,15,18].
2. 4 studies found that standard diameter internal connection dental (4-4.1mm) implants after IP have decreased fracture resistance, three of them investigated titanium [9-11] and one titanium-zirconium alloy [8].
3. 1 study found that increased length of the exposed surface after IP decreases fracture resistance [12], and another found that a CIR (crown-implant ratio) of 2:1 leads to decreased fracture resistance [13].
4. 3 studies concluded that IP did not affect fracture resistance of external connection narrow diameter (3-3.75mm) dental implants [12-14].
5. 4 studies found that IP did not decrease fracture resistance of standard diameter (4-4.7mm) titanium dental implants. Two of them were performed on external connection [14,17], and two on internal connection dental implants [15-16].
6. Tissue-level implants showed lower fracture values compared to bone-level implants [9,11].

Conclusions

There is a lack of evidence on the effect of IP on fracture resistance of dental implants due to different IP methods and the wide variety of connections used in analyzed in vitro studies. Although, IP on internal connection narrow diameter dental implants can pose possible risk of fracture. Tissue-level implants showed lower fracture resistance compared to bone-level dental implants, which might be more susceptible to fracture after IP.

References

1. Lee C-T, Huang Y-W, Zhu L, Weltman R. Prevalences of peri-implantitis and peri-implant mucositis: systematic review and meta-analysis. J Dent [Internet]. 2017;62:1–12. Available from: https://www.sciencedirect.com/science/article/pii/S0300571217300957
2. Smeets R, Henningsen A, Jung O, Heiland M, Hammächer C, Stein JM. Definition, etiology, prevention and treatment of peri-implantitis--a review. Head Face Med [Internet]. 2014 [cited 2023 Jan 16];10(1):34. Available from: http://dx.doi.org/10.1186/1746-160X-10-34
3. Esteves Lima RP, Abreu LG, Belém FV, Pereira GH de M, Brant RA, Costa FO. Is implantoplasty efficacious at treating Peri-implantitis? A systematic review and meta-analysis. J Oral Maxillofac Surg [Internet]. 2021 [cited 2023 Jan 16];79(11):2270–9. Available from: https://www.joms.org/article/S0278-2391(21)00552-8/fulltext
4. Beheshti Maal M, Verket A. Implantoplasty- provoking or reducing inflammation? - a systematic scoping review. Acta Odontol Scand [Internet]. 2022;80(2):105–16. Available from: http://dx.doi.org/10.1080/00016357.2021.1945142
5. Lozada JL, James RA, Boskovic M, Cordova C, Emanuelli S. Surgical repair of peri-implant defects. J Oral Implantol [Internet]. 1990 [cited 2023 Jan 16];16(1):42–6. Available from: https://pubmed.ncbi.nlm.nih.gov/2074590/
6. Ramel CF, Lüssi A, Özcan M, Jung RE, Hämmerle CHF, Thoma DS. Surface roughness

of dental implants and treatment time using six different implantoplasty procedures. Clin Oral Implants Res [Internet]. 2016 [cited 2023 Jan 16];27(7):776–81. Available from: https://pubmed.ncbi.nlm.nih.gov/26355907/
7. Romeo E, Lops D, Storelli S, Ghisolfi M. Clinical peri-implant sounding accuracy in the presence of chronic inflammation of peri-implant tissues. Clinical observation study. Minerva Stomatol [Internet]. 2009 [cited 2023 Jan 16];58(3):81–91. Available from: https://pubmed.ncbi.nlm.nih.gov/19357614/
8. Shah SD, Zheng F, Seghi RR, Lee DJ. Strength of titanium-zirconium alloy implants with a conical connection after implantoplasty. J Prosthet Dent [Internet]. 2022 [cited 2023 Jan 16];0(0). Available from: https://www.thejpd.org/article/S0022-3913(22)00511-X/fulltext
9. Diéguez-Pereira M, Chávarri-Prado D, Viteri-Agustín I, Montalban-Vadillo O, Pérez-Pevida E, Brizuela-Velasco A. Effect of implantoplasty on the elastic limit of dental implants of different diameters. Int J Implant Dent [Internet]. 2021 [cited 2023 Jan 16];7(1):88. Available from: http://dx.doi.org/10.1186/s40729-021-00363-6
10. Gehrke SA, Aramburú Júnior JS, Dedavid BA, Shibli JA. Analysis of implant strength after implantoplasty in three implant-abutment connection designs: An in vitro study. Int J Oral Maxillofac Implants [Internet]. 2016 [cited 2023 Jan 16];31(3):e65-70. Available from: https://pubmed.ncbi.nlm.nih.gov/27183084/
1. Bertl K, Isidor F, von Steyern PV, Stavropoulos A. Does implantoplasty affect the failure strength of narrow and regular diameter implants? A laboratory study. Clin Oral Investig [Internet]. 2021 [cited 2023 Jan 16];25(4):2203–11. Available from: http://dx.doi.org/10.1007/s00784-020-03534-8
11. Leitão-Almeida B, Camps-Font O, Correia A, Mir-Mari J, Figueiredo R, Valmaseda-Castellón E. Effect of bone loss on the fracture resistance of narrow dental implants after implantoplasty. An in vitro study. Med Oral Patol Oral Cir Bucal [Internet]. 2021 [cited 2023 Jan 16];26(5):e611–8. Available from: http://dx.doi.org/10.4317/medoral.24624
12. Leitão-Almeida B, Camps-Font O, Correia A, Mir-Mari J, Figueiredo R, Valmaseda-Castellón E. Effect of crown to implant ratio and implantoplasty on the fracture resistance of narrow dental implants with marginal bone loss: an in vitro study. BMC Oral Health [Internet]. 2020;20(1):329. Available from: http://dx.doi.org/10.1186/s12903-020-01323-z
13. Costa-Berenguer X, García-García M, Sánchez-Torres A, Sanz-Alonso M, Figueiredo R, Valmaseda-Castellón E. Effect of implantoplasty on fracture resistance and surface roughness of standard diameter dental implants. Clin Oral Implants Res [Internet]. 2018;29(1):46–54. Available from: http://dx.doi.org/10.1111/clr.13037
14. Chan H-L, Oh W-S, Ong HS, Fu J-H, Steigmann M, Sierraalta M, et al. Impact of implantoplasty on strength of the implant-abutment complex. Int J Oral Maxillofac Implants [Internet]. 2013 [cited 2023 Jan 16];28(6):1530–5. Available from: http://www.quintpub.com/journals/omi/abstract.php?article_id=13729
15. Jorio IC, Stawarczyk B, Attin T, Schmidlin PR, Sahrmann P. Reduced fracture load of dental implants after implantoplasty with different instrumentation sequences. An in vitro study. Clin Oral Implants Res [Internet]. 2021;32(8):881–92. Available from: http://dx.doi.org/10.1111/clr.13754
16. Sivolella S, Brunello G, Michelon F, Concheri G, Graiff L, Meneghello R. Implantoplasty: Carbide burs vs diamond sonic tips. An in vitro study. Clin Oral Implants Res [Internet]. 2021;32(3):324–36. Available from: http://dx.doi.org/10.1111/clr.13702
17. Camps-Font O, González-Barnadas A, Mir-Mari J, Figueiredo R, Gay-Escoda C,

Valmaseda-Castellón E. Fracture resistance after implantoplasty in three implant-abutment connection designs. Med Oral Patol Oral Cir Bucal [Internet]. 2020 [cited 2023 Jan 16];25(5):e691–9. Available from: https://pubmed.ncbi.nlm.nih.gov/32683385/

Functional rehabilitation after condylar process fracture: A systematic review

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Introduction

The most frequent fractures in the maxillofacial region are condylar fractures (CF) [1]. Closed reduction (CR) is typically the best course of treatment, unless certain situations require an open reduction and internal fixation (ORIF) [2]. Reduced mouth opening, chewing or articulation problems are among the conditions requiring functional rehabilitation after CF [3]. Each of the aforementioned symptoms has a significant impact on a patient's life quality [4]. Thus, clinicians should have a huge interest in making rehabilitation after CF as efficient as possible.

Aim

To evaluate the efficiency of functional rehabilitation, between different closed and open reduction techniques, after CF.

Methods

A literature analysis was performed using PRISMA guidelines [5] in search of clinical trials published between 2012 and 2022. This search was conducted using the following terms “rehabilitation OR mouth opening recovery OR function recovery AND mandibular fracture OR condylar fracture” in online database PubMed. Search excluded systematic reviews, in vitro studies, case reports and studies including patients with pathological CF. The risk of bias was assessed using Cochrane Collaboration's two-part tool [6]. Meta-analysis was not performed due to high study heterogeneity.

Results

The search resulted in a total of 1553 articles, of which 5 publications were used.
Regarding quality of life, 2 interventions were compared: intermaxillary fixation (IF) by individual mandibular splints or elastics on intermaxillary fixation screws (IMFS). Survey revealed that

within 6 weeks of treatment, 91% of patients treated with IMFS have been able to observe normal daily activities in comparison to 59% of those treated with splints [4].
Studies analyzing three-dimensional recovery of mandibular movements after CF, assessed the impact of CR vs. ORIF. Two studies showed no significant difference in the rehabilitation of mandibular movements using these 2 different treatment methods (Weinberg et al. [7]: ORIF: 44.8mm, CR: 42.1mm, $p>0.05$; Shiju et al. [8]: $p>0.05$ for MMO, no patient had deviation in ORIF group and 70% patients had deviation in CR group which was statistically significant). In the third research [9], computer-aided (CAD) planning was used to perform osteosynthesis surgery on a CF. Results showed that patients' average MMO recovery improved from mean 1.2cm preoperatively to a mean 4.3cm 6 months after, but no comparative analysis was performed.
Investigating the Clinical Dysfunction Index of patients either after conservative open treatment (CONS) or endoscopic surgery (ENDO), after 8–12 weeks of follow-up, the CONS group of patients had a lower index with a significantly smaller proportion of patients experiencing severe symptoms (Di3) compared to the ENDO group ($P=.001$). However, after 1 year, 57% of patients in the ENDO group had no symptoms left, whereas only 10% of the CONS group patients had no symptoms [10].

Conclusions

1. When it comes to closed treatment, usual CR with splints replaced by IMFS has shown great results in terms of life quality.
2. It has been demonstrated that both open and closed treatment techniques are effective, with a slight advantage of open reduction considering MMO.
3. CAD technology should be considered to optimize the rehabilitation of mandibular fractures as it facilitates surgical treatment. Endoscopic assisted approach should as well be considered to improve the traditional approach. However, inconsistent follow-up periods might have implied inaccurate assessments.

References

1. Asim MA, Ibrahim MW, Javed MU, Zahra R, Qayyum MU. Functional outcomes of open versus closed treatment of unilateral mandibular condylar fractures. J Ayub Med Coll Abbottabad 2019;31:67–71.
2. Zide MF, Kent JN. Indications for open reduction of mandibular condyle fractures. J Oral Maxillofac Surg 1983;41:89–98.
3. Carter LM. Fractures of the mandible Carter LM Oxford Textbook of Plastic and Reconstructive Surgery: Oxford University Press; 2021:793–800.
4. van den Bergh B, de Mol van Otterloo JJ, van der Ploeg T, Tuinzing DB, Forouzanfar T. IMF-screws or arch bars as conservative treatment for mandibular condyle fractures: Quality of life aspects. J Craniomaxillofac Surg 2015;43:1004–9.
5. Sarkis-Onofre R, Catalá-López F, Aromataris E, Lockwood C. How to properly use the PRISMA Statement. Syst Rev 2021;10:117.
6. Higgins JP, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD, et al. The cochrane collaboration's tool for assessing risk of bias in randomised trials. BMJ 2011;343:d5928.
7. Weinberg FM, Rosenberg AJWP, Withagen KPA, Gilijamse M, Forouzanfar T, Speksnijder CM. Oral functioning after open versus closed treatment of unilateral condylar neck or base fractures: A two-centre controlled clinical trial. J Oral Rehabil. 2022 Dec 19.

8. Shiju M, Rastogi S, Gupta P, Kukreja S, Thomas R, Bhugra AK, et al. Fractures of the mandibular condyle – Open versus closed – A treatment dilemma. J Craniomaxillofac Surg 2015;43:448–51.
9. Guo SS, Zhou WN, Wan LZ, Yuan H, Yuan Y, Du YF, et al. Computer-aided design-based preoperative planning of screw osteosynthesis for type B condylar head fractures: A preliminary study. J Craniomaxillofac Surg 2016;44:167–76.
10. Kokemueller H, Konstantinovic VS, Barth EL, Goldhahn S, von See C, Tavassol F, et al. Endoscope-assisted transoral reduction and internal fixation versus closed treatment of mandibular condylar process fractures – A prospective double-center study. J Oral Maxillofac Surg 2012;70:384–95.

Effect of fluoride on NiTi orthodontic archwires: a systematic literature review

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Introduction

There is increased caries risk during orthodontic treatment with braces, that is why the various fluoride agents are inevitable for caries prevention [1]. NiTi orthodontic archwires have a passivation layer that protects the wire from corrosion. Fluoride ions have the ability to dissolve this layer and when the fluoride begins to dissolve the passivation layer of the archwires, corrosion and the release of metal ions proceeds [2]. Study shows that fluorides cause more release of metal ions during orthodontic treatment [3].

Aim

To evaluate the effect of fluoride on the surface, chemical and mechanical characteristics of NiTi orthodontic archwires.

Methods

A systematic literature review was performed according to PRISMA statement. The search with keywords “NiTi”, “Orthodontic archwires”, “Fluoride” was performed between December 28th and January 5th in PubMed, Google Scholar, ScienceDirect. Of the 913 results, only those which identified effect of fluoride on NiTi orthodontic archwires were collected. 34 articles were assessed for eligibility, 6 of them were included in this review. A focus question based on PICOS study design protocol was developed: Does the use of fluoride has an effect on the surface and mechanical characteristics of NiTi orthodontic archwires compared to nonfluoridated NiTi archwires? Inclusion criteria: research articles published less than 10 years ago, studies in English

language, prospective and in vitro studies. Exclusion criteria: pilot studies, systematic reviews, case reports or series. The quality of each study was evaluated using the Appraisal tool for cross – sectional studies and was analyzed by the author.

Results

34 articles were analyzed in full-text, 6 of them were included in this review. In all studies 265 NiTi orthodontic archwires were included. Five studies were performed in vitro [1, 2, 4, 5, 6] and two in vivo [3, 4]. The control group and experimental groups were established [1-6]. Studies were performed in deionized water [1, 6], fluoride gel [1, 4], fluoridated mouthwash [2, 3, 5], nonfluoridated mouthwash [2], fluoridated and nonfluoridated toothpaste [3, 5], fluoride solution [6]. By a 3-point bend test on a universal testing machine, it was proven that the unloading yield strength was reduced after an exposure to fluoride solutions [1, 6]. In two studies, Coupled Plasma-Mass Spectrometry (ICP-MS) showed the increase in levels of Ni2+ and Ti4+ ion release [2, 3]. Ion release is more vivid in Ni than in Ti, despite the fact that both expose very high ion release levels that approach 200.000 ppb after 14 days of immersion [2]. After 30 days of therapy, the fluoridated group's nickel ion release levels were significantly higher (101.7842 mg/L) than the nonfluoridated group's (13.42 mg/L) ($P < 0.001$) [3]. Energy-dispersive X-ray spectroscopy [5] and X-ray crystallography [6] proved that the fluoridated archwires have less amount of Ni2+ and Ti4+ than nonfluoridated. These 4 studies confirm the leaching of ions on exposure to fluoride agents [2, 3, 5, 6]. The surface changes of NiTi orthodontic archwires were evaluated by Scanning Electron Microscope (SEM) [2, 4, 5, 6]. SEM analysis showed deterioration [2, 4, 5, 6], dark spots [5, 6] and general corrosion [6].

Conclusions

Using the fluoride agents may alter the surface, chemical and mechanical characteristics of the NiTi orthodontic archwires. Fluoride causes the release of Ni and Ti ions to the physiological environment and it can lead to the corrosion of NiTi orthodontic archwire.

References

1. Mane P, Ganiger CR, Pawar R, Phaphe S, Ronad YA, Valekar S, Kanitkar AA. Effect of fluoride on mechanical properties of NiTi and CuNiTi orthodontic archwires: an in vitro study. Dental Press J Orthod. 2021 Apr 30;26(2):e212020. doi: 10.1590/2177-6709.26.2.e212020.oar.
2. Pastor F, Rodríguez JC, Barrera JM, Delgado García-Menocal JA, Brizuela A, Puigdollers A, Espinar E, Gil J. Effect of Fluoride Content of Mouthwashes on Superelastic Properties of NiTi Orthodontic Archwires. Materials (Basel). 2022 Sep 22;15(19):6592. doi: 10.3390/ma15196592.
3. P. Chitra, G.S. Prashantha, A. Rao. Long-term evaluation of metal ion release in orthodontic patients using fluoridated oral hygiene agents: an in vivo study. J World Fed Orthod, 8 (2019), pp. 107-111.
4. ABBASSY, Mona Aly. Fluoride influences nickel-titanium orthodontic wires' surface texture and friction resistance. journal of orthodontic science, 2016, 5.4:121.
5. CHITRA, Prasad; PRASHANTHA, G. S.; RAO, Arun. Effect of fluoride agents on surface characteristics of NiTi wires. An ex vivo investigation. Journal of Oral Biology and Craniofacial Research, 2020, 10.4: 435-440.

6. Yadav SK, Sehgal V, Mittal S. Effects of Fluoride on NiTi Orthodontic Archwires: An X-ray Diffraction Study. Journal of Indian Orthodontic Society. 2013;47(4):357-361. doi:10.5005/jp-journals-10021-1187

Skeletal characteristics in patients with maxillary impacted canines. Systematic review and meta-analysis

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Introduction

The etiology of buccally impacted canines is linked to a short maxillary arch and/or a lack of space indental arch. Nevertheless, referring to palatally impacted canines (PIC), the actual cause of impaction remains unclear [1;2]. The tooth eruption is a physiological process that affects the alveolar bone's normal development, whereas tooth impaction may prevent the alveolar bone's regional growth [3]. There have been a few studies performed on dental casts evaluating the maxillary and alveolar bone dimensions in patients with PIC [4;5]. Cone-beam computed tomography (CBCT) has provided a more precise way to measure skeletal characteristics, leading to more accurate evaluation.

Aim

To assess the skeletal dimensions in patients with palatally impacted canines, using cone beam computed tomography.

Objectives

To gather the latest information and compare the skeletal morphological characteristics between the patients with PIC and control group.

Methods

Data was retrieved according to PRISMA criteria. Electronic databases: PubMed, Cohrane Library, and ScienceDirect. PICO question: what are maxillary skeletal variations in subjects with unilateral palatally impacted maxillary canines in comparison to subjects without canine impactions? The literature search resulted in 368 sources and 13 were sampled. By applying sampling criteria, 6 publications in English were chosen and used in the review. The risk of bias

was assessed using Newcastle-Ottawa Scale (NOS). MedCalc software was used to perform the meta-analysis. Statistical heterogeneity was assessed using the chi-square and I-square tests.

Results

Anterior height of the alveolar crest (AACH) in the impacted subjects ranged from 14.87±2.98 mm to 21.1±3.91 mm, and in the non-impacted - from 15.40±3.06 mm to 20.9±4.00 mm [6-9]. Meta-analysis revealed a non-significant difference (mean difference, -0.216; 95% CI, -0.460 to 0.0278; P>0.05).

In 2 split-mouth studies basal first premolar width (BPMW) ranged from 12.7±2.25 mm to 18.5±2.44 mm on the impacted side, and from 14.7±2.00 mm to 16.5±2.43 mm on the non-impacted sides (p<0.05)); however, meta-analysis revealed a non-significant difference (p>0.05) between sides [7;8]. Measuring BPMW in individual subjects, it ranged from 35.3±2.77 mm to 35.6±5.3 mm vs. 37.9±5.1 mm to 38.8±3 mm in impacted and non-impacted patients, respectively, and only one study showed statistically discernible difference. Nevertheless, a significant difference between groups in meta-analysis was found (mean difference, -0.744; 95% CI, -1.444 to -0.0444; P=0.037) [10;11].

The basal lateral width (BLW) was assessed in two studies [7;8]. The mean BLW on the impacted side ranged from 19±2.55 mm to 30.9±1.41 mm and in the non-impacted - from 19.7±2.29 mm to 27.5±1.7 mm. One study reported a statistically significant BLW reduction in the PIC group [7]. However, meta-analysis showed a non-significant difference (mean difference, 0.896; 95% CI, -1.497 to 3.289; P>0.05).

Conclusions

Based on results of meta-analysis, the sole association between basal first premolar width and PIC was confirmed. Anterior height of the alveolar crest and basal lateral width did not associate with palatal canine impaction.

References

1. Jacoby H. The etiology of maxillary canine impactions. Am J Orthod. 1983 Aug;84:125–132.
2. Yan B, Sun Z, Fields H, Wang L, Luo L. Etiologic factors for buccal and palatal maxillary canine impaction: a perspective based on cone-beam computed tomography analyses. Am J Orthod Dentofacial Orthop. 2013 Apr;143(4):527–34.
3. Wise, G.E., He, H., Gutierrez, D.L., Ring, S. and Yao, S. Requirement of alveolar bone formation for eruption of rat molars. European Journal of Oral Sciences, 2011 Oct; 119, 333–338
4. Al-Nimri K, Gharaibeh T. Space conditions and dental and occlusal features in patients with palatally impacted maxillary canines: an aetiological study. Eur J Orthod. 2005 Oct;27(5):461-5.
5. Langberg BJ, Peck S. Adequacy of maxillary dental arch width in patients with palatally displaced canines. Am J Orthod Dentofacial Orthop. 2000 Aug;118(2):220–3.
6. Tadinada, A., Mahdian, M., Vishwanath, M., Allareddy, V., Upadhyay, M., & Yadav, S. Evaluation of alveolar bone dimensions in unilateral palatally impacted canine: a cone-beam computed tomographic analysis. European Journal of Orthodontics, 2015 Dec;37(6), 596–602.

7. Sar, S. K., Singh, M., Sharma, A., Sharma, P., & Raza, M.. Skeletal and dentoalveolar dimensions in unilateral impacted canines: a cone beam computed tomography study. European Oral Research, 2022 May;56(2), 74–79.
8. D Oleo-Aracena, M. F., Arriola-Guillén, L. E., Rodríguez-Cárdenas, Y. A., & Ruíz-Mora, G. A. Skeletal and dentoalveolar bilateral dimensions in unilateral palatally impacted canine using cone beam computed tomography. Progress in Orthodontics, 2017 Dec; 18(1), 7.
9. Montes-Díaz, M. E., Martínez-González, A., Arriazu-Navarro, R., Alvarado-Lorenzo, A., Gallardo-López, N. E., & Ortega-Aranegui, R. Skeletal and dental morphological characteristics of the maxillary in patients with impacted canines using Cone Beam Computed Tomography: A retrospective clinical study. Journal of Personalized Medicine, 2022 Jan 12; 12(1), 96.
10. Genc E, Karaman A. Investigation of the relationship between maxillary dimensions and labial and palatal maxillary impacted canines using cone beam computed tomography. J Stomatol Oral Maxillofac Surg. 2022 Feb; 124(1S):101282
11. Arboleda-Ariza N, Schilling J, Arriola-Guillén LE, Ruíz-Mora GA, Rodríguez-Cárdenas YA, Aliaga-Del Castillo A. Maxillary transverse dimensions in subjects with and without impacted canines: A comparative cone-beam computed tomography study. Am J Orthod Dentofacial Orthop. 2018 Oct;154(4):495–503.

Oral care in intensive care units

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Introduction

Intensive care unit (ICU) patients require life support and professional care. Studies have shown a link between inadequate oral hygiene and higher incidence of hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) [1,2]. ICU nurses have recognised the importance of professional oral care [1,2] in preventing infection and reducing the incidence of ventilator-associated pneumonia (VAP) [3,4,5]. This is related with increased mortality [6] of ICU patients. Oral hygiene care, toothbrushing, the use of dental gels, mouthwash, or a combination of these, together with suction secretions, may reduce the risk of ventilator-associated pneumonia. [7,8]

Aim

This study examines the attitudes and practices of ICU nurses towards the provision of oral care to their patients.

Methods

We conducted this cross-sectional survey about oral health care practices in ICUs in Lithuania. We used a self-administered 20-item questionnaire to survey the current oral care practices,

training, and attitudes of 108 nurses at the LUHS University Hospital, Kaunas and 70 nurses at Vilnius University Hospital, Santaros clinics, Vilnius, Lithuania. The questionnaire was based on previous studies to gather information related to the attitudes, oral care practices, and training of ICU nurses. We used the chi-square test to analyze relationships between the categorical variables and $p<.05$ considered to be statistically significant.

Results

The majority (88, 82%) of the Kaunas clinic nurses and (58, 83%) of the Vilnius Santaros clinic nurses agreed that oral care is important. However, the bulk of respondents of both clinics reported that it is difficult to clean oral cavity, which appears as an unpleasant task. Both hospitals' nurses have received adequate training (55, 79%) of the Vilnius Santaros clinic vs. Kaunas clinic nurses (83, 77%). A majority (98, 91%) of the Kaunas clinic nurses, compared to (59, 85%) of the Vilnius Santaros clinic nurses, reported a willingness to learn more. Additionally, over half (57, 57%) of the Kaunas clinic nurses and (30, 45%) of the Vilnius Santaros clinic nurses expressed a need for more hospital support

Conclusions

Nurses working in ICUs reported that oral care is a high priority for their patients, but a difficult and unpleasant task.

References

1. Andersson M, Wilde-Larsson B, Persenius M. Intensive care nurses fail to translate knowledge and skills into practice – A mixed- methods study on perceptions of oral care. Intensive Crit Care Nurs. 2019;52:51–60.
2. Prendergast V, Kleiman C, King M. The bedside oral exam and the barrow oral care protocol: translating evidence-based oral care into practice. Intensive Crit Care Nurs. 2013;29(5):282–290.
3. Choi ES, Noh HJ, Chung WG, et al. Development of a competency for professional oral hygiene care of endotracheally-intubated patients in the intensive care unit: development and validity evi- dence. BMC Health Serv Res. 2021;21(1):748.
4. Collins T, Plowrigh C, Gibson V, et al. British association of critical care nurses: evidence-based consensus paper for oral care within adult critical care units. Nurs Crit Care. 2021;26(4):224–233.
5. Celik GG, Eser I. Examination of intensive care unit patients' oral health. Int J Nurs Pract. 2017;23(6):1–9.
6. Kalanuria A, Zai W, Mirski M. Ventilator-associated pneumonia in the ICU. Crit Care. 2014;18(2):208.
7. Hua F, Xie H, Worthington HV, et al. Oral hygiene care for critically ill patients to prevent ventilator-associated pneumonia. Cochrane Database Syst Rev. 2016;10(10): CD008367. 25CD008367.2020. Update in: cochrane Database Syst Re. 2020;24, 12:CD008367.
8. Matsusaka K, Ohi A, Tahata K, et al. Addition of oral cavity brush- ing and rehabilitation reduces fever in tube-fed patients. Geriatr Gerontol Int. 2013;13(4):1082–1084.

Implant survival rate after immediate implantation in decontaminated sockets: a systematic literature review

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Introduction

Immediate implant placement is defined as implant insertion into the socket at the time of tooth extraction. It is an appealing technique because it reduces the number of surgical steps, post-extraction resorption of the alveolar bone, and allows the implant to be placed in an ideal axial position[1]. Successful immediate implant placement requires comprehensive debridement and disinfection of the hard and soft tissue elements of diseased sockets as well as the removal of microbiological debris. An array of techniques has been documented for the post-extraction site before the placement of the implant. The varying results of implant survival rates using different decontamination techniques in infected sockets demand a more thorough investigation. [2-4]

Aim

To review the literature on the survival rate of immediate implants used to replace teeth with chronic periapical lesions after decontaminating the infected sockets.

Methods

A systematic literature review was conducted according to PRISMA guidelines. A focus question was constructed according to PICO: what is the implant survival rate (O) after immediate implantation (I) in patients with periapical lesions (P) compared to immediate implantation in patients with non-infected sockets (C)? Electronic literature searches were performed independently by 2 authors in MEDLINE and EMBASE on December 22, 2022. Databases were searched using combinations of the following keywords: immediate implantation, infection, infected socket, periapical lesion, socket decontamination, and periodontitis. Included studies were published in English and no older than 10 years, cohort human clinical trials evaluating the survival rate of implants placed in infected sockets with a control group and a follow-up period ≥3 months after the initial procedure. All in vitro, animal, pilot studies, case reports, and case series were excluded. Full-text articles were excluded due to an unfinished study, the lack of a control group, and data on implant survival rate. Perspective and retrospective cohort studies were evaluated using the Newcastle-Ottowa scale. Cochrane Risk of bias assessment tool version 2 (RoB 2) was used for selected randomized trials.

Results

A total of 368 studies were identified. Of these, 278 did not meet the inclusion criteria, leaving 14 articles for full-text analysis. 7 studies fulfilled all inclusion criteria. 5 of the included studies were Cohort studies, and 2 of them were randomized clinical trials. None of the studies met the requirements for quantitative meta-analysis due to their heterogeneity of data. A total of 259 patients and 663 implants were evaluated. The survival rate of implants in reviewed studies ranged from 94.4% to 100%.[5-11] The measurements for no signs of infection were made by clinical and radiographical examination. 4 studies [7-10] reported a 100% implant survival rate for both control and test groups. All studies used curettage in test groups as primary debridement in infected sockets. There were no statistically significant differences ($p<0.05$) in implant survival rates when additional disinfection techniques were used: rinsing with chlorhexidine, saline or hydrogen peroxide solutions, sequestrectomy using Er,Cr:YSGG laser.

Conclusions

Implants immediately placed in infected sites demonstrating periapical pathology using different debridement techniques yielded results comparable to those immediately placed in non-infected sites. The difference in survival rates was not statistically significant.

References

1. Chrcanovic B.R., Albrektsson T., Wennerberg A. Dental implants inserted in fresh extraction sockets versus healed sites: A systematic review and meta-analysis. J. Dent. 2015;43:16–41. doi: 10.1016/j.jdent.2014.11.007.
2. Marconcini S, Barone A, Gelpi F, Briguglio F, Covani U. Immediate implant placement in infected sites: a case series. J Periodontol. 2013;84(2):196–202
3. Del Fabbro M, Boggian C, Taschieri S. Immediate implant placement into fresh extraction sites with chronic periapical pathologic features combined with plasma rich in growth factors: preliminary results of a single-cohort study. J Oral Maxillofac Surg. 2009;67:2476–84.
4. Garcés Villalá MA, Rico Jordán SD and Calvo Guirado JL (2022) Immediate Implant Placement in Infected Sockets: Curettage Protocol Plus Disinfection with Hydrogen Peroxide and Rifamycin. Retrospective Analysis at 6 years of Follow-up. Open Access J Dent Oral Surg 3: 1035
5. Crespi R, Capparé P, Crespi G, Lo Giudice G, Gastaldi G, Gherlone E. Dental Implants Placed in Periodontally Infected Sites in Humans. Clin Implant Dent Relat Res. 2017 Feb;19(1):131-139. doi: 10.1111/cid.12425. Epub 2016 May 16. PMID: 27183325.
6. Montoya-Salazar V, Castillo-Oyagüe R, Torres-Sánchez C, Lynch CD, Gutiérrez-Pérez JL, Torres-Lagares D. Outcome of single immediate implants placed in post-extraction infected and non-infected sites, restored with cemented crowns: a 3-year prospective study. J Dent. 2014 Jun;42(6):645-52. doi: 10.1016/j.jdent.2014.03.008. Epub 2014 Mar 24. PMID: 24675527.
7. Crespi R, Capparé P, Crespi G, Lo Giudice G, Gastaldi G, Gherlone E. Immediate Implant Placement in Sockets with Asymptomatic Apical Periodontitis. Clin Implant Dent Relat Res. 2017 Feb;19(1):20-27. doi: 10.1111/cid.12422. Epub 2016 Apr 28. PMID: 27126371.
8. Katyayan, M. K., Katyayan, P. A., Reddy, P. S., & Kumar, Y. B. (2018). A Comparison of Outcome of the Immediate Implant Placement of Implants When Used In the

Replacement of Teeth with and Without Chronic Periapical Lesions: Outcome Of The Immediate Implant Placement Of Implants In Case With And Without Chronic Periapical Lesions. National Journal of Integrated Research in Medicine, 8(2), 133–139. Retrieved from http://nicpd.ac.in/ojs-/index.php/njirm/article/view/1221.
9. Al Nashar A, Yakoob H. Evaluation of the use of plasma rich in growth factors with immediate implant placement in periodontally compromised extraction sites: a controlled prospective study. Int J Oral Maxillofac Surg. 2015 Apr;44(4):507-12. doi: 10.1016/j.ijom.2014.12.001. Epub 2014 Dec 23. PMID: 25541015.
10. Jung RE, Zaugg B, Philipp AO, Truninger TC, Siegenthaler DW, Hämmerle CH. A prospective, controlled clinical trial evaluating the clinical radiological and aesthetic outcome after 5 years of immediately placed implants in sockets exhibiting periapical pathology. Clin Oral Implants Res. 2013 Aug;24(8):839-46. doi: 10.1111/j.1600-0501.2012.02491.x. Epub 2012 Jun 3. PMID: 22672584.
11. Fugazzotto PA. A retrospective analysis of implants immediately placed in sites with and without periapical pathology in sixty-four patients. J Periodontol. 2012 Feb;83(2):182-6. doi: 10.1902/jop.2011.110016. Epub 2011 May 31. PMID: 21627462.

Sexually transmitted bacterium *Prevotella nigrescens*: a link between HPV and oral cancer development. Systematic literature review.

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Introduction

Prevotella nigrescens absence shows moderate pathogenicity which may trigger inflammatory mediators in the oral cavity and urogenital tracts [1]. According to studies it may be claimed that the development of this bacterium is related to the development of the Human papillomavirus (HPV) when it is detected in vaginal mucosa [2]. It could be stated that HPV may have an influence on the development of oral cancer. HPV transmitted sexually, specifically HPV 16 type, was linked to oral cancer. Therefore, oral HPV infection and a connection to sexual behavior is aimed to be evaluated by studies [5]. Over the past few decades, the number of associated oral cancer and HPV has increased significantly. Research findings suggest that HPV infection in the oral cavity is linked to sexual activeness [6].

Aim

To perform a systematic literature review for identification of the influence of bacterium *Prevotella nigrescens* to the development of oral cancer after being sexually infected by HPV.

Methods

A comprehensive research was performed on December 29, 2022 in Pubmed, Research Gate, Plos One, ScienceDirect databases according to PRISMA guidelines. Following keywords were used: "*Prevotella nigrescens*", "Oral cancer", "Oral cavity", "Human papillomavirus", "Oropharyngeal cancer", "Sexual transmission". Inclusion criteria were: articles published from 2018 to 2023, written in English, evaluating the link between sexually transmitted HPV and oral cancer development and the influence of *Prevotella nigrescens* bacterium, human clinical trials, cohort studies. Exclusion criteria: systematic reviews or publications about respiratory system cancer, HPV influence on urogenital cancer development, *Prevotella nigrescens* influence on periodontitis development.

Results

Out of 513 articles found on the database, 71 records were screened and 8 articles were selected for the analysis. All of the articles were cohort studies, which included a total of 533 patients. In most publications subjects were were divided into the groups by age (college - age cohort and older - adult cohort), participants of one study were devided by sexual behavior characteristics and were aged between 40 and 60 years. The other included cohort study analyzed predominantly male participants with a mean age of 49.31 ± 13.24 years for cancer group and 50.67 ± 6.81 years for controls. The baseline questionnaires in all studies were designed to individually assess a variety of topics including demographics, sexual health and behavior, alcohol and drug use. One study reports HPV in the oral cavity prevalence of 46% in college age cohort, while prevalence in older adult cohort was significantly smaller - 22,3% ($p < 0,001$). Other studies repor higher oral HPV infection prevalence in men (11%) than in women (4%). Reporting a single recent partner was associated with a lower oral HPV prevalence than reporting no recent (but at least one ever) partner. All of the studies, except one, in which *Prevotella nigrescens* has been related to good oral health rather than to oral disease, has found *Prevotella nigrescens* statistically significant link between HPV and oral cancer development.

Conclusions

Prevotella nigrescens is indicated to have a direct link between HPV and oral cancer development during orogenital transmission. HPV seems to modulate the process of cancer development as a primary carcinogen, promoting the process of carcinogenesis between patients who are greatly influenced by sexual habits.

References

1. Könönen E, Fteita D, Gursoy UK, Gursoy M. Prevotella species as oral residents and infectious agents with potential impact on systemic conditions. J Oral Microbiol [Internet]. 2022 [cited 2023 Jan 20];14(1):2079814. Available from: https://pubmed.ncbi.nlm.nih.gov/36393976/
2. Ritu W, Enqi W, Zheng S, Wang J, Ling Y, Wang Y. Evaluation of the associations between cervical Microbiota and HPV infection, clearance, and persistence in cytologically normal women. Cancer Prev Res (Phila) [Internet]. 2019 [cited 2023 Jan 20];12(1):43–56. Available from: https://pubmed.ncbi.nlm.nih.gov/30463989/
3. Eisenberg MC, Campredon LP, Brouwer AF, Walline HM, Marinelli BM, Lau YK, et al.

Dynamics and determinants of HPV infection: The Michigan HPV and oropharyngeal cancer (M-HOC) study. BMJ Open [Internet]. 2018 [cited 2023 Jan 20];8(10):e021618. Available from: https://pubmed.ncbi.nlm.nih.gov/30282679/
4. Brouwer AF, Eisenberg MC, Carey TE, Meza R. Multisite HPV infections in the United States (NHANES 2003-2014): An overview and synthesis. Prev Med [Internet]. 2019;123:288–98. Available from: https://www.sciencedirect.com/science/article/pii/S009174351930115X
5. Brouwer AF, Campredon LP, Walline HM, Marinelli BM, Goudsmit CM, Thomas TB, et al. Prevalence and determinants of oral and cervicogenital HPV infection: Baseline analysis of the Michigan HPV and Oropharyngeal Cancer (MHOC) cohort study. PLoS One [Internet]. 2022 [cited 2023 Jan 20];17(5):e0268104. Available from: http://dx.doi.org/10.1371/journal.pone.0268104
6. Schlecht NF, Masika M, Diaz A, Nucci-Sack A, Salandy A, Pickering S, et al. Risk of oral human Papillomavirus infection among sexually active female adolescents receiving the quadrivalent vaccine. JAMA Netw Open [Internet]. 2019 [cited 2023 Jan 20];2(10):e1914031. Available from: https://pubmed.ncbi.nlm.nih.gov/31651968/
7. Panda M, Rai AK, Rahman T, Das A, Das R, Sarma A, et al. Alterations of salivary microbial community associated with oropharyngeal and hypopharyngeal squamous cell carcinoma patients. Arch Microbiol [Internet]. 2020 [cited 2023 Jan 20];202(4):785–805. Available from: https://pubmed.ncbi.nlm.nih.gov/31832691/
8. Gopinath D, Menon RK, Wie CC, Banerjee M, Panda S, Mandal D, et al. Differences in the bacteriome of swab, saliva, and tissue biopsies in oral cancer. Sci Rep [Internet]. 2021 [cited 2023 Jan 20];11(1):1181. Available from: https://pubmed.ncbi.nlm.nih.gov/33441939/

Comparison of orthopantomogram and computerised tomography in the diagnosis of odontogenic sinusitis

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Introduction

Odontogenic sinusitis is a symptomatic inflammation of the sinus mucosa, which accounts for about a tenth of all diagnosed types of maxillary sinusitis [1]. If left untreated for a long time, it can negatively affect the quality of life, cause psychological problems and dangerous complications. Although the aetiology is quite clear - the most common causes are tooth root

apical abscess, periodontitis, fistulas after tooth extraction or foreign bodies entering the sinus from the oral cavity, but the origin of this sinusitis is often difficult to determine due to the low symptom severity and similarity to other diseases of the paranasal sinuses [2]. Due to the previously mentioned reasons, the diagnosis of this disease is often delayed, and the treatment is longer and more complicated. A properly chosen radiological examination determines the appropriate treatment method, helps to stop the progression of the disease, and prevents bad outcomes.

Aim

To analyse patients' groups at a higher risk of developing odontogenic sinusitis, to evaluate the diagnostic value of radiological examinations in diagnosis of odontogenic sinusitis.

Methods

This study was approved by the Bioethics Centre of LUHS (No. BEC-MF-196). A retrospective analysis of patients' medical histories was conducted. Demographic data was collected (gender, age, clinical department where the patient was hospitalised). Radiological methods and descriptions were evaluated and compared with the final diagnosis. Data was analysed and calculations were made using Excel and SPSS 26.0 programs.

Results

Among 73 cases of chronic maxillary sinusitis studied, 24 (32.9%) patients were treated in the department of Maxillofacial Surgery and 45 (61.6%) in Otorhinolaryngology department. 17 (23.3%) men ad 56 (76.7%) women were included in the study. 41 (56.2%) patients were diagnosed with odontogenic sinusitis. Mean age of all patients diagnosed with odontogenic sinusitis was 52.71 (standard devation 2.029). Orthopantomogram (OPT) was performed on 19 (26.0%), computerised tomography (CT) examination – on 60 (82.2%) patients. Both imaging tests were performed on 6 (8.2%) patients. Out of 19 performed OPT scans, 12 were true positive, 1 – true negative, 2 – false positive and 4 – false negative. Based on these results, the sensitivity of the orthopantomogram is estimated to be 75.00%, specificity – 33.33% ($p<0.05$). Out of 60 performed CT examinations, 15 were true positive, 14 – true negative, 25 – false positive and 6 – false negative. Based on these results, the sensitivity of computerised tomography is 71.43%, specificity – 35.90% ($p<0.05$).

Conclusions

From the available results, a prediction could be made that both OPG and CT has higher sensitivity value rather than specificity. The way the radiological images are presented can be affected by improper radiographic techniques, including exposure factors, patients' positioning and the intricate anatomy of their sinuses [3]. Furthermore, there can be variations in how images are interpreted by various radiologists [4]. Because the signs and symptoms of maxillary sinusitis are largely nonspecific, the accurate diagnosis is challenging [5]. The specificity and sensitivity of radiological examinations are influenced by many factors, so to obtain the most accurate diagnostic values and significance in clinical practice, it is necessary to examine a larger sample of patients, to include images evaluated by highly experienced radiologists, and to follow the same protocols while performing examinations.

References

1. Wang KL, Nichols BG, Poetker DM, Loehrl TA. Odontogenic sinusitis: a case series studying diagnosis and management. Int Forum Allergy Rhinol. 2015 Jul;5(7):597-601.
2. Akhlaghi F, Esmaeelinejad M, Safai P. Etiologies and Treatments of Odontogenic Maxillary Sinusitis: A Systematic Review. Iran Red Crescent Med J. 2015 Dec 27;17(12):e25536.
3. Shrestha MK, Ghartimagar D, Ghosh A, Jhunjhunwala AK. Sensitivity of Sinus Radiography Compared to Computed Tomogram: A Descriptive Cross-sectional Study from Western Region of Nepal. JNMA J Nepal Med Assoc. 2020 Apr 30;58(224):214-217.
4. Burke TF, Guertler AT, Timmons JH. Comparison of sinus x-rays with computed tomography scans in acute sinusitis. Acad Emerg Med. 1994 May-Jun;1(3):235-9.
5. Puhakka T, Heikkinen T, Mäkelä MJ, et al. Validity of Ultrasonography in Diagnosis of Acute Maxillary Sinusitis. Arch Otolaryngol Head Neck Surg. 2000;126(12):1482–1486. doi:10.1001/archotol.126.12.1482.

Assessment of the oral cavity state in internally displaced Ukrainians

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Introduction

Diseases of the oral cavity are among the most common diseases in the global sense [1,2]. It changes people's quality of life and has an impact on the health and economic level of society. Since extreme influences are at the basis of the etiology of many dental diseases, the state of the oral cavity of persons who suffer significantly from conducting active combat operations changes under the influence of stress.

Aim

The aim of the study was to assess the condition of the oral cavity of internally displaced persons (IDPs) - those people who were forced to leave their homes and move to other regions of our country due to threats from the aggressor.

Methods

Materials and methods. 44 IDPs were examined. The first group consisted of 29 people who moved to the Poltava Territorial Community due to hostilities in the settlements of their permanent residence. Group II - 15 young people who came to study at the Poltava State Medical University (PSMU) from the zone of active hostilities, regions occupied by the enemy or transferred to the PSMU after the beginning of the active phase of aggression from universities in those territories. The DMF index, OHI-S by Green-Vermillion, PMA index and CPI were determined for all examined persons [3-7]. For the II group of people, ICDAS was determined.

Results

The prevalence of odontopathology in internally displaced persons is 100%, which corresponds to a similar indicator for the adult population of Ukraine. The DMF of internally displaced persons of the 1st group was 10.9±1.33, which is 5 times higher than the DMF index for the population of Ukraine on average [5].
The obtained result was compared with the studies of Italian scientists. According to their data, the DMF index of Ukrainians who were forced to leave for Italy during the active phase of hostilities in 2022 is 5.16 ± 2.79, which is two times lower than our result, but significantly higher than the average DMF value for the population of Ukraine.
The DMF index for the II group was 5.13±0.85, which is related to age and, possibly, to the level of stress, because the forced circumstances of the move for the I group are more difficult than the circumstances of the respondents II groups. The ICDAS index for the group of young people was 4.83±0.54. At the same time, lesions with codes 1 (first visual changes in the enamel visible only after prolonged drying) and 2 (visible changes in the tooth enamel in the form of a white or brown spot) prevailed, which indicates a high active stage of caries in persons under under the influence of stressful factors.
OHI-S by Green-Vermillion for the group of examined persons is 1.45±0.08, which corresponds to the average general level of oral hygiene care.
Signs of gingivitis were found in all cases, but respondents with mild and moderate severity distributed approximately equally. The CPI index for the group of examined persons turned out to be 1.97±0.15.

Conclusions

Internally displaced Ukrainians, who suffered from the extreme stressful effects of the war, have a significant and uneven damage to the hard tissues of the teeth, which is 5 times higher than the similar indicator for the population of Ukraine as a whole. Young people who come from regions of active hostilities and/or have left their relatives and families there are characterized by a more active stage of the carious process development They have quick occurrence of new non-cavitary lesions against the background of a difficult psycho-emotional state. The prevalence of periodontal pathology in examined IDPs is 100%.

References

1. Oral diseases: a global public health challenge /Marco Aurélio Peres, Lorna M D Macpherson, Robert J Weyant, Richard G Watt / The Lancet Series on Oral Health / July 2019 https://www.researchgate.net/publication/334556723_Oral_diseases_a_global_public_health_challenge
2. Upstream interventions to promote oral health and reduce socioeconomic oral health inequalities: a scoping review protocol / Eleanor R Dawson, Michelle Stennett, Blánaid Daly, Lorna M D Macpherson, Paul Cannon, Richard G Watt / June 2022, BMJ Open 12(6):e059441.
3. Khomenko LO, Bidenko NV Do pytannya pro suchasnu systematyzatsiyu kariyesu zubiv u ditey Ukrayiny [On the question of modern systematization of dental caries in children of Ukraine] Ukrayins′kyy stomatolohichnyy al′manakh Ю 2016. 2(2):72-77. (Ukrainian).
4. Leus PA, Monitoring stomatologicheskogo zdorov'ya detskogo naseleniya na

kommunal'nom urovne [Monitoring the dental health of the child population at the community level]. Stomatologiya detskogo vozrasta i profilaktika stomatologicheskikh zabolevaniy: materialy Rossiysko-Yevropeyskogo kongressa po detskoy stomatologii. Moskva, 2013. P. 99-105. (Russian).
5. Caries: From Genes to Clinical Applications. Conference Paper/ A.Vieira, Moreira R. / Nov 2012, 5th AADR Fall Focused Symposium: Translational Genetics - Advancing Fronts for Craniofacial Health.
6. Association between mental health, caries experience and gingival health of adolescents in sub-urban Nigeria Maha El Tantawi, Morenike Oluwatoyin Folayan , Olakunle Oginni, Abiola Adetokunbo Adeniyi / BMC Oral Health (2021) 21:223.
7. MEDICAL AND SOCIAL ASPECTS OF MEDICAL SERVICE OF THE GROUP OF TEMPORARY INTERNALLY DISPLASED PERSONS / Valery Lekhan, L. V. Kriachkova, E. V. Borvinko, V. I. Kolesnik / Bulletin of Problems Biology and Medicine 1.1(142):334 / January 2018.
8. Significant Caries (SiC) Index and Distribution of Regional Origins for Members of Formed Police Unit (FPU) XI / Ita Yulita, Tedi Purnama, Nurul Hidayah / 10.22270/ajdhs.v2i4.31 / December 2022

IHS Conference

Odontology poster

Ultrasound effect on the film thickness of heated composite resin used as a luting agent: A systemic literature review

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Introduction

Composite resins have been recommended as alternative luting agents for adhesive cementation. They tend to demonstrate lower marginal degradation, superior mechanical properties, a wide range of shades, and lower cost [1,2,3]. Composite resins differ from adhesive cements by inorganic filler content, monomer type, and photo-initiator [3]. However thicker films of indirect restoration are observed [4,5]. Recently preheating techniques have been implemented to decrease viscosity this helps to achieve a thinner film layer and guarantees long-term success [1-3,6,7]. Additionally, the use of ultrasound vibration was suggested during luting when warm composites are used to lower film thickness [8]. Currently, no systemic reviews analyze the application of ultrasound on heated composite resins to decrease film thickness.

Aim

To review current research articles if the usage of ultrasound decreases film thickness of heated composite resins used as luting agents.

Methods

A systemic literature review was carried out according to PRISMA guidelines. The search with keywords: “ultrasound“ OR “ultrasonic“ AND “film thickness“AND “luting“ was performed on December 21st, 2022 on PubMed, ScienceDirect, and Google Scholar. The inclusion criteria were: studies written in English, studies not older than 5 years, full-text articles, and heated composite resin used. Dissertations, master theses, and conference abstracts were excluded.

Results

In total 138 articles were found, 8 articles were selected for full-text analysis 3 studies were included in the final screening [8-10]. All studies were performed in vitro. Two studies concluded that UV(ultrasonic vibration), had a statistically significant effect on reducing the film thickness of heated composite resin ($P<0.005$) [9] and ($P<0.001$) [8]. Although one study didn‘t find any statistical significance ($P=0.065$) [10]. Studies that had found statistical significance [9,8] used dynamic UV movements, compared to the study that didn‘t find significance which used UV

statically. All three studies used a variety of different composite resins and results demonstrated that each group had different film thickness and that not all composite resins are ideal for luting even if preheating and ultrasound are used.

Conclusions

In conclusion, it can be stated that literature is scarce and further research is needed, however, it can be said that ultrasound decreases the film thickness of heated composite resin used as a luting agent. Ultrasound should be applied with smooth dynamic motions instead of static. Film thickness highly depends on the composite resin itself.

References

1. Almeida JR, Schmitt GU, Kaizer MR, Boscato N, Moraes RR. Resin-based luting agents and color stability of bonded ceramic veneers. J Prosthet Dent [Internet]. 2015 [cited 2023 Jan 13];114(2):272–7. Available from: https://pubmed.ncbi.nlm.nih.gov/25882974/
2. Gürdal I, Atay A, Eichberger M, Cal E, Üsümez A, Stawarczyk B. Color change of CAD-CAM materials and composite resin cements after thermocycling. J Prosthet Dent [Internet]. 2018 [cited 2023 Jan 13];120(4):546–52. Available from: https://pubmed.ncbi.nlm.nih.gov/29703672/
3. Tomaselli L de O, Oliveira DCRS de, Favarão J, Silva AF da, Pires-de-Souza F de CP, Geraldeli S, et al. Influence of pre-heating regular resin composites and flowable composites on luting ceramic veneers with different thicknesses. Braz Dent J [Internet]. 2019 [cited 2023 Jan 13];30(5):459–66. Available from: https://pubmed.ncbi.nlm.nih.gov/31596330/
4. Coelho NF, Barbon FJ, Machado RG, Boscato N, Moraes RR. Response of composite resins to preheating and the resulting strengthening of luted feldspar ceramic. Dent Mater [Internet]. 2019 [cited 2023 Jan 13];35(10):1430–8. Available from: https://pubmed.ncbi.nlm.nih.gov/31387743/
5. Sampaio CS, Barbosa JM, Cáceres E, Rigo LC, Coelho PG, Bonfante EA, et al. Volumetric shrinkage and film thickness of cementation materials for veneers: An in vitro 3D microcomputed tomography analysis. J Prosthet Dent [Internet]. 2017 [cited 2023 Jan 13];117(6):784–91. Available from: https://pubmed.ncbi.nlm.nih.gov/27836148/
6. Al-Ahdal K, Silikas N, Watts DC. Rheological properties of resin composites according to variations in composition and temperature. Dent Mater [Internet]. 2014;30(5):517–24. Available from: https://www.sciencedirect.com/science/article/pii/S0109564114000451
7. Morimoto S, Albanesi RB, Sesma N, Agra CM, Braga MM. Main clinical outcomes of feldspathic porcelain and glass-ceramic laminate veneers: A systematic review and meta-analysis of survival and complication rates. Int J Prosthodont [Internet]. 2016 [cited 2023 Jan 13];29(1):38–49. Available from: http://www.quintpub.com/journals/ijp/abstract.php?article_id=15897
8. Marcondes RL, Lima VP, Barbon FJ, Isolan CP, Carvalho MA, Salvador MV, et al. Viscosity and thermal kinetics of 10 preheated restorative resin composites and effect of ultrasound energy on film thickness. Dent Mater [Internet]. 2020;36(10):1356–64. Available from: https://www.sciencedirect.com/science/article/pii/S0109564120302153

9. Falacho RI, Marques JA, Palma PJ, Roseiro L, Caramelo F, Ramos JC, et al. Luting indirect restorations with resin cements versus composite resins: Effects of preheating and ultrasound energy on film thickness. J Esthet Restor Dent [Internet]. 2022;34(4):641–9. Available from: http://dx.doi.org/10.1111/jerd.12851
10. Porto BL, Barbon FJ, Isolan CP, Borges AL, Spazzin AO, Moraes RR, et al. Effect of ultrasound on preheated resin composites used as ceramic luting agents. Dent Mater J [Internet]. 2022;41(3):451–8. Available from: https://www.jstage.jst.go.jp/article/dmj/41/3/41_2021-246/_article

Diagnosing palatogingival groove: A Systematic Review

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Introduction

Palatogingival groove (PGG) is an uncommon developmental anomaly that typically starts near the cingulum of the maxillary incisors, frequently lateral, and extends along the roots at varying lengths and depths.(1–3) Severe grooves extend to the root apex and lead to complex combined periodontal-endodontic lesions.(4,5) Affected teeth are difficult to diagnose, treat, and save as it is often overlooked and results in endodontic - periodontal treatment failure. Hence the accurate diagnosis of PGG is a must for favorable long-term outcomes.(6–8)

Aim

To conduct a systematic review on methods used for diagnosing palatogingival groove.

Methods

This article follows the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement. The literature search was performed in PubMed, Wiley Online Library and ScienceDirect databases. Articles were published between 2017 and 2022 in English language. After screening 9 publications were identified as relevant to the topic considering inclusion and exclusion criteria. Case reports or case series of thoroughly described PGG diagnostic methods in maxilla incisors were included. Quality was assessed using JBI critical appraisal tools for case reports and case series.(9) Studies were analyzed by the authors.

Results

Clinically patients with PGG complain of dull intermittent or acute pain, tooth mobility, pain on percussion, discharge of pus along with sinus tract formation, swelling of gingiva or periodontal pocket formation along the groove and a breakdown of the periodontal attachment.(10–18) PGG should be suspected when mentioned symptoms appear in nonvital maxillary anterior teeth bereft signs of caries, crack, and traumatic dental injury.(19) Two-dimensional radiographs are used for initial evaluation, as teardrop or line-like radiolucency can be observed.(8,10,11) However, they do not allow accurate examination due to PGG being able to present as C-shaped root canal, root invagination, mesial/distal accessory root canal, or vertical root fracture (VRF).(11–13,15) Three-dimensional (3-D) imaging modalities were used for explication as axial view allowed to confirm the presence of PGG while sagittal view - the extent of groove.(8,13,19,20) Elevation of the periodontal flap can also accommodate confirmation of PGG diagnosis as it can be confused with a purely periodontal or endodontic lesion.(11,12,14,15,17) Diagnosis of other dental anomalies must be declined along with the presence of local plaque retention and traumatic factors as they might cause similar symptoms.(10–13) Consequently, both clinical and radiological evaluation is crucial for diagnosing PGG.(21)

Conclusions

Primarily PGG presents as a local plaque retention site with gingiva swelling in the region of maxillary incisors that eventually evolves to palatal periodontal pocket with breakdown of periodontal attachment and later advances to localized periodontitis with or without pulpal pathosis. Identifying and differentiating PGG is challenging, therefore, additional usage of radiological assessment in early stages can alleviate its' recognition and is essential to save affected teeth. However, in consideration of the radiation exposure that the patients receive, the use of CBCT should be limited to cases in which conventional imaging fails to provide adequate information.

References

1. Tan X-L, Chen X, Fu Y-J, Ye L, Zhang L, Huang D-M. Diverse microbiota in palatal radicular groove analyzed by Illumina sequencing: Four case reports. World J Clin Cases [Internet]. 2021 Aug [cited 2022 Dec 28] 16;9(23):6846–57. Available from: https://www.wjgnet.com/2307-8960/full/v9/i23/6846.htm DOI: 10.12998/wjcc.v9.i23.6846
2. Tan D, Li S-T, Feng H, Wang Z-C, Wen C, Nie M-H. Intentional replantation combined root resection therapy for the treatment of type III radicular groove with two roots: A case report. World J Clin Cases [Internet]. 2022 Jul [cited 2022 Dec 28] 16;10(20):6991–8. Available from: https://www.wjgnet.com/2307-8960/full/v10/i20/6991.htm DOI: 10.12998/wjcc.v10.i20.6991
3. Alkahtany SM, Alrwais F, Altamimi A, Bukhary SM, Mirdad A. The incidence of radicular groove on maxillary lateral incisors of Saudi population: CBCT evaluation. BMC Oral Health [Internet]. 2022 Dec [cited 2022 Dec 28] 9;22(1):583. Available from: https://bmcoralhealth.biomedcentral.com/articles/10.1186/s12903-022-02616-1 DOI: 10.1186/s12903-022-02616-1
4. Pinheiro TN, Cintra LTA, Azuma MM, Benetti F, Silva CC, Consolaro A. Palatogingival groove and root canal instrumentation. Int Endod J [Internet]. 2020 May [cited 2022 Dec

28];53(5):660–70. Available from: https://onlinelibrary.wiley.com/doi/10.1111/iej.13259 DOI: 10.1111/iej.13259
5. Guerreiro D, Shin JM, Pereira M, McDonald NJ. Radicular Groove Accessory Canal Morphology in Mandibular First Premolars: Micro–computed Tomographic Study. J Endod [Internet]. 2019 May [cited 2022 Dec 28];45(5):554–9. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0099239919300019 DOI: 10.1016/j.joen.2018.12.017
6. Di Domenico GL, Fabrizi S, Capparè P, Sberna MT, de Sanctis M. Prevalence and Periodontal Conditions of Developmental Grooves in an Italian School of Dentistry and Dental Hygiene: A Cross-Sectional Study. Int J Environ Res Public Health [Internet]. 2022 Mar [cited 2022 Dec 28] 29;19(7):4047. Available from: https://www.mdpi.com/1660-4601/19/7/4047 DOI: 10.3390/ijerph19074047
7. Mathews DP, Hansen DE. Interdisciplinary management of a maxillary central incisor with a palato-radicular groove: A case report with 27 years follow-up. J Esthet Restor Dent [Internet]. 2021 Dec [cited 2022 Dec 28] 15;33(8):1077–83. Available from: https://onlinelibrary.wiley.com/doi/10.1111/jerd.12811 DOI: 10.1111/jerd.12811
8. Lekshmi M, Sharma S, Gupta S, Sharma S, Kumar V, Chawla A, et al. Prevalence and radiological characteristics of palatogingival groove: A retrospective cone-beam computed tomography study in an Indian cohort. J Conserv Dent [Internet]. 2021 [cited 2022 Dec 28];24(4):359. Available from: http://www.jcd.org.in/text.asp?2021/24/4/359/335748 DOI: 10.4103/jcd.jcd_36_21
9. Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, Currie M, Qureshi R, MattisP, Lisy K, Mu P-F. Chapter 7: Systematic reviews of etiology and risk. In: Aromataris E, Munn Z.Joanna Briggs Institute Reviewer's Manual. The Joanna Briggs Institute, 2017 [cited 2022 Dec 30] Available from: https://reviewersmanual.joannabriggs.org/
10. Yan H, Xu N, Wang H, Yu Q. Intentional Replantation with a 2-segment Restoration Method to Treat Severe Palatogingival Grooves in the Maxillary Lateral Incisor: A Report of 3 Cases. J Endod [Internet]. 2019 Dec [cited 2022 Dec 30];45(12):1543–9. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0099239919306958 DOI: 10.1016/j.joen.2019.09.007
11. Tan X, Zhang L, Zhou W, Li Y, Ning J, Chen X, et al. Palatal Radicular Groove Morphology of the Maxillary Incisors: A Case Series Report. J Endod [Internet]. 2017 May [cited 2022 Dec 30];43(5):827–33. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0099239917300031 DOI: 10.1016/j.joen.2016.12.025
12. arunakaran J, Fenn S, Jayaprakash N, Ragavendran N. Successful surgical management of palatogingival groove using platelet-rich fibrin and guided tissue regeneration: A novel approach. J Pharm Bioallied Sci [Internet]. 2017[cited 2022 Dec 30];9(5):268. Available from: https://journals.lww.com/10.4103/jpbs.JPBS_126_17 DOI: 10.4103/jpbs.JPBS_126_17
13. Giner-Lluesma T, Micó-Muñoz P, Prada I, Micó-Martínez P, Collado-Castellanos N, Manzano-Saiz A, et al. Role of cone-beam computed tomography (CBCT) in diagnosis and treatment planning of two-rooted maxillary lateral incisor with palatogingival groove. Case report. J Clin Exp Dent [Internet]. 2020 [cited 2022 Dec 30];e704–7. Available from: http://www.medicinaoral.com/medoralfree01/aop/57092.pdf DOI: 10.4317/jced.57092
14. Ling D-H, Shi W-P, Wang Y-H, Lai D-P, Zhang Y-Z. Management of the palato-radicular

groove with a periodontal regenerative procedure and prosthodontic treatment: A case report. World J Clin Cases [Internet]. 2022 Jun [cited 2023 Jan 3] 16;10(17):5732–40. Available from: https://www.wjgnet.com/2307-8960/full/v10/i17/5732.htm DOI: 10.12998/wjcc.v10.i17.5732

15. Corbella S, Alberti A, Zotti B, Francetti L. Periodontal Regenerative Treatment of Intrabony Defects Associated with Palatal Grooves: A Report of Two Cases. Case Rep Dent [Internet]. 2019 Jun [cited 2023 Jan 3] 3;2019:1–7. Available from: https://www.hindawi.com/journals/crid/2019/8093192/ DOI: 10.1155/2019/8093192
16. Hasan A, Ali Khan J. Combined Endodontic and Surgical Management of Twin Rooted Maxillary Lateral Incisor with a Palatogingival Groove. Iran Endod J [Internet]. 2018 [cited 2023 Jan 5];13(3):413–9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/30083218 DOI: 10.22037/iej.v13i3.21366
17. Cho Y-D, Lee J-E, Chung Y, Lee W-C, Seol Y-J, Lee Y-M, et al. Collaborative Management of Combined Periodontal-endodontic Lesions with a Palatogingival Groove: A Case Series. J Endod [Internet]. 2017 Feb [cited 2023 Jan 5];43(2):332–7. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0099239916307099 DOI: 10.1016/j.joen.2016.10.003
18. Yao L, Liu J, Cao Z, Sheng L. Study of the intentional replantation procedure used to treat a tooth with a palatogingival groove: A case report. J Clin Exp Dent [Internet]. 2022[cited 2023 Jan 5];e205–10. Available from: http://www.medicinaoral.com/medoralfree01/aop/59099.pdf DOI: 10.4317/jced.59099
19. Zhang R, Xiong J, Haapasalo M, Shen Y, Meng L. Palatogingival grooves associated with periodontal bone Loss of maxillary incisors in a Chinese population. Aust Endod J [Internet]. 2022 Aug [cited 2023 Jan 9] 6;48(2):313–21. Available from: https://onlinelibrary.wiley.com/doi/10.1111/aej.12571 DOI: 10.1111/aej.12571
20. Shemesh A, Lalum E, Ben Itzhak J, Levy DH, Lvovsky A, Levinson O, et al. Radicular Grooves and Complex Root Morphologies of Mandibular Premolars Among Israeli Population. J Endod [Internet]. 2020 Sep [cited 2023 Jan 9];46(9):1241–7. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0099239920303472 DOI: 10.1016/j.joen.2020.05.013
21. Kim H-J, Choi Y, Yu M-K, Lee K-W, Min K-S. Recognition and management of palatogingival groove for tooth survival: a literature review. Restor Dent Endod [Internet]. 2017 [cited 2023 Jan 9];42(2):77. Available from: https://rde.ac/DOIx.php?id=10.5395/rde.2017.42.2.77 DOI: 10.5395/rde.2017.42.2.77

Fluoride agents used prior and during the orthodontic treatment for white spot lesions.

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Introduction

White spot lesions (WSL), which are caused by demineralization of enamel, do occur frequently following orthodontic treatment. Approximately one-third of orthodontic patients have at least one white spot lesion, which may have long-term negative effects [1]. Various studies have been conducted to develop methods for preventing caries during treatment with fixed appliances. [2,3]. Sometimes the post-orthodontic treatment may not be able to keep the carious lesion at the initial stage. The simplest and most accessible method for patients to avoid white spot lesions is to prevent orthodontically-induced tooth demineralization using topical fluoride (F) agents in the form of rinses, varnishes, or gels [4]. Therefore, clinicians should be interested in minimizing the possibility of WSL occurrence using fluoride agents prior and during the orthodontic treatment and possess comprehensive knowledge of the available preventive measures.

Aim

To assess the efficiency of fluoride agent interventions applied before and during orthodontic treatment.

Methods

The systematic search of randomized control trials published between 2017 and 2022 using PRISMA guidelines was performed. The search was conducted by two authors in online databases PubMed and the Science Direct using following Medical Subject Heading (MeSH) terms: "prevention and control" AND "Orthodontics" AND "Tooth Demineralization". Supplementary, a manual search was conducted in Google Scholar. The focus question was developed according to the PICOS study design: "What are the most effective remineralization therapies for the patients undergoing orthodontic treatment?". The Cochrane Collaboration's two-part tool was used to assess the risk of bias across the studies.

Results

A total of 3626 studies were screened, of which 5 publications were used in this review. In the first study [5] the efficacy of Ammonium F varnish was evaluated with intraoral photography. A significant reduction ($P<0.05$) in the incidence of WSLs in the test group concerning WSL Score 3 (excessive white spot formation (thicker bands)) (3.5% vs. 6.2% in placebo group) was observed. The other study [6] showed that F varnish and 10% Xylitol varnish had positive outcomes in comparison with placebo. Both the fluoride and 10% Xylitol groups had significantly lower ($P<0.05$) DIAGNOdent mean readings at third follow-up than the placebo group 1.2 (SD 0.74) and 1.09 (SD 0.89) vs. 1.1 (SD 1.05). In a study by Pilli et al. [7], 0.44% APF formulated daily oral rinse was better than 0.2% NaF weekly rinse (ICDAS score: Δ 0.088 for weekly rinse and Δ 0.001 for daily rinse), while study done by Ali et al. [8], showed the superiority of nanosilver mouthwash over 0.05% CHX and 0.05% F mouthwashes (prevalence of WSL: Δ 7.14% for nano-silver, Δ17.86% for CHX, Δ15.48% for F). NovaMin toothpaste, studied in the fifth clinical trial [9], proved no significant difference over regular F toothpaste, although the DIAGNOdent pen scores decreased significantly in both groups (Δ9.16 and Δ6.93, $P>0.05$).

Conclusions

The white spot lesions have improved, regressed, or been completely removed with topical agents containing F, Xylitol, nanosilver, or NovaMin during the fixed orthodontic treatment. Poor methodology, inconsistent measurements, and different materials that were examined made it impossible to a quantitative study and assess the precise properties of the tested materials. More study is required to establish the most reliable therapeutic strategy for the treatment of demineralization of the enamel.

References

1. Willmot, Derrick. White Spot Lesions After Orthodontic Treatment. Seminars in Orthodontics 2008. 14: 209-219.
2. Paschos E, Kleinschrodt T, Clementino-Luedemann T, Huth KC, Hickel R, Kunzelmann K-H, et al. Effect of different bonding agents on prevention of enamel demineralization around orthodontic brackets. Am J Orthod Dentofacial Orthop. 2009. 135(5):603–12.
3. Schmidlin PR, Schätzle M, Fischer J, Attin T. Bonding of brackets using a caries-protective adhesive patch. J Dent.2008. 36(2):125–9.
4. Weyland, M.I., Jost-Brinkmann, PG. & Bartzela, T.. Management of white spot lesions induced during orthodontic treatment with multibracket appliance: a national-based survey. Clin Oral Invest 2022. 26, 4871–4883.
5. Sonesson M, Brechter A, Abdulraheem S, Lindman R, Twetman S. Fluoride varnish for the prevention of white spot lesions during orthodontic treatment with fixed appliances: a randomized controlled trial. Eur J Orthod. 2020;42(3):326–30.
6. Zarif Najafi H, Shavakhi M, Pakshir HR. Evaluation of the preventive effect of two concentrations of xylitol varnish versus fluoride varnish on enamel demineralization around orthodontic brackets: a randomized controlled trial. Eur J Orthod.2022 May 24;44(3):243-251.
7. Pilli LN, Singaraju GS, Nettam V, Keerthipati T, Mandava P, Marya A. An extensive comparison of the clinical efficiency of acidulated phosphate fluoride (APF) and neutral sodium fluoride (NaF) oral rinses in the prevention of White Spot lesions during fixed

orthodontic treatment: A randomized controlled trial. Biomed Res Int 2022:6828657.
8. Ali A, Ismail H, Amin K.. Effect of nanosilver mouthwash on prevention of white spot lesions in patients undergoing fixed orthodontic treatment - a randomized double-blind clinical trial. J Dent Sci. 2022; 17(1):249–55.
9. Mollabashi V, Heydarpour M, Farhadifard H, Alafchi B.. DIAGNOdent pen quantification of the synergy of NovaMin® in fluoride toothpaste to remineralize white spot lesions in patients with fixed orthodontic appliances: A double-blind, randomized, controlled clinical trial. Int Orthod. 2022; 20(2):100632.

Impact of Covid-19 Pandemic to Lithuanians Students Opinions and Experiences of OSCE

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Introduction

Practice-based learning has always been a key element of dental education, and the change in the concept of the learning process during the COVID-19 pandemic has reduced practical learning hours, which may have led to student preparation for the Objective Structured Clinical Examinations (OSCE) [1]. The Objective Structured Clinical Examination (OSCE) is a practical exam that provides a standardized assessment of clinical competence [2].

Aim

To evaluate the impact of the pandemic on the opinion of 5th year students of the Dentistry program, Lithuanian students of the Lithuanian University of Health Sciences about the examination of the Dentistry clinical practice module based on the OSCE methodology.

Methods

We carried out a cross-sectional survey of Lithuanian students' opinion and experience towards OSCE examination among dental graduating students in the Lithuanian University of Health Sciences. We used a self-administered 15-item questionnaire. 15 questions were divided into practical questions (8) and psychological questions (7). Each question was scored on a Likert scale (answer options: from completely disagree (score 1) to completely agree (score 5)). In May 2019 and May 2022 students were asked to complete an anonymous self-administered written questionnaire after completing assignments of OSCE examination. 86 students in year 2019 (response rate 100%) and 85 students in year 2022 (response rate 81.4%) participated. Statistical analysis was performed with the SPSS (1.0.0.1406). The Mann-Whitney test was used to calculate and compare the results. The difference in data between two groups are Statistically significant when ($p<a$, $a=0.05$).

Results

A total of 171 Lithuanians students participated in the study, 156 of them answered all questions (response rate 90.64%). Before the Covid-19 pandemic, the average rating for all questions was 3.51 (min. -1.8; max. – 5, median - 3,53). After the Covid-19 pandemic, the average rating of all questions was 3.43 (min. - 1,26; max. – 4,73, median - 3,46). After the Covid-19 pandemic, the overall mean for all questions is slightly lower than before the Covid-19 pandemic, but there is no statistically significant difference ($p= 0.350$).

Conclusions

Even though during the Covid-19 pandemic, the number of learning practices was reduced, this did not affect the opinion and experiences of the students of the Lithuanian University of Health Sciences who graduated from dentistry regarding the OSCE exam.

References

1. Tee WX, Tan SH, Marican F, Sidhu P, Yerebairapura Math S, Gopinath D. Comparison of Digital Interactive Case-Based Educational Resource with Virtual Role Play in Dental Undergraduates in Clinical Oral Medicine/Oral Pathology Education. Healthcare (Basel). 2022 Sep 14;10(9):1767. doi: 10.3390/healthcare10091767. PMID: 36141379; PMCID: PMC9498877.
2. Blythe J, Patel NSA, Spiring W, Easton G, Evans D, Meskevicius-Sadler E, Noshib H, Gordon H. Undertaking a high stakes virtual OSCE ("VOSCE") during Covid-19. BMC Med Educ. 2021 Apr 20;21(1):221. doi: 10.1186/s12909-021-02660-5. PMID: 33879139; PMCID: PMC8057662.

The effectiveness of silver diamine fluoride in arresting early childhood caries: A systematic literature review

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Introduction

Early childhood caries (ECC) is the presence of at least one decayed, missing, or filled tooth surface in any primary tooth in a child 71 months of age or younger [1]. Worldwide ECC prevalence varies from 17 % among 1 - year old children to 63 % among 5 - year old children in deciduous teeth [2]. High ECC prevalence has a huge impact on children's health as well as cost for society [3]. The main risk factors of ECC are poor oral hygiene, sugar-containing snacks and beverages between the main meals, bottle or non-spill cup containing natural or added sugar used frequently or at bedtime, breastfeeding beyond 12 months or longer and etc [2,4]. Untreated ECC can lead to premature primary teeth extractions [2] and can deteriorate quality of life [2,5,6,7]. Silver diamine fluoride (SDF) application is approved and used for minimally invasive procedure to arrest ECC [2].

Aim

To evaluate and compare the effectiveness of SDF, FV application or other minimally invasive technique in ECC arrestment.

Methods

A comprehensive electronic database search was carried out in compliance with PRISMA. The research with keywords ‘’early childhood caries’’, ‘’silver diamine fluoride’’, ‘’sodium fluoride’’, ‘’children’’, was performed on January 16th, 2023 Pubmed, ScienceDirect and Web of Science libraries. A focus question based on PICO was formed: Does SDF, FV or other minimally invasive technique effective in arresting and treating ECC? Inclusion criteria were: research articles, full-text studies with humans published less than 5 years ago and written in English, the follow-up must have been up to 6 months at least, the treatment outcomes has to include caries detection system (ICDAS/WHO), decay-missing-filled teeth/active decay indexes (dmfs/dmft/ds) and The Visible Plaque (VPI) index. Case reports, systematic reviews, meta-analyses, animal studies, studies in vitro were excluded from the search.

Results

After an initial search, 156 articles were found and 10 full texts were read, 5 were included in this review. Five articles assessed the effectiveness of SDF in arresting and treatment of ECC [3-7]. Follow up periods were the following: 6 months [3], 8 months [5], 12 months [4,7] and 30 months [6]. Altogether, 1529 patients were involved in the performed studies. Results showed that two studies [4,7] reported no changes of effectiveness in arresting ECC by applying SDF alone or by using SDF, fluoride varnish applications and atraumatic restorative treatment (SDF/FV/ART). The difference in the mean number of arrested caries of teeth surfaces (ds) between the SDF and SDF/FV/ART groups was 0.088 (95 % CI: -0.351 to 0.526) after 30 months [6], the other study showed that he mean difference of arrested lesions between the groups was -0,07 (0.05; - 0.17-0.30) after 12 months [7]. Lesion arrest rates after 1 and 2 applications of SDF were 74.1 % and 96.2 %, respectively [5]. At 6 months mean rank of lesions arrested was 79.15 (application of SDF for 30 sec), 77.29 (application of SDF for 60 sec), and 75.96 (application of SDF for 120 sec), respectively ($p = 0.663$) [3]. Subsequently, one study revealed that the application of 38% SDF was more effective in arresting dentin carious lesions than application of 5% NaF varnish (OR = 2.04; 95% CI, 1.41-2.96, $p < 0.001$) [4]. Regular toothbrushing tended to increase the arresting rate of ECC in children ($p = 0.006$) [5], while dietary habits such as daily snack intake decreased the success rate ($p = 0.003$) [6].

Conclusions

SDF, FV application or other minimally invasive technique in arresting ECC is effective.

References

1. Definition of early childhood caries (ECC) [Internet]. Aapd.org. [cited 2023 Feb 22]. Available from: https://www.aapd.org/assets/1/7/d_ecc.pdf
2. Tinanoff N, Baez RJ, Diaz Guillory C, Donly KJ, Feldens CA, McGrath C, et al. Early childhood caries epidemiology, aetiology, risk assessment, societal burden, management, education, and policy: Global perspective. Int J Paediatr Dent [Internet]. 2019;29(3):238–48. Available from: http://dx.doi.org/10.1111/ipd.12484
3. Thakur S, Sojan M, Singhal P, Chauhan D. A Comparative Study to evaluate the effectiveness of Silver Diamine Fluoride at Different Time Durations of application in Treating Carious Primary Teeth: A randomized trial. Int J Clin Pediatr Dent [Internet]. 2022;15(Suppl 2):S147–50. Available from: http://dx.doi.org/10.5005/jp-journals-10005-2326
4. Mabangkhru S, Duangthip D, Chu CH, Phonghanyudh A, Jirarattanasopha V. A randomized clinical trial to arrest dentin caries in young children using silver diamine fluoride. J Dent [Internet]. 2020;99(103375):103375. Available from: https://www.sciencedirect.com/science/article/pii/S0300571220301214
5. Sihra R, Schroth RJ, Bertone M, Martin H, Patterson B, Mittermuller B-A, et al. The effectiveness of silver diamine fluoride and fluoride varnish in arresting caries in young children and associated oral health-related quality of life. J Can Dent Assoc [Internet]. 2020 [cited 2023 Feb 22];86:k9. Available from: https://jcda.ca/k9
6. Gao SS, Chen KJ, Duangthip D, Wong MCM, Lo ECM, Chu CH. Arresting early childhood caries using silver and fluoride products - A randomised trial. J Dent [Internet]. 2020;103(103522):103522. Available from:

https://www.sciencedirect.com/science/article/pii/S0300571220302694
7. Vollú AL, Rodrigues GF, Rougemount Teixeira RV, Cruz LR, Dos Santos Massa G, de Lima Moreira JP, et al. Efficacy of 30% silver diamine fluoride compared to atraumatic restorative treatment on dentine caries arrestment in primary molars of preschool children: A 12-months parallel randomized controlled clinical trial. J Dent [Internet]. 2019;88(103165):103165. Available from: https://www.sciencedirect.com/science/article/pii/S0300571219301472

The most common signs of chronic maxillary sinusitis detected in orthopantomograms and computerised tomography

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Introduction

The maxillary sinus is often susceptible to inflammatory processes due to its close relation and proximity to the underlying dentition [1]. Chronic maxillary sinusitis can significantly lower quality of life or even cause severe complications. Thus the significance of accurately identifying the cause is very important [2]. Radiological imaging is an integral part of the diagnosis of chronic sinusitis, helping to discern the confirmatory signs of the disease and predict the best treatment [3]. Sinus' computerised tomography (CT) and orthopantomogram (OPG) allows to evaluate paranasal sinuses, discern pathological features, and provide surgeons and otolaryngologists with more precise anatomical information of the sinus' cavities, and particularly ostiomeatal complex [3,4]. To correctly assess and diagnose chronic sinusitis, it is necessary to know the main pathological features identified on radiological images and be aware of radiological examinations' comparative value.

Aim

To evaluate common signs of odontogenic sinusitis in computerised tomography and orthopantomogram and compare their radiological examinations' value.

Methods

This study was approved by the Bioethics centre of LUHS (No. BEC-MF-197). A retrospective analysis was conducted using the depersonalised medical records of patients diagnosed with chronic maxillary sinusitis at the Hospital of LUHS Kaunas Clinics in 2015-2020. Diagnosis and

performed diagnostic tests with descriptions of radiological examination were evaluated. Data and calculations were analysed and calculated using Excel and SPSS 26.0 programs, respectively.

Results

73 cases of chronic maxillary sinusitis were studied. Orthopantomogram (OPG) was performed on 19 (26.0%) patients, computerised tomography (CT) examination – on 60 (82.2%) patients. 6 (8.2%) patients underwent both diagnostic tests. The most common signs were evaluated. CT images exhibited the following changes: mucosal thickening was detected in 50.0% of the patients, foreign bodies (implants, teeth roots etc.) – 8.3%, bone defects – 20.0%, periapical abscesses, cysts – 15.0%, ostiomeatal complex blockages – 26.7%, sinuses filled with heterogenous content – 56.7%. OPG images exhibited foreign bodies in 10.5% of all the studied cases, bone defects – 5.3%, periapical abscesses – 15.8%, idiopathic opacifications – 36.8%, sinuses filled with heterogenous content – 21.1%, oroantral fistulas – 10.5%. Of the 6 patients, 33,3% showed the same radiological sign - sinuses filled with heterogenous content, which did not show any statistical significance ($p>0,05$). All other cases did not have any radiological signs similarities. When comparing the average number of seen radiological signs, CT had the advantage, as CT showed on average 1.7 (SD 0.82) sign per patient and OPG - 1.2 (SD 0.75), although because of the small sample size, the results were not statistically significant ($p>0.05$).

Conclusions

The most common signs identified in CT scans were sinuses filled with heterogenous content, in OPG - idiopatic opacifications. Comparing the value of CT and OPG in the diagnosis of chronic maxillary sinusitis, a prediction could be made that CT is a more useful test because it shows more signs of chronic sinusitis than OPG. It is necessary to make larger studies to compare different symptoms evaluated in different radiological examination and to evaluate the usefulness of both CT and OPG.

References

1. Psillas G, Papaioannou D, Petsali S, Dimas GG, Constantinidis J. Odontogenic maxillary sinusitis: A comprehensive review. J Dent Sci. 2021 Jan;16(1):474-481.
2. Simuntis, R., Kubilius, R., Padervinskis, E. et al. Clinical efficacy of main radiological diagnostic methods for odontogenic maxillary sinusitis. Eur Arch Otorhinolaryngol 274, 3651–3658 (2017).
3. K. Ganesan and N. Rathod. Maxillary sinusitis. Oral and Maxillofacial Surgery for the Clinician, Springer, Singapore. 2021;475–489.
4. Mallikarjun M. Devareddy, Shilpa Devakar. Evaluation of anatomical variations in nose and paranasal sinuses by using multidetector computed tomography. International Journal of Contemporary Medicine Surgery and Radiology. 2019;4(3):146-151.

IHS Conference

Ophthalmology

Associations between TAS2R16 gene polymorphisms and age-related macular degeneration.

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Introduction

Age-related macular degeneration (AMD), the most common cause of visual impairment in industrialised countries, is incurable [1]. AMD is the leading cause of registered blindness in people over 50 years of age in the Western world [2]. AMD is considered to be a multifactorial disease in which genetic, environmental, lifestyle, and other factors influence its occurrence. TAS2R16 is a protein-coding gene that binds to the family of G protein-coupled receptors located on the taste receptor cells of the tongue and palate epithelium. The TAS2R16 gene polymorphisms rs860170, rs978739, and rs1357949 are significantly associated with longevity [3]. Although a variety of factors influence AMD, the present study focused on the association of polymorphisms in the TAS2R16 gene with the occurrence of AMD [4].

Aim

To investigate the associations between TAS2R16 (rs860170, rs978739, rs1357949) gene polymorphisms and the occurrence of AMD.
Methods
One hundred subjects with early AMD, 112 subjects with exudative AMD, and 112 healthy controls participated in the study. DNA was isolated by salting out leukocytes from peripheral venous blood. Single nucleotide polymorphisms (SNPs) were analysed by real-time polymerase chain reaction (RT-PCR). Statistical data analysis was performed using "IBM SPSS Statistics 27.0" and "SNPstats" programmes.

Results

Data analysis showed that the TT genotype of TAS2R16 rs860170 was statistically significantly less frequent in patients with exudative AMD compared to controls (22.3% vs. 36.6%, p=0.019) and the C allele was statistically significantly more frequent in the group with exudative AMD compared to controls (48.7% vs. 31.7%, p<0.001). Bivariate logistic regression revealed that each C allele of TAS2R16 rs860170 increased the odds of developing exudative AMD by 2.8-fold (OR =2.810; 95% CI: 1.716-4.600; p<0.001). Analysis of the sex-specific distribution of TAS2R16

rs860170 genotypes (TT, CT and CC) showed a statistically significant difference between men with exudative AMD and controls: 21.1%, 63.2% and 15.8% vs. 34.9%, 65.1% and 0% (p=0.003). Comparison of genotype distribution (TT, CT and CC) between women with exudative AMD and controls also yielded statistically significant results: 23%, 55.4% and 21.6% vs. 38.8%, 61.2% and 0% (p=0.001). The C allele of TAS2R16 rs860170 is statistically significantly more frequent in men (47.4% vs. 32.5%, p=0.036) and women (49.3% vs. 30.6%, p=0.004) in the group of patients with exudative AMD compared to the control group. The C allele of TAS2R16 rs860170 increased the likelihood of exudative AMD in women by 2.8-fold (OR =2.786; 95% CI: 1.463-5.306; p=0.002), while the C allele increased the likelihood of exudative AMD in men by 2.9-fold (OR =2.917; 95% CI: 11.273-6.687; p=0.011).

Conclusions

The TAS2R16 rs860170 TT genotype is statistically significantly less frequent in the exudative AMD group than in the control group, while the TAS2R16 rs860170 C allele gene is statistically significantly more frequent in the exudative AMD group. Each C allele of TAS2R16 rs860170 is associated with a 2.8-fold increased likelihood of occurrence of exudative AMD. The C allele of TAS2R16 rs860170 is statistically significantly more common in men and women with exudative AMD than in the control group. The C allele of TAS2R16 rs860170 is associated with a 2.8-fold increased likelihood of occurrence of exudative AMD in women and a 2.9-fold increased likelihood of occurrence of exudative AMD in men.

References

1. Fine SL, Berger JW, Maguire MG, Ho AC. Age-related macular degeneration. N Engl J Med 2000;342:483-92.
2. Klein R, Klein BE, Linton KL. Prevalence of age-related maculopathy: the Beaver Dam Eye Study. Ophthalmology 1992;99:933-43.
3. Harvey PT. Common eye diseases of elderly people: identifying and treating causes of vision loss. Gerontology. 2003 Jan-Feb;49(1):1-11.
4. Campa D, De Rango F, Carrai M, Crocco P, Montesanto A, Canzian F, et al. Bitter taste receptor polymorphisms and human aging. PLoS One. 2012;7(11):e45232.

Efficacy of Intense Pulsed Light Therapy for Treatment of Meibomian Gland Dysfunction: A Systematic Review

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Introduction

Meibomian gland dysfunction (MGD) is the major cause of dry eye disease (DED), which affects one in five adults, and can significantly impair quality of life [1; 2]. The traditional treatment options for MGD usually do not produce long-term satisfactory results [3]. Therefore, intense pulsed light (IPL) therapy, which was initially created for use in dermatology and involves treating the skin near the eyelids, has emerged as a potential treatment for MGD [3; 4].

Aim

The aim of this study was to review the literature analyzing the efficacy of IPL treatment for meibomian gland dysfunction.

Methods

A systematic review was conducted according to the PRISMA guidelines by two independent researchers. “PubMed” and “ScienceDirect” databases were used for the search of scientific literature. Inclusion criteria: randomised controlled trials (RCTs) studying the effectiveness of IPL for treating MGD, that were published in the last 10 years, written in English and have open access to full text. Case reports, literature reviews, systematic reviews and meta-analyses or RCTs lacking necessary data were excluded from this review. The risk of bias was assessed using the Cochrane Risk of Bias Tool [5].

Results

After an initial search in electronic databases, 145 results were displayed, and 6 RCTs were included in this review with a total 452 of patients (904 eyes) with clinical signs of MGD [6-11]. Each trial consisted of two or three groups that received either the combination of IPL and meibomian gland expression (MGX) or MGX (some MGX + warm compresses) or IPL alone. The average mean age of patients was 46,3 years old, all of them received from 2 to 8 sessions of treatment every 2 to 4 weeks. Our outcomes of interest were changes in tear break up time (TBUT), Standard Patient Evaluation of Eye Dryness (SPEED) and Corneal fluorescein staining (CFS) scores as these measures were the most common ones included by most authors. In study and control groups the TBUT on average increased by 2,5 and 0,7 s (seconds), respectively. The SPEED score decreased by 5,35 and 2,7 and CFS score by 0,6 and 0,27, respectively. All outcome measures improved in both groups, but in general, the improvement was significantly larger in the IPL receiving group. Therefore, all 6 RCTs concluded that IPL component has a genuine contribution to the improvement of signs and symptoms of DED, helping patients attain long-lasting relief of symptoms, although future studies are needed to elucidate if and how such improvements can be generalized to different severity levels of MGD.

Conclusions

Findings of this systematic review suggest that IPL may be a valuable addition to the treatment of MGD, as it can increase TBUT as well as decrease SPEED and CFS scores for patients with MGD. Although further research is needed to confirm these results and assess its effectiveness in various severity levels of meibomian gland dysfunction.

References

1. Cote S, Zhang AC, Ahmadzai V, Maleken A, Li C, Oppedisano J et al. Intense pulsed light (IPL) therapy for the treatment of meibomian gland dysfunction. Cochrane Database of Systematic Reviews 2020, Issue 3. Art. No.: CD013559.
2. Findlay Q, Reid K. Dry eye disease: when to treat and when to refer. Aust Prescr. 2018 Oct;41(5):160-163.
3. Behzod Tashbayev, Mazyar Yazdani, Reiko Arita, Fredrik Fineide, Tor Paaske Utheim, Intense pulsed light treatment in meibomian gland dysfunction: A concise review, The Ocular Surface, Volume 18, Issue 4, 2020, 583-594.
4. Cote S, Zhang AC, Ahmadzai V, Maleken A, Li C, Oppedisano J et al. Intense pulsed light (IPL) therapy for the treatment of meibomian gland dysfunction. Cochrane Database Syst Rev. 2020 Mar 18;3(3)
5. [bias] Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.1 (updated September 2020). Cochrane, 2020.
6. Yang L, Pazo EE, Zhang Q, Wu Y, Song Y, Qin G et al. Treatment of contact lens related dry eye with intense pulsed light. Cont Lens Anterior Eye. 2022 Apr;45(2)
7. Xue AL, Wang MTM, Ormonde SE, Craig JP. Randomised double-masked placebo-controlled trial of the cumulative treatment efficacy profile of intense pulsed light therapy for meibomian gland dysfunction. Ocul Surf. 2020 Apr;18(2):286-297.
8. Toyos R, Desai NR, Toyos M, Dell SJ. Intense pulsed light improves signs and symptoms of dry eye disease due to meibomian gland dysfunction: A randomized controlled study. PLoS One. 2022 Jun 23;17(6).
9. Huang X, Qin Q, Wang L, Zheng J, Lin L, Jin X. Clinical results of Intraductal Meibomian gland probing combined with intense pulsed light in treating patients with refractory obstructive Meibomian gland dysfunction: a randomized controlled trial. BMC Ophthalmol. 2019 Oct 28;19(1):211.
10. Arita R, Fukuoka S, Morishige N. Therapeutic efficacy of intense pulsed light in patients with refractory meibomian gland dysfunction. Ocul Surf. 2019 Jan;17(1):104-110.
11. Yan X, Hong J, Jin X, Chen W, Rong B, Feng Y, Huang X, Li J, Song W, Lin L, Cheng Y. The Efficacy of Intense Pulsed Light Combined With Meibomian Gland Expression for the Treatment of Dry Eye Disease Due to Meibomian Gland Dysfunction: A Multicenter, Randomized Controlled Trial. Eye Contact Lens. 2021 Jan 1;47(1):45-53.

Open globe eye trauma

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Introduction

Among eye injuries, open globe injury (OGI) is the most common, accounting for 44% of all eye trauma. It is defined as a full-thickness defect in the cornea and/or sclera (1). Severe OGI causes significant visual impairment and lifelong consequences with serious socioeconomic impact (2). Consequently, prevention and prompt management are essential to prevent vision loss (3).

Aim

To identify clinical outcomes of OGIs.

Methods

The medical records of all adult patients treated for OGI, at the Ophthalmology Department of the Hospital of Lithuanian University of Health Sciences Kaunas Clinics, during the year 2021 were retrospectively reviewed. Included features in the data analysis with SPSS 27 were sex, age, trauma cause, type and location of the injury, initial and final results of an ophthalmologic examination. Visual acuity (VA) was assessed according to the Snellen decimal system and eye injuries were classified by the Birmingham Eye Trauma Terminology and Ocular Trauma Classification System. Mean, standard deviation (SD), the chi-square ($\chi 2$) criteria, z-test and the Spearman correlation coefficient (r) were calculated. A P-value <0.05 was considered statistically significant.

Results

Of the 69 cases included in the study, 57 (82.6%) were male and 12 (17.4%) were female, yielding a male to female ratio of 4.75:1. The mean age was 48 (±2) years. In the age group of 66 years and older, females suffered from OGI significantly more often than males (p=0,001). The highest percentage of OGI were caused by sharp objects (60 cases, 87%), followed by blunt objects (9 cases, 13%). The most common sharp objects were a metal shaving (25 cases, 41.7%) and a sharp wooden stick (9 cases, 15%). The most frequently reported blunt objects were an impact from a trip-and-fall accident (4 cases, 44,4%) and a punch or a kick (3 cases, 33,3%). Full-thickness corneal wound (36 cases, 52,2%), corneal injury with intraocular foreign body (22 cases, 31,9%), hyphema (20 cases, 29%), traumatic cataract (19 cases, 27,5%) and iris prolapse (16 cases, 23,2%) were the most common presentations of an OGI. The majority of wounds were in zone I (43 cases, 68,3%). The most common initial VA was grade 4 (VA 1/∞ - 0,02) (27 cases, 39,1%) and final VA - grade 4 (VA 1/∞ - 0,02; 16 cases, 25,4%) and grade 3 (VA 0,03-0,1; 15 cases, 23,8%). There was a statistically significant correlation between the grade of initial and final VA (r=0,776, p<0,001). Satisfactory (25 cases, 39,7%) and bad (23 cases, 36,5%) visual outcomes were the most common outcomes of OGI.

Conclusions

Presenting clinical characteristics of OGIs were mostly full-thickness corneal wound, corneal injury with intraocular foreign body, hyphema, traumatic cataract and iris prolapse. The initial VA was mostly grade 4. There was a strong direct correlation between the grade of initial and final VA. Since OGIs were more likely to have either grade 3 or 4 final VA, resulting visual outcomes were satisfactory or bad.

References

1. Skruodytė J, Sveikatienė J, Šerpytis P. Atviro tipo akių traumos: charakteristikos ir prognostiniai veiksniai. Health Sciences. 2021 May 24;31(3):190–3.
2. Chen H, Han J, Zhang X, Jin X. Clinical Analysis of Adult Severe Open-Globe Injuries in Central China. Front Med (Lausanne). 2021 Oct 27;8.
3. Konstantinou EK, Baumal CR. Open Globe Injuries. Curr Surg Rep. 2022 Aug 16;10(8):103–8.

Visual outcome after ocular injuries: a comparison between open and close globe trauma

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Introduction

Ocular injury is an important cause of visual impairment worldwide. Severe trauma may result in permanent blindness and even the loss of an eyeball (1). The global annual incidence of eye injuries is estimated to be around 55 million (2). It continues to be of major public health importance and indicate the need to be further investigated (3).

Aim

To compare visual outcomes of open and close globe ocular trauma.

Methods

The medical records of all adult patients treated for ocular trauma at the Ophthalmology Department of the Hospital of Lithuanian University of Health Sciences Kaunas Clinics, during the year 2021 were retrospectively reviewed. The information retrieved included sex, age, trauma cause, type and location of the injury, initial and final results of an ophthalmological examination. Visual acuity (VA) was assessed according to the Snellen decimal system. Eye injuries were classified by Birmingham Eye Trauma Terminology and Ocular Trauma Classification System. Mean, standard deviations (SD), the chi-square ($\chi 2$) criteria, z-test and the Spearman correlation coefficient (r) were used. We set the level of statistical significance at $p < 0.05$. All statistical analyses were performed using IBM SPSS Statistics 27.

Results

Out of 106 cases, 91 were males (85.8%) and 15 were females (14.2%) with a ratio of 6:1. Their age ranged from 18 to 93 years (mean ± SD = 47.4 ± 1,6 years). This study found 69 cases (65.1%) of open globe injuries (OGIs) and 37 cases (34.9%) of close globe injuries (CGIs). The most frequent mechanism of injury (MOI) was a sharp object (76 cases, 71.7%), followed by a blunt object (30 cases, 28.3%). A sharp object was significantly more common MOI in OGIs compared to CGIs ($p<0.01$). Similarly, blunt object was significantly more frequent in CGIs compared to OGIs ($p<0.01$). It appeared that significantly more common presentation of OGIs compared to CGIs was traumatic cataract ($p=0.009$), while ocular contusion ($p<0.001$), ocular hypertension ($p=0.001$), hyphema ($p=0.010$) and lens dislocation ($p=0.023$) were significantly more frequent in CGIs than in OGIs. There was a statistically significant correlation between the grade of the initial and the final VA in all cases together ($r=0.779$, $p<0.001$) and by OGIs ($R=0.776$, $p<0.001$) and CGIs ($R=0.753$, $p<0.001$) separately. Good visual outcome was significantly more often in CGIs than in OGIs ($p=0.008$). Meanwhile, bad visual outcome was found to be significantly more often in OGIs compared to CGIs ($p=0.037$).

Conclusions

Significantly more common presenting clinical characteristic of OGIs was traumatic cataract, while ocular contusion, ocular hypertension, hyphema and lens dislocation were significantly more frequent in CGIs. This study observed a strong direct correlation between the grade of the initial and the final VA. A good visual outcome was significantly more often in CGIs and a bad visual outcome - in OGIs.

References

1. Chen H, Jhanji V, Agrawal R, Yan H. Editorial: Updates on Ocular Trauma. Front Med (Lausanne). 2022 Apr 28;9.
2. Alem KD, Arega DD, Weldegiorgis ST, Agaje BG, Tigneh EG. Profile of ocular trauma in patients presenting to the department of ophthalmology at Hawassa University: Retrospective study. PLoS One. 2019 Mar 28;14(3):e0213893.
3. Kadappu S, Silveira S, Martin F. Aetiology and outcome of open and closed globe eye injuries in children. Clin Exp Ophthalmol. 2013 Jul;41(5):427–34.

The impact of the COVID-19 quarantine on patients with macular edema due to retinal vein occlusion treatment with angiogenesis inhibitors

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Introduction

Macular edema (ME) is the accumulation of fluid in the macular area. It impairs central vision and can lead to permanent retinal structural damage and blindness [1]. To reduce macular swelling patients with ME due to retinal vein occlusion (RVO) are treated with angiogenesis inhibitors. These injections should be given at 1-month intervals at the beginning of treatment [2]. After reaching the maximum visual acuity and/or when no signs of the disease are detected, the time intervals can be expanded. In Lithuania, the national COVID-19 quarantine was officially announced on March 16, 2020 and lasted until July 1, 2021. Due to canceled or postponed scheduled procedures, the time intervals between injections of angiogenesis inhibitors into the vitreous cavity also increased [3].

Aim

To evaluate the effect of COVID-19 quarantine to the angiogenesis inhibitor treatment regimen for ME due to RVO and to compare the effectiveness of treatment in patients treated prior and during COVID-19 quarantine.

Methods

This study includes 90 patients retrospectively with ME due to RVO and treated with intravitreal injections of angiogenesis inhibitors (bevacizumab, aflibercept and ranibizumab) at the Hospital of LUHS Kaunas Clinics Ophthalmology Department in 2016-2022. The data was collected from medical documentation. Patients were divided into 2 groups: treated before and after the declared COVID-19 quarantine in Lithuania (2016 January - 2020 February and 2020 March - 2021 July respectively). Statistical analysis was performed using SPSS 26.0. Data significance was evaluated using Mann-Whitney U-test and Paired Samples T-test. Results were considered statistically significant at $p<0.05$.

Results

In this study involved 44 male (48,9%) and 46 female (51,1%) patients with ME due to RVO and treated with intravitreal injections of angiogenesis inhibitors (bevacizumab, aflibercept and ranibizumab). The average age was 72,3 (30-94) years. In the first research period before the COVID-19 quarantine in Lithuania, 345 injections of angiogenesis inhibitors were administered to 29 men (56,9%) and 22 women (43,1%). An average of 6,8 (2-23) injections per eye were received. In the second COVID-19 quarantine period - 216 angiogenesis inhibitors were injected for 15 men (38,5%) and 24 women (61,5%). The mean number of injections per eye was 5,5 (2-11). Although the average number of injections per person in the COVID-19 quarantine period was not significantly lower (p=0,9, 6,8 and 5,5 injections), the periods between injections were statistically significantly longer in the COVID-19 period compared to the pre-COVID-19 period (p=0,04, 53,2 and 70,3 days respectively). Extended intervals between injections resulted in reduced treatment efficacy: BCVA after treatment with angiogenesis inhibitors during the COVID-19 period was lower compared to those treated before COVID-19 (p=0,002, BCVA

respectively 0,06 and 0,22). Central retinal thickness and intraocular pressure did not differ before and during COVID-19 ($p<0,05$).

Conclusions

The COVID-19 quarantine had a negative impact on the angiogenesis inhibitors treatment of patients with ME due to RVO. During the quarantine, compared to the pre-COVID-19 period, the intervals between injections of angiogenesis inhibitors were statistically significantly longer. Rarer injections had an impact on the effectiveness of treatment: the change in BCVA after treatment was lower in patients who received treatment during the COVID-19 quarantine than before the quarantine.

References

1. Daruich A, Matet A, Moulin A, Kowalczuk L, Nicolas M, Sellam A, et al. Mechanisms of macular edema: Beyond the surface. Prog Retin Eye Res [Internet]. 2018 Mar 1 [cited 2022 Nov 14];63:20–68. Available from: https://pubmed.ncbi.nlm.nih.gov/29126927/
2. Korobelnik JF, Larsen M, Eter N, Bailey C, Wolf S, Schmelter T, et al. Efficacy and Safety of Intravitreal Aflibercept Treat-and-Extend for Macular Edema in Central Retinal Vein Occlusion: the CENTERA Study. Am J Ophthalmol [Internet]. 2021 Jul 1 [cited 2022 Nov 14];227:106–15. Available from: https://pubmed.ncbi.nlm.nih.gov/33556381/
3. Elfalah M, Alryalat SA, Toro MD, Rejdak R, Zweifel S, Nazzal R, et al. Delayed intravitreal anti-vegf therapy for patients during the covid-19 lockdown: An ethical endeavor. Clinical Ophthalmology [Internet]. 2021 [cited 2023 Feb 20];15:661–9. Available from: http://doi.org/10.2147/OPTH.S289068

Association Between Multiple Sclerosis and TAS2R16 Gene rs860170 Polymorphism

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Introduction

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS). It is characterized by the loss of myelin sheaths and axons and the formation of demyelinating

lesions in the brain and spinal cord [1]. It is the most common neurodegenerative disease in young people (20-40 years), and women are affected 2-3 times more often than men [2]. Although the etiology and pathogenesis of MS are not fully understood, it is known to be a multifactorial, immune-mediated disease influenced by both genetic and environmental factors [3]. The gene TAS2R16 encodes a taste receptor responsible for the perception of bitterness [4]. These receptors are also found outside the gustatory system, including the CNS [5]. Scientific literature has reported that these receptors are involved in immune function and inflammatory responses [6]. These findings suggest that alterations in this gene may be associated with disease onset. Therefore, this study aims to investigate the relationship between MS and the single nucleotide polymorphism rs860170 of the gene TAS2R16.

Aim

To evaluate the association between the TAS2R16 gene rs860170 and multiple sclerosis.

Methods

265 healthy control and 218 multiple sclerosis patients (MS) were included in the study. DNA was extracted from peripheral venous blood leukocytes by salt precipitation. Single nucleotide polymorphisms (SNPs) were tested by real-time polymerase chain reaction (RT-PCR). Statistical analysis of data was performed using IBM SPSS Statistics 27.0 data analysis software. The online software SNPStats was used for haplotype analysis.

Results

The genotype and allele distribution analysis revealed that TAS2R16 rs860170 polymorphism TT genotype was statistically significantly less frequent in the MS group than in the control group (28.9% vs. 37.7%, p=0.041), while CC genotype was statistically significantly more frequent in the MS group than in the control group (7.8% vs. 0.4%, p<0.001). In the most robust (codominant) model, the CC genotype was associated with 27-fold increased odds of MS occurrence (OR=26.984, 95% CI:3.504-207.790; p=0.002), and each C allele increased the odds of MS occurrence by 1.8-fold (OR=1.792, 95% CI:1.267-2.533, p<0.001). In a sex-specific analysis of this polymorphism, the CC genotype was statistically more common in the female MS group than in the control group (9% vs. 0.6%, p<0.001), and the CC genotype increased the odds of MS occurrence by 21-fold in the most robust (codominant) model (OR=21.250, 95% CI:2.607-173.207, p=0.004). Also, the C allele increased the odds of MS occurrence by 2-fold (OR=1.995, 95% CI:1.259-3.160, p=0.003). In males, this analysis showed that the CC genotype was statistically significantly more frequent in the MS group than in the control group (6.5% vs. 0%, p=0.036).

Conclusions

This study shows that TAS2R16 rs860170 is likely to be associated with multiple sclerosis occurrence and could help to understand the pathogenesis of the disease.

References

1. Buzzard K, Chan WH, Kilpatrick T, Murray S. Multiple sclerosis: Basic and clinical. Adv Neurobiol. 2017;15:211-52.
2. Kamel FO. Factors involved in relapse of multiple sclerosis. J Microsc Ultrastruct. 2019;7(3):103- 8.
3. Nourbakhsh B, Mowry EM. Multiple sclerosis risk factors and pathogenesis. Continuum (Minneap Minn). 2019;25(3):596-610.
4. GeneCards Human Gene Database. TAS2R16 gene - GeneCards. Genecards.org. Available from: https://www.genecards.org/cgi-bin/carddisp.pl?gene=TAS2R16.
5. Dalesio NM, Barreto Ortiz SF, Pluznick JL, Berkowitz DE. Olfactory, taste, and photo sensory receptors in non-sensory organs: It just makes sense. Front Physiol. 2018;9:1673.
6. Zhou Z, Xi R, Liu J, Peng X, Zhao L, Zhou X, et al. TAS2R16 activation suppresses LPS-induced cytokine expression in human gingival fibroblasts. Front Immunol. 2021;12:726546.

Associations of Hsa-mir-328-3p and PAX6 Protein Expression with Ocular Refractive Errors

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Introduction

Eyesight is one of our most important senses: 80% of what we perceive comes through our sense of sight [1]. Refraction disorders, such as myopia, hyperopia or astigmatism can negatively affect our quality of life, therefore it is important to understand how these problems develop so proper prevention tactics can be utilised in time.
It is established that environmental and genetic factors have notable influence in the development of refraction disorders [2]. Among the many researched genes associated with these disorders is PAX6, a very important gene in eye development [3]. The importance of the gene led to the hypothesis that mutations of this particular gene, could be linked to multiple eye anomalies, particularly myopia.
A case-control study published in 2011 found that rs662702, along with other single nucleotide polymorphisms (SNPs) had marginal significance ($p = 0.063$), and further analyses showed that it was associated with extreme myopia [4].
JASPAR computer program showed that in the 3'UTR region of the PAX6 gene, located at the rs662702 single nucleotide polymorphism site, when there is a risk allele change, miR-328 binds to it, suppressing PAX6 protein expression. All the studies so far have been done in cells, we tried to study and evaluate the dependence of PAX6 protein on miR-328 in human and evaluate PAX6 protein and miR-328 as potential biomarkers.

Aim

To assess the association of hsa-mir-328-3p and PAX6 protein expression with refractive errors.

Methods

69 myopes, 32 hyperopes and 43 emmetropicssubjects participated in the study whose ages varied between 18 and 40 years. Subjects were included in the study according to the inclusion criteria: consent to participate in the study; individuals without any interventions that could lead to changes in refraction; age: ≥18 and ≤40; not having cataracts. Serum PAX6 protein levels were determined by ELISA. The expression of miR-328 was determined by real-time polymerase chain reaction (RT-PCR). Pearson's correlation coefficient r and Spearman's rank correlation coefficient rs were used to calculate correlation. The receiver operating characteristic - ROC was used to determine PAX6 protein concentration and miRNA-328 as a potential biomarker for refractive disorders.

Results

In the myopia group (from -2,6 to -7,9 D) there was a weak negative correlation between ΔΔCt miR-328 and PAX6 – as PAX6 increases ΔΔCt miR-328 decreases, and in the hyperopia group (age 18-40), there was a weak positive correlation between ΔΔCt miR-328 and PAX6, but the results were statistically insignificant for both groups. The miR-328 as a possible biomarker for myopia had an AUC = 0.56, p = 0,33 while the PAX6 protein had an AUC = 0.60 p = 0,20. MiR-328 as a potential biomarker for farsightedness has an AUC = 0.51, p= 0,84 and PAX6 an AUC = 0.51. p = 0,88.

Conclusions

1. ΔΔCt miR-328 and PAX6 protein expression are not statistically significantly different between the refractive error groups and the control group.
2. The correlation calculations showed no statistically significant association between ΔΔCt miR-328 and PAX6 protein expression in the refractive error groups and the control group.
3. Based on the AUC plots of the ROC curves, ΔΔCt miR-328 and PAX6 protein as a potential prognostic biomarker are not suitable for the prediction of myopia or hyperopia.

References

1. Wolf V. Importance of Eye Care: Medford. Medical Eye Center. Interneto prieiga: https://www.medicaleyecenter.com/2016/06/20/importance-eye-care/
2. Harb EN, Wildsoet CF. Origins of Refractive Errors: Environmental and Genetic Factors. Annu Rev Vis Sci. 2019;5:47-72.
3. Tedja MS, Haarman AEG, Meester-Smoor MA, Kaprio J, Mackey DA, Guggenheim JA, et al. IMI - Myopia Genetics Report. Invest Ophthalmol Vis Sci. 2019;60(3):M89-M105.
4. Liang CL, Hsi E, Chen KC, Pan YR, Wang YS, Juo SH. A functional polymorphism at 3'UTR of the PAX6 gene may confer risk for extreme myopia in the Chinese. Invest Ophthalmol Vis Sci. 2011;52(6):3500-5.

Pediatric anterior uveitis etiology and manifestation in Vilnius, Lithuania during 2018-2021: a single-center analysis

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Introduction

Uveitis is an inflammation of the uveal tract of the eye which can involve other structures such as the sclera, cornea, retina and vitreous. Uveitis is much less common in children than in adults and is classified as a rare disease. The majority of uveitis in children affects the anterior segment of the eye. Often, uveitis in children is diagnosed only when externally visible lesions such as band keratopathy, strabismus or leukocoria develop. As rare diseases are difficult to suspect, it is important to understand their possible presenting symptoms in Lithuania and how it differs from foreign countries.

Aim

To investigate the etiology and presentation of pediatric anterior uveitis in the Vilnius region and to compare the results with those in other countries.

Methods

Permission was obtained from the Vilnius Regional Bioethics Committee (No 2022/1-1399-874) to conduct a retrospective study. Data were collected using an electronic medical record system. Patients were selected if they met the following criteria: 1) age 0-17 at the time of treatment; 2) International Classification of Diseases (ICD-10A) main diagnosis was H20.0; 3) they were treated at the Consultative Outpatient Clinic or the Department of Ophthalmology of the Children's Hospital of Vilnius University Hospital Santaros Clinics in the years 2018-2021. The results were compared with 2 similar studies from Israel and the United States of America. Statistical analysis was performed using Chi-square test in GraphPad Software Inc.Prism 8. Value of $p < 0,05$ was considered statistically significant.

Results

The study involved 42 patients: 26 male and 16 female with the mean age of 10 ± 4,38 years. 30 patients (71,43 %) had hospitalization due to anterior uveitis in medical history. The most common etiology was juvenile idiopathic arthritis (JIA) - 8 (19,05 %), trauma - 8 (19,05 %) and infectious agents - 5 (11,9 %). The majority of cases, 32 (76,19 %), were unilateral. Subjective ocular symptoms during presentation of disease were tearing – 11 patients (27,5 %), photophobia – 8 (20,0 %), red eye – 30 (75,0 %), reduced vision – 14 (35,0 %), pain – 22 (55,0 %), leukocorea – 2 (5,0 %), blepharospasm – 8 (20,0 %), swelling – 2 (5,0 %), feeling of irritation – 2 (5,0 %), painful eye movements – 1 (2,5 %) and blurred vision – 5 (12,5 %); 4 patients were asymptomatic. There were statistically significant differences in hospitalization history and tearing ($p = 0,04$); laterality and tearing ($p = 0.02$), pain ($p = 0.01$). Comparing results with BenEzra et al study there were statistically significant differences in laterality ($p < 0,001$), trauma etiology ($p < 0,001$), red eye ($p < 0,001$) and reduced vision ($p < 0,001$). Comparing results with Smith et al study there were statistically significant differences in laterality ($p < 0,001$), JIA etiology ($p = 0,0025$), infectious etiology ($p = 0,0089$), red eye ($p < 0,001$), pain ($p < 0,001$) and photophobia ($p < 0,001$). Other etiologies and symptoms did not differ significantly or could not be compared.

Conclusions

The most common causes of anterior pediatric uveitis in Vilnius were JIA, trauma and infectious agents. The most often complains were red eye, pain, and reduced vision. The results of this study differ from other international studies. Consequently, it is necessary to extend the research on Lithuanian pediatric anterior uveitis etiology and manifestation to have sufficient data about this rare disease peculiarities in Lithuania.

References

1. Hoffman RS. Uveitis. In: Ferri's Clinical Advisor 2023 [Internet]. Philadelphia, PA: Elsevier; 2023. Available from: https://www.clinicalkey.com/#!/content/book/3-s2.0-B9780323755733009641
2. Kim L, Li A, Angeles-Han S, Yeh S, Shantha J. Update on the management of uveitis in children: an overview for the clinician. Expert Rev Ophthalmol. 2019;14(4–5):211–8.
3. Tugal-Tutkun I. Pediatric Uveitis. J Ophthalmic Vis Res. 2011 Oct;6(4):259–69.
4. BenEzra D, Cohen E, Maftzir G. Uveitis in children and adolescents. British Journal of Ophthalmology. 2005 Apr 1;89(4):444–8.
5. Smith JA, Mackensen F, Sen HN, Leigh JF, Watkins AS, Pyatetsky D, et al. Epidemiology and course of disease in childhood uveitis. Ophthalmology. 2009 Aug;116(8):1544-1551.e1.

IHS Conference

Internal medicine: Gastroenterology, Pulmonology, Endocrinology, Haematology, Dermatology

Cutaneous metastasis of colorectal cancer

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Introduction

Cutaneous metastasis of colorectal cancer is a rare event (2.3%- 6%) that usually occurs few years after the primary tumour is detected or removed [1]. Identification of cutaneous metastasis from an internal malignancy indicates poor prognosis, as it usually reflects widespread disease [2]. Dermatological diagnosis of cutaneous metastasis can be quite complex, especially in unusual sites such as the facial skin or the thorax, as well as in cases of single cutaneous lesions, because metastasis from colorectal cancer is rarely the first clinical hypothesis, leading to misdiagnosis [3].

Aim

To analyze case reports of cutaneous metastasis of colorectal cancer.

Methods

This systematic review was conducted complying with PRISMA reporting standards. A search in a PubMed database was performed using keywords „Colorectal cancer" and „Cutaneous metastasis". Inclusion criteria: clinical case reports of cutaneous metastasis of colorectal cancer that were published from 2017-2022 in English language. We excluded meta-analysis of similar case reports. We identified 73 articles using specific keywords. The results presented were considered statistically significant at $p<0,05$.

Results

A total of 25 clinical case reports were included in the analysis. The mean age of patients was 65,6 years (range 35-92), 14 were men and 11 women. Surgical resection was performed in 14 patients with the average time of skin metastasis recurrence was 33,4 months (range 1-74). Skin metastasis was the first sign of the underlying malignancy in the remaining 11 patients. The most common sites of skin metastasis were chest (n=7), back (n=7) and face (n=6), however 9 cases reported multiple sites of metastasis in the skin. The most common morphology described was painless nodules (n=10) and ulcerated or not irregular mass (n=9). 88% of the time underlying histology was adenocarcinoma and the remaining 12% was squamous cell carcinoma. Most reports (n=20) described the treatment following cutaneous metastasis confirmation. 60% of the

time chemotherapy and/or radiation therapy alone was chosen and other 40% received excision with or without chemoradiation. Vital status was reported for 20 patients. Among these 11 died. The average survival time after skin metastasis diagnosis was about 2 months (range 3 days - 4 months) [1,2,4-26].

Conclusions

This literature review reveals that average time of skin metastasis occurrence after colorectal cancer is 33,4 months. The most frequent manifestations of skin metastasis were painless nodules and ulcerated or not irregular mass. The median time between the diagnosis of skin metastasis and death was about 2 months.

References

1. Faenza M, Del Torto G, Di Costanzo P, Pieretti G, Lamberti R, Franco R, Ferraro GA, Nicoletti GF. Large single cutaneous metastasis of colon adenocarcinoma mimicking a squamous cell carcinoma of the skin: A case report. Int J Surg Case Rep. 2019;56:96-100.
2. Wang DY, Ye F, Lin JJ, Xu X. Cutaneous metastasis: a rare phenomenon of colorectal cancer. Ann Surg Treat Res. 2017 Nov;93(5):277-280.
3. Parente P, Ciardiello D, Reggiani Bonetti L, Famiglietti V, Cazzato G, Caramaschi S, Attino V, Urbano D, Di Maggio G, Ingravallo G. Cutaneous Metastasis from Colorectal Cancer: Making Light on an Unusual and Misdiagnosed Event. Life (Basel). 2021 Sep 11;11(9):954.
4. Bittencourt MJS, Imbiriba AA, Oliveira OA, Santos JEBD. Cutaneous metastasis of colorectal cancer. An Bras Dermatol. 2018 Nov/Dec;93(6):884-886.
5. Oka N, Kuriyama A. Cutaneous metastasis of rectal cancer. Am J Med Sci. 2022 Jul;364(1):e10.
6. Larkins KM, Heriot A, Warrier SK, Kong JC. Masquerading mucinous metastases: cutaneous colorectal cancer metastasis of the toes. ANZ J Surg. 2021 Sep;91(9):E621-E622.
7. Liao L, Cheng Q, Zhu G, Pei F, Ye S. Cutaneous metastasis of ascending colon cancer harboring a BRAF V600E mutation: A rare case report. Medicine (Baltimore). 2020 May 22;99(21):e20026.
8. Yunoki K, Yano T, Yoshimitsu M, Oshita K, Kubota T, Ishida M, Satoh D, Choda Y, Nakano K, Shirakawa Y, Matsukawa H, Idani H, Shiozaki S, Okajima M. Cutaneous metastasis of cecum cancer with MSI-high and BRAFV600E mutation: a case report. Surg Case Rep. 2021 Aug 18;7(1):185.
9. Kemal Y, Odabaşı EA, Kemal Ö, Bakırtaş M. Cutaneous metastasis of colon adenocarcinoma. Turk J Surg. 2018 Jan 3;34(3):237-239.
10. Faye PM, Cagniet A, Abousarhan F, Jolidon C. Atypical localization of colorectal cancer metastasis one case and literature review. Int J Surg Case Rep. 2020;77:18-21.
11. Samanci NS, Akdogan S, Celik E, Kutlu O, Ulgen OA, Demirelli FH. Facial cutaneous metastasis of rectal adenocarcinoma. North Clin Istanb. 2020 Jul 23;8(5):518-520.
12. Liao XY, Liu CY, Liang LB, Du JR, Zhang T. Cutaneous and breast metastasis from colorectal adenocarcinoma: A rare case report. Mol Clin Oncol. 2019 Aug;11(2):143-146.
13. Junak M, Jecius H, Erdrich J. Cutaneous Metastasis in the Setting of Both Colon and Breast Primary Malignancies. Case Rep Gastrointest Med. 2020 Sep 29;2020:8852459.

14. Badiani S, Cooper E, Berney CR. A Fall Worth It: Cutaneous Metastatic Deposit of a Distant Colorectal Cancer With Fistula-in-Ano. Cureus. 2020 Aug 24;12(8):e9979.
15. Hakami R, Alali MN, Alshammari T, AlShammari S, Alyahya Z, Ayesh M, AlSaad K, Abduljabbar A. A cutaneous metastasis of unresectable rectal adenocarcinoma: A case report and literature review. Int J Surg Case Rep. 2020;71:95-101.
16. Yang Y, Chen R, Zhang R. Cutaneous metastasis of a colon adenocarcinoma presenting as an unusual manifestation: a report of one case. Int J Clin Exp Pathol. 2020 Jul 1;13(7):1897-1901.
17. Alotaibi M, Nemec J. Cutaneous Metastasis of Sigmoid Adenocarcinoma to Face and Scalp at Initial Diagnosis: Case Report. Gulf J Oncolog. 2018 May;1(27):70-72.
18. Duran Vian C, Vilanova-Urdániz I, Pérez Paredes G, González-Vela MC, González-López MA. Unilateral distribution of cutaneous metastasis in a case of colon carcinoma. Indian J Dermatol Venereol Leprol. 2019 Jan-Feb;85(1):93-96.
19. Correia P, Correia JF, Scigliano H, Nora M. Unusual Cutaneous Metastases From Colon Adenocarcinoma. Cureus. 2021 Mar 23;13(3):e14065.
20. Mandzhieva B, Jalil A, Nadeem M, Hasan SA, Jain AG. Most Common Pathway of Metastasis of Rectal Signet Ring Cell Carcinoma to the Skin: Hematogenous. Cureus. 2020 Feb 5;12(2):e6890.
21. Fong SH, Narasimha N, Thakkar R, Misra S, Thakkar D. A rare isolated cutaneous metastatic mass after colon cancer resection. J Surg Case Rep. 2021 Dec 30;2021(12):rjab571.
22. Nambiar S, Karippot A. Multiple Cutaneous Metastases as Initial Presentation in Advanced Colon Cancer. Case Rep Gastrointest Med. 2018 Apr 30;2018:8032905.
23. Malla S, Razik A, Vyas S. Cutaneous metastasis in adenocarcinoma rectum. BMJ Case Rep. 2019 Apr 8;12(4):e229652.
24. Majdoubi A, Bouhout T, Harhar M, Mirry A, Badr S, Harroudi TE. Radical treatment of Sister Mary-Joseph nodule: case report and literature review. Pan Afr Med J. 2021 Nov 16;40:161.
25. De Giorgi V, Venturi F, Portelli F, Maida P, Scarfì F, Trane L, Gori A, Silvestri F, Massi D. Scrotal cutaneous metastasis from rectal squamous cell carcinoma: a rare evolution into a rare tumor. Exp Oncol. 2021 Jun;43(2):177-179.
26. Manganoni AM, Fusano M, Pavoni L, Pizzati L, Consoli F, Venturini M, Zanca A, Calzavara-Pinton P. A solitary cutaneous metastasis from colon adenocarcinoma: Dermoscopic and confocal microscopy features. Indian J Dermatol Venereol Leprol. 2018 Sep-Oct;84(5):589-591.

E-cigarette or Vaping Use-Associated Lung Injury mimicking COVID-19

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Introduction

E-cigarette or Vaping Use-Associated Lung Injury (EVALI) was first reported in August 2019. Since then United States experienced an outbreak of respiratory illnesses that were associated with e-cigarette use. However, the diagnosis has been complicated by the emergence of coronavirus disease 2019 (COVID-19). Both diseases have similar presentation and may cause acute respiratory failure, constitutional complaints, and ground glass opacities on chest imaging [1]. Therefore, the clinical overlap between presentations of COVID-19 and EVALI could be a challenge for physicians to differentiate.

Aim

To analyze case reports of the patients with initially suspected COVID-19 pneumonia but subsequently diagnosed with EVALI.

Methods

This systematic review was conducted complying with PRISMA reporting standards. A search in a PubMed database was performed using keywords „EVALI" and „COVID-19". Inclusion criteria: clinical case reports of patients who were admitted to the hospital with respiratory, constitutional, gastrointestinal symptoms, had e-cigarette smoking anamnesis and were initially suspected with COVID-19 pneumonia but subsequently diagnosed with EVALI that were published from 2019-2022 in English language. We excluded similar meta-analyses, non full text articles, non-English articles, duplicates or articles focused on different topics, literature reviews and abstracts from conferences. We identified 31 articles using specific keywords. The results presented were considered statistically significant at $p<0,05$.

Results

Data from 26 patients (median age 21 [14-47] years) were included in the study. Patients were primarily men (17 [65,4%]). All patients had a history of e-cigarette smoking, but this data was not always collected at the time of the initial anamnesis. Patients presented with respiratory (21 [80,7%]), constitutional (24 [92,3%]), and gastrointestinal (16 [61,5%]) symptoms. All patients were tested for COVID-19 due to similar clinical presentation, but the results were negative. Laboratory findings for all patients included leukocytosis and lymphopenia. Bronchoscopy and bronchoalveolar lavage (BAL) was performed for 2 patients, but only 1 revealed the presence of lipid-laden macrophages (LLMs). Chest X-ray was performed for 22 patients [84,6%] and all of them showed bilateral opacities or infiltrates. Typical chest CT manifestations included ground glass opacities (GGO). 8 of suspected COVID-19 pneumonia cases reported the initial treatment with empiric antibiotics, however no improvement has been observed. Later on all patients received treatment with corticosteroids and showed significant response and all survived. 16 [61,5%] patients required oxygen support. All patients were hospitalized and 6 of them were treated in the ICU. The average number of bed-days was 5,6 [2-12].

Conclusions

Diagnosis of EVALI is challenging, especially when respiratory symptoms are not the predominant complaint. Respiratory, gastrointestinal, and constitutional symptoms seen with EVALI are also seen with COVID-19. The main points of differential diagnosis are age, history of vaping, leukocytosis lymphopenia and occurrence of LLM. It is important to distinguish these diseases, because they have different treatment approaches that may result in different outcomes.

References

1. Callahan SJ, Harris D, Collingridge DS, Guidry DW, Dean NC, Lanspa MJ, Blagev DP. Diagnosing EVALI in the Time of COVID-19. Chest. 2020 Nov;158(5):2034-2037. doi: 10.1016/j.chest.2020.06.029.
2. Pitlick MM, Lang DK, Meehan AM, McCoy CP. EVALI: A Mimicker of COVID-19. Mayo Clin Proc Innov Qual Outcomes. 2021 Jun;5(3):682-687. doi: 10.1016/j.mayocpiqo.2021.03.002.
3. Kichloo A, Khan A, Siddiqui N, Ejaz H, Albosta MS, Wani F, Lone N. Habit Mimics the Illness: EVALI During the Era of the COVID-19 Pandemic. J Investig Med High Impact Case Rep. 2020 Jan-Dec;8:2324709620972243. doi: 10.1177/2324709620972243.
4. Ganne N, Palraj R, Husted E, Shah I. E-cigarette or vaping product use-associated lung injury (EVALI) masquerading as COVID-19. BMJ Case Rep. 2021 Jul 23;14(7):e243885. doi: 10.1136/bcr-2021-243885.
5. Rodriguez JA, Roa AA, Lemos-Ramirez JC. E-Cigarette or Vaping Product Use-Associated Lung Injury (EVALI) Mimicking COVID-19 Disease. Case Rep Pulmonol. 2020 Nov 1;2020:8821289. doi: 10.1155/2020/8821289.
6. Helfgott D, Capozzoli G, Madray J, Baig A, Uppaluri L, Gaur S, Simon M, Amorosa J, Ramagopal M. E-cigarette or vaping product use associated lung injury (EVALI) in the time of COVID-19: A clinical dilemma. Pediatr Pulmonol. 2022 Mar;57(3):623-630. doi: 10.1002/ppul.25804.
7. Mandal G, Lale A, Greco R. E-vape and E-Cigarettes-Associated Lung Injury (EVALI) in the COVID-19 Pandemic: A Diagnostic Dilemma and Therapeutic Challenge. Cureus. 2022 Jun 22;14(6):e26200. doi: 10.7759/cureus.26200
8. Hassoun A, Brady K, Arefi R, Trifonova I, Tsirilakis K. Vaping-Associated Lung Injury During COVID-19 Multisystem Inflammatory Syndrome Outbreak. J Emerg Med. 2021 Apr;60(4):524-530. doi: 10.1016/j.jemermed.2020.12.005.
9. Ayoub M, Quamme M, Abdel-Reheem AK, Lwin P. COVID or Not COVID? A Great Mimicker Behind the Smoke Screen. Cureus. 2021 Nov 11;13(11):e19480. doi: 10.7759/cureus.19480.
10. Hoshina Y. E-cigarette or vaping product use-associated lung injury: A great COVID-19 mimicker in young adult. Clin Case Rep. 2021 Oct 25;9(10):e05016. doi: 10.1002/ccr3.5016.
11. Patel VN, Rouse M, Brown C, Pandya S. Ground Glass Opacities Observed in a 26-Year-Old Coronavirus Disease 2019 (COVID-19) Rule-Out Patient With a History of Vape Use. Cureus. 2020 Sep 7;12(9):e10302. doi: 10.7759/cureus.10302.
12. Galo J, Celli D, Gross D, Holt G, Campos M. A presentation of E-Cigarette vaping associated lung injury (EVALI) caused by THC-Containing electronic smoking device. Respir Med Case Rep. 2020 Jul 10;31:101154. doi: 10.1016/j.rmcr.2020.101154.

Changes in the prevalence of anaemia and anaemia suspects in Lithuania during 2001-2021

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Introduction

Anaemia is defined as a condition in which one or more measurements of the complete blood count (haemoglobin, haematocrit, red blood cell (RBC)) are reduced [1]. There are several types of anaemia causes – iron deficiency being the most common one; others include acute and chronic inflammation, deficiency of vitamins and minerals (especially folic acid, vitamin B12, and vitamin A), and genetic inheritance (thalassaemia) [2]. A low haemoglobin concentration and/or low hematocrit are the most common indicators used to establish a diagnosis [1]. The normal range of haemoglobin varies by age, sex, pregnancy status, and genetic or environmental factors [3]. In clinical practice, adult anaemia is diagnosed when circulating haemoglobin concentration is < 120 g/l in non-pregnant females and < 130 g/l in males [4]. In 2019, approximately 1.9 billion people were diagnosed with anaemia and the prevalence is increasing, which is primarily caused by improved diagnostics, and prolonged life expectancy [5].

Aim

This study aimed to assess trends in the prevalence of anaemia and anaemia suspects in Lithuania between 2001 and 2021.

Methods

Retrospective data analysis was performed. Data on anaemia suspects, iron deficiency, haemolytic and other types of anaemias (ICD-10 code D50-D64) in Lithuania during 2001-2021, was gathered from the Lithuanian Institute of Hygiene. The prevalence of anaemia and anaemia suspects in adults was calculated per 100 000 population. Changes of the prevalence of anaemia by age and sex during 2001-2021 were assessed using Joinpoint regression analysis [6].

Results

In 2021, the overall prevalence of anaemia in adults was 2719/100 000 of the population. From 2001 to 2021, the average annual increase among adults was 8% per year ($p<0.001$). The prevalence of anaemia was higher in women than men, with an average ratio of 2.2:1. Comparing the results among different age groups, the prevalence of anaemia greatly increased in elders: in

the 18-44 age group the average prevalence was 1258/100 000, in the 45-64 age group was 1263/100 000, and in the 65+ age group 3029/100 000. Analyzing the results among different age groups and sex, the prevalence of anaemia increased with age in men: in the 18-44 age group the average prevalence was 221/100 000, in the 45-64 age group was 729/100 000, and in the 65+ age group - 2943/100 000. The prevalence of anaemia in women is observed to decrease in the 45-64 age group: in the 18-44 age group the average prevalence was 2318/100 000, in the 45-64 age group was 1713/100 000, and in the 65+ age group 3073/100 000. During 2001-2021, the highest increase of anaemia was observed in patients older than 65 years, 10.4% per year ($p<0.001$).

Conclusions

Over the past 21 years, the prevalence of anaemia in Lithuania has increased. Older patients and women of reproductive age are more likely to develop anaemia compared to other groups.

References

1. Diagnostic approach to anemia in adults - UpToDate [Internet]. [cited 2023 Jan 1]. Available from: https://www-uptodate-com.ezproxy.dbazes.lsmuni.lt/contents/diagnostic-approach-to-anemia-in-adults?search=anaemia&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H1
2. Anaemia [Internet]. [cited 2023 Jan 1]. Available from: https://www.who.int/data/nutrition/nlis/info/anaemia
3. Chaparro CM, Suchdev PS. Anemia epidemiology, pathophysiology, and etiology in low- and middle-income countries. Ann N Y Acad Sci [Internet]. 2019 [cited 2023 Jan 1];1450(1):15. Available from: /pmc/articles/PMC6697587/
4. Otto JM, Plumb JOM, Clissold E, Kumar SB, Wakeham DJ, Schmidt W, et al. Hemoglobin concentration, total hemoglobin mass and plasma volume in patients: implications for anemia. Haematologica [Internet]. 2017 Aug 31 [cited 2023 Jan 1];102(9):1477. Available from: /pmc/articles/PMC5685237/
5. Safiri S, Kolahi AA, Noori M, Nejadghaderi SA, Karamzad N, Bragazzi NL, et al. Burden of anemia and its underlying causes in 204 countries and territories, 1990–2019: results from the Global Burden of Disease Study 2019. J Hematol Oncol [Internet]. 2021 Dec 1 [cited 2023 Jan 1];14(1):1–16. Available from: https://jhoonline.biomedcentral.com/articles/10.1186/s13045-021-01202-2
6. Joinpoint Regression Program [Internet]. [cited 2023 Jan 1]. Available from: https://surveillance.cancer.gov/joinpoint/

Prevalence of Musculoskeletal Manifestations of Inflammatory Bowel Disease in the University Hospital

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Introduction

Inflammatory bowel disease (IBD) is a chronic condition that affects the gastrointestinal tract. IBD can cause complications outside the gastrointestinal tract that are known as extraintestinal manifestations. It is not uncommon that these manifestations occur in the musculoskeletal system [1,2]. During the literature analysis we found out that there is a lack of epidemiological data regarding this issue.

Aim

The aim of this study was to establish the prevalence of musculoskeletal manifestations of IBD in the hospital of Lithuanian University of Health Sciences (LUHS).

Methods

The prospective study included in- and out-patients with IBD who were managed in the hospital of LUHS from January to October of 2022. Patients completed questionnaires including the demographic and IBD data and history or present state of musculoskeletal manifestations. Statistical data was analysed using IBM SPSS Statistics. $\chi 2$ test and Fisher's exact test were used to determine the relation between different forms of IBD and musculoskeletal manifestations. The selected level of statistical significance was $p<0.05$.

Results

Overall, 152 patients were included, mean age (MA) – 42.0±13.9 years. There were 88 (57.9%) males and 64 (42.1%) females. MA of men - 41.8±14.3, women - 42.2±13.4 years, $p>0.05$.
Ulcerative colitis (UC) was diagnosed in 110 (72.4%) patients, Crohn's disease (CD) – in 42 (27.6%) patients. MA of UC patients was 42.3±13.6, CD – 41.1±14.9, $p>0.05$.
Musculoskeletal manifestations were indicated by 31 (20.4%) subjects – 22 (20.0%) UC patients and 9 (21.4%) CD patients, $p>0.05$. The detailed comparison of musculoskeletal manifestations among UC and CD patients is presented in table 1.

Table 1. Prevalence of musculoskeletal manifestations of IBD among patients with ulcerative colitis and Crohn's disease

	Ulcerative colitis (N=110)	**Crohn's disease (N=42)**	**p-value**
Arthralgia	10 (9.1%)	5 (11.9%)	>0.05
Sacroiliitis	2 (1.8%)	0 (0%)	>0.05
Ankylosing spondylitis	2 (1.8%)	0 (0%)	>0.05
Rheumatoid arthritis	1 (0.9%)	0 (0%)	>0.05
Psoriatic arthritis	1 (0.9%)	0 (0%)	>0.05
Other (unspecified)	6 (5.5%)	4 (9.5%)	>0.05

Comparing different forms of UC, musculoskeletal manifestations were reported by 2 out of 15 (13.3%) patients with distal colitis; 3 out of 26 (11.5%) patients with left-sided colitis and 17 out of 66 (25.8%) patients with pancolitis, p>0.05.
Among patients with CD ileitis, musculoskeletal manifestations were reported by 3 out 14 (21.4%); among colitis – 5 out of 10 (50.0%); among ileocolitis – 1 out of 16 (6.3%), p>0.05.

Conclusions

In our study, the prevalence of musculoskeletal manifestations of IBD in the university hospital was 20.4%. There were no significant differences in the prevalence of musculoskeletal manifestations between UC and CD patients. There were no significant differences in the prevalence of musculoskeletal manifestations between different types of UC and CD.

References

1. Rogler G, Singh A, Kavanaugh A, Rubin DT. Extraintestinal Manifestations of Inflammatory Bowel Disease: Current Concepts, Treatment, and Implications for Disease Management. Gastroenterology. 2021 Oct;161(4):1118-1132. DOI: 10.1053/j.gastro.2021.07.042.
2. Greuter T, Vavricka SR. Extraintestinal manifestations in inflammatory bowel disease - epidemiology, genetics, and pathogenesis. Expert Rev Gastroenterol Hepatol. 2019 Apr;13(4):307-317. DOI: 10.1080/17474124.2019.1574569.

Cutaneous Manifestations of Inflammatory Bowel Disease in the Hospital of Lithuanian University of Health Sciences

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Introduction

It is well known that skin lesions may be frequent extraintestinal manifestations of inflammatory bowel diseases (IBD) [1,2]. However, during literature analysis we found out that there is a lack of epidemiological data regarding this issue.

Aim

The aim of our study was to establish the prevalence of cutaneous manifestations among the IBD patients in the hospital of Lithuanian University of Health Sciences (LUHS).

Methods

The study included in- and out-patients with IBD who were managed in the hospital of LUHS from January to October of 2022. Patients completed the questionnaire including the demographic and IBD data and history or present state of skin lesions. We considered cutaneous lesions related to IBD or its treatment if they were diagnosed following the diagnosis of IBD. Skin lesions which were reported before the diagnosis of IBD were considered as not related to IBD. Statistical data was analysed using IBM SPSS Statistics. $\chi 2$ test was used to determine the relation between cutaneous manifestations and different forms of IBD. The selected level of statistical significance was $p<0.05$.

Results

152 patients were included, mean age (MA) – 42.0±13.9 years. There were 88 (57.9%) males and 64 (42.1%) females. Ulcerative colitis (UC) was diagnosed in 110 (72.4%) patients, Crohn's disease (CD) – in 42 (27.6%) patients. MA of UC patients was 42.3±13.6, CD – 41.1±14.9, $p>0.05$.
In total, cutaneous lesions were indicated by 65 (42.8%) subjects. According to our criteria, in 46 (30.3%; 95% CI: 23-38%) cases, skin lesions were considered as obviously related to IBD or its treatment. We further analysed latter cases.
Among UC patients, 32 (29.1%; 95% CI: 20-38%) had skin lesions related to IBD, among CD patients – 14 (33.3%; 95 CI: 18-48%), $p>0.05$.
Erythema nodosum was diagnosed in 6 (3.9%) patients, pyoderma gangrenosum – 5 (3.3%), acne – 1 (0.7%), psoriasis – 9 (5.9%), vitiligo – 2 (1.3%), epidermolysis bullosa acquisita – 1 (0.7%), haemorrhagic vasculitis – 1 (0.7%), eczema – 9 (5.9%), allergic rash – 4 (2.6%).
The comparison of cutaneous lesions among UC and CD patients is presented in Table 1.

Table 1. Prevalence of skin lesions related to IBD among patients with ulcerative colitis and Crohn's disease

	Ulcerative colitis (N=110)	**Crohn's disease (N=42)**	**p-value**
Erythema nodosum	3 (2.7%)	3 (7.1%)	>0.05
Pyoderma gangrenosum	4 (3.6%)	1 (2.4%)	>0.05
Acne	1 (0.9%)	0 (0%)	>0.05
Psoriasis	7 (6.4%)	2 (4.8%)	>0.05
Vitiligo	2 (1.8%)	0 (0%)	>0.05
Epidermolysis bullosa acquisita	1 (0.9%)	0 (0%)	>0.05
Vasculitis	1 (0.9%)	0 (0%)	>0.05
Eczema	6 (5.5%)	3 (7.1%)	>0.05
Allergic rash	3 (2.7%)	1 (2.4%)	>0.05

Among the patients with UC proctitis, skin lesions were reported in 2 out of 15 (13.3%); among left-sided colitis – in 8 out of 27 (29.6%); among pancolitis – in 22 out of 67 (32.8%); $p<0.05$ between the groups of proctitis and pancolitis.
Comparing the different forms of CD, skin lesions were reported in 3 out of 15 (20.0%) patients with ileitis, 4 out of 10 (40.0%) patients with colitis and 7 out of 17 (41.2%) patients with ileocolitis; $p>0.05$ between different groups.

Conclusions

In our study the prevalence of cutaneous manifestations related to IBD or its treatment is 30.3%. There were no differences in the prevalence of skin lesions between the UC and CD patients. The most common skin lesions in UC were psoriasis and skin eczema, in CD – erythema nodosum and skin eczema. Cutaneous lesions were significantly more prevalent in extensive UC compared to distal disease.

References

1. Greuter T, Navarini A, Vavricka SR. Skin Manifestations of Inflammatory Bowel Disease. Clin Rev Allergy Immunol. 2017 Dec;53(3):413-427. DOI: 10.1007/s12016-017-8617-4.
2. Iida T, Hida T, Matsuura M, Uhara H, Nakase H. Current clinical issue of skin lesions in patients with inflammatory bowel disease. Clin J Gastroenterol. 2019 Dec;12(6):501-510. DOI: 10.1007/s12328-019-00958-y.

Characteristics of newly diagnosed bullous pemphigoid patients

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Introduction

Bullous pemphigoid (BP) is an autoimmune subepidermal blistering disease that mainly affects elderly individuals with estimated rates < 5 in 100,000 persons [1]. It presents with pruritus followed by urticarial plaques and tense bullae on the skin [2]. Since pruritus is a common symptom in the elderly population, BP should be always considered [3] and detailed clinical and pathophysiological examination performed in order to diagnose the proper disease. Prompt diagnosis helps to manage the disease successfully, prevent complications and improve quality of life.

Aim

To analyze medical characteristics of newly diagnosed BP patients treated in the Department of Skin and Venereal Diseases, Hospital of Lithuanian University of Health Sciences Kauno klinikos.

Methods

Patients with newly diagnosed and previously not treated BP from October 2021 to October 2022 were included in the study. Age, gender, BP disease area index (BPDAI) activity, damage scores, pruritus, histology, direct and indirect immunofluorescence (DIF, IIF), enzyme-linked immunoassay (ELISA) were included in the obtained data. BP severity was divided into 3 groups according to BPDAI score: mild BP (BPDAI score <20), moderate BP (20≤ BPDAI score <57), severe BP (BPDAI score ≥57). Statistical analysis was performed using IBM SPSS Statistics software (v. 28.0). Descriptive statistics including frequency, median (min-max) and Chi-square test were used for assessing differences between the variables. Data differences were considered statistically significant at $p<0.05$.

Results

10 patients were included in the study (6 female, 4 male, median age 74 (61-85)). Mild, moderate and severe BP were diagnosed in 80 %, 10 % and 10 % of patients. Patients with a mild BP were younger (age <75) (p=0,03). Mucous membranes were affected in 2 male patients (20%). Pruritus was observed in all patients with median severity of 5 in VAS scale (2-8 points) and higher values in male patients (>5 points) (p=0,01). Histopathology revealed mixed infiltration with lymphocytes and eosinophils (50%) at subepidermal blisters. DIF was positive for all patients with IgG and C3 deposits at the level of basement membrane in 60% of cases. IIF from serum was performed in 60% of cases, positive results were observed for half of them. IIF was more frequently positive in subjects whose BPDAI damage score was >5 points (p=0,014). ELISA from serum was positive for 70% of patients with median anti-BP180 value of 1,31 RU/mL (0,15-10,57 RU/mL) and median anti-BP230 value of 0,315 RU/mL (0,1-2,06 RU/mL). All negative ELISA

patients with anti-BP180 values <1,00 (RU/mL) were also negative on IIF. ELISA results of anti-BP180 were lower in mild BP patients (<5,00 RU/mL) (p=0,031).

Conclusions

Majority of newly diagnosed patients were women with a mild BP. BP course was more severe in older patients with more intensive pruritus, higher serum anti-BP180 levels and positive IIF results. Similar results in larger studies could be a foundation to establish BP for elderly patients presenting with pruritus at an early stage and improve outcomes of BP.

References

1. Kridin, K.; Ludwig, R.J. The growing incidence of bullous pemphigoid: overview and potential explanations. Frontiers in medicine, 2018, 5: 220. Available from: https://www.frontiersin.org/articles/10.3389/fmed.2018.00220/full#B2
2. Verheyden M, Bilgic A, Murrell D. A Systematic Review of Drug-Induced Pemphigoid. Acta DermtoVenereologica. 2020; 100(15):adv00224. Available from: https://medicaljournalssweden.se/actadv/article/view/1762
3. Chung, B. Y., Um, J. Y., Kim, J. C., Kang, S. Y., Park, C. W., Kim, H. O. Pathophysiology and treatment of pruritus in elderly. International Journal of Molecular Sciences, 2020, 22.1: 174. Available from: https://www.mdpi.com/1422-0067/22/1/174

Frequency of primary liver carcinoma in post treatment patients with chronic Hepatitis C virus

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Introduction

Cases of primary liver carcinoma are increasing in Georgia due to increased incidence of Hepatitis C virus (HCV). According to a seroprevalence survey conducted in 2015, an estimated 7.7% of the adult population had evidence of hepatitis C exposure and 5.4% had chronic HCV infection. In 2015, Georgia launched its first national hepatitis C virus elimination program with a goal to reduce its prevalence by 90%.1,2 HCV infection is recognized to be a major risk factor for hepatocellular carcinoma. Even after the elimination program, there is still a risk for the development of primary liver carcinoma. Herein we attempt to assess the frequency of primary liver carcinoma in post treatment patients with chronic HCV from 2016-2021.

Aim

The study was conducted in order to suggest the effect of different risk factors on the frequency of primary liver carcinoma in post treatment patients.

Methods

A cross sectional study was conducted recruiting Hepatitis C patients over a predefined period of time using data previously gathered from national registries: ELIM-C, STOP-C, and carcinoma Registry. Chi square test and odds ratio were preferred analysis methods for this study.

Results

From 2016 till 2021, 147,747 people tested positive for HCV, in which the prevalence of primary liver carcinoma was 0,0034 % (N=513). Among infected patients, 377 (11.93% female, 88.07% male) were involved in the elimination program. Treatment-adjusted odds ratio (OR) was 2.5 (95% CI: 2.1-3.1) which proved to be statistically significant suggesting additional factors such as pre-existing liver damage, age of onset, and duration of chronic state in the development of the disease. Correlation between treatment status and gender showed to be insignificant (Chi-square=0.2648; p=0.606); whereas with age stratification, the results proved to be statistically significant (Chi-square=50.5024, $p<0.0001$).

Conclusions

Given results are suggestive that treatment alone does not prevent the development of primary liver cancer and other modifiable risk factors such as age, and assessment of pre-treatment liver damage should be taken into account.

References

1. Zarqua J, Zakalashvili M, Butsashvili M. Georgia Hepatitis elimination program progress report. test.ncdc.ge. 2020 [cited 2021]. Available from: https://test.ncdc.ge/Handlers/GetFile.ashx?ID=071ba921-bf8c-4e46-8222-6589e75c076b
2. Lagvilava M, Darakhvelidze M, Adamia E, Baidauri M. National Hepatitis C Virus Elimination Progress Report, Georgia. moh.gov.ge. 2017 [cited 2018Jun30]. Available from: https://test.ncdc.ge/Handlers/GetFile.ashx?ID=071ba921-bf8c-4e46-8222-6589e75c076b

Quality of Life in Adolescent Patients with Hypopituitarism after Growth Hormone Replacement Therapy Discontinuation

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Introduction

Growth hormone deficiency (GHD) is associated not only with clinical impairments, but also with social stigma, worse psychological state, and lower quality of life [1]. Recombinant human growth hormone (GH) is used for the replacement therapy in children with GHD [2] and may enhance psychological health and cognitive functioning, hence improving their quality of life [3].

Aim

The objective of the study was to assess quality of life in adolescent patients with hypopituitarism after growth hormone replacement therapy discontinuation in comparison to quality of life of healthy age- and sex-matched control individuals.

Methods

A total of 31 adolescent patients with hypopituitarism after GH replacement therapy discontinuation and 31 age- and sex-matched control individuals were recruited for the study. The quality of life was assessed by the World Health Organisation Brief Quality of Life Questionnaire (WHOQoL) [4]. It measures 4 domains: physical, psychological, social relationships, and environmental. A higher score represents a better quality of life. Statistical analyses were performed by SPSS 27.0 software (SPSS Inc., Chicago, IL, USA). As the analyzed values were non-normally distributed, the Mann-Whitney test was used for the calculation of the differences between the means in groups, and the values are given as mean ± standard deviation (SD) as well as median. Relations between disease-related and psychological data were calculated using Spearman correlation coefficient.

Results

Study participants were 31 adolescent patients with hypopituitarism after GH replacement therapy discontinuation (20 males and 11 females; age 16.9±1.0, median 17.0 years) and 31 healthy individuals (20 males and 11 females; age 16.8±1.2, median 17.0 years). Of all participating patients, there were 25 (81.0%) patients with transient hypopituitarism, 6 (19.0%) patients with permanent hypopituitarism; 3 (9.7%) patients with isolated GHD, and 28 (90.3%) patients with multiple GHD in conjunction with other pituitary hormone deficiencies. All

investigated patients underwent GH replacement therapy for 6.3±3.0 (median 5.0) years and their GH therapy were discontinued 5.4±7.5 (median 3.3) months before the beginning of the study. The score of the environmental subscale of the patients with hypopituitarism was significantly lower than that of age- and sex-matched control individuals (15.8±1.2, median 16.0 vs. 16.6±1.5, median 17.0, p=0.010). No significant differences were detected in physical, psychological, and social relations subscales between the patients and control group individuals. Significant negative correlations were found between the weight and the physical subscale (r=-0.412, p=0.024), the body mass index and the physical subscale (r=-0.484, p=0.007), and a positive correlation was found between the weight and the environmental subscale (r=0.399, p=0.029).

Conclusions

Adolescent patients with hypopituitarism after growth hormone replacement therapy discontinuation have worse environmental aspect of quality of life than age- and sex-matched control individuals, with weight and body mass index being related to physical and environmental aspects of quality of life.

References

1. Orso M, Polistena B, Granato S, Novelli G, Virgilio R di, Torre D la, et al. Pediatric growth hormone treatment in Italy: A systematic review of epidemiology, quality of life, treatment adherence, and economic impact. PLoS One 2022; 17(2): e0264403.
2. Hage C, Gan HW, Ibba A, Patti G, Dattani M, Loche S, et al. Advances in differential diagnosis and management of growth hormone deficiency in children. Nat Rev Endocrinol 2021; 17(10): 608–24.
3. Butler G, Turlejski T, Wales G, Bailey L, Wright N. Growth hormone treatment and health-related quality of life in children and adolescents: A national, prospective, one-year controlled study. Clin Endocrinol (Oxf) 2019; 91(2): 304–13.
4. World Health Organization. Division of Mental Health. WHOQOL-BREF: introduction, administration, scoring, and generic version of the assessment: field trial version. 1996.

The role of JAK inhibitors in managing severe forms of alopecia areata: a systematic literature review

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Introduction

Alopecia areata (AA) is a chronic autoimmune disease, resulting in non-scarring hair loss and negatively impacting patient's quality of life [1, 2]. There are some treatments available for AA, however, treatments of severe forms of AA are not satisfactory [3]. Janus kinase inhibitors (JAKi) are a new class of drugs that have been shown to have immunomodulatory characteristics [4]. Recently the outstanding results from extensive clinical trials of the JAK inhibitor - baricitinib, led to FDA's first-ever AA treatment approval in June 2022 [5].

Aim

To evaluate the efficacy and safety of JAK inhibitors as a treatment option for severe AA by analyzing relevant literature.

Methods

Systematic literature search followed PRISMA guidelines on PubMed and ScienceDirect databases up to January 2023 with keywords: "Janus kinase inhibitor" and "alopecia areata". In addition, clinical trial registries including the clinicaltrials.gov registry were searched to identify any ongoing or unpublished studies. Included English-language clinical and randomized controlled trials published between 2016-2022. Review protocol was not registered.

Results

A total of 253 articles were identified during the initial search. Out of the 22 articles reviewed, 7 studies were included in the final analysis. Reasons for exclusion were case reports, systemic or literature reviews, meta-analyses, non-English language, and inadequate reporting of outcomes. Baricitinib (JAK1/2 inhibitor) was evaluated in two trials, involving 1200 patients with severe AA. In both studies, after 36 weeks, 39% and 36% of patients receiving 4 mg of baricitinib achieved a Severity of Alopecia Tool (SALT) score of ≤ 20 (meaning that only 20% or less of the scalp is bald). Baricitinib was generally well-tolerated, with common adverse events (AEs) such as acne, elevated creatine kinase and lipid levels [6, 7]. Tofacitinib (JAK1/3 inhibitor) showed high response rates in severe AA in 2 studies with 5 or 10 mg dosages after 6-18 months. In 65 patients, 77% had a clinical response and 58% had significant SALT score improvement, with common AEs of URTI, headache, acne, and fatigue [8]. In another study of 12 patients, 66.7% achieved 50% hair regrowth with no significant AEs [9]. In a 6-month study of 75 AA patients, tofacitinib and ruxolitinib (JAK1/2 inhibitor) showed remarkable hair regrowth, with 68.42% (ruxolitinib group) and 64.86% (tofacitinib group) achieving excellent to complete response. Both drugs were well-tolerated with no serious AEs [10]. In another study, 12 AA patients treated with ruxolitinib for 3-6 months showed 75% had significant hair regrowth [11]. In a study of 142 patients comparing JAKi, ritlecitinib (JAK3/TEC inhibitor), brepocitinib (TYK2/JAK1 inhibitor), and placebo, a SALT score of ≤30 at week 24 was achieved in 50%, 64%, and 2% of patients, respectively. Common AEs were URTI, headache, acne, and nausea, and two patients in the brepocitinib group experienced serious adverse events - rhabdomyolysis. [12]

Conclusions

The results of the review suggest that JAK inhibitors, specifically baricitinib, tofacitinib, ruxolitinib, are promising in treatment for severe AA. The studies with these drugs have shown significant improvement in hair regrowth. Furthermore, these drugs are well-tolerated. Ritlecitinib and brepocitinib also show good results in improving hair growth but with some serious adverse events.

References

1. Zhou C, Li X, Wang C, Zhang J. Alopecia Areata: an Update on Etiopathogenesis, Diagnosis, and Management. Clin Rev Allergy Immunol. 2021 Dec;61(3):403-423. doi: 10.1007/s12016-021-08883-0.
2. Lee HH, Gwillim E, Patel KR, Hua T, Rastogi S, Ibler E, et al. Epidemiology of alopecia areata, ophiasis, totalis, and universalis: A systematic review and meta-analysis. J Am Acad Dermatol. 2020 Mar;82(3):675-682. doi: 10.1016/j.jaad.2019.08.032.
3. Park H, Yu DA, Kwon O. Janus kinase inhibitors: An innovative treatment for alopecia areata. J Dermatol. 2019 Aug;46(8):724-730. doi: 10.1111/1346-8138.14986.
4. Huang J, Zhou C, Deng J, Zhou J. JAK inhibition as a new treatment strategy for patients with COVID-19. Biochem Pharmacol. 2022 Aug;202:115162. doi: 10.1016/j.bcp.2022.115162.
5. FDA: FDA approves first systemic treatment for alopecia areata [Internet]. Silver Spring (MD): U.S. Food and Drug Administration; 2022. [cited 2022 Dec 15] Available from: https://www.fda.gov/news-events/press-announcements/fda-approves-first-systemic-treatment-alopecia-areata.
6. King B, Ko J, Forman S, Ohyama M, Mesinkovska N, Yu G, et al. Efficacy and safety of the oral Janus kinase inhibitor baricitinib in the treatment of adults with alopecia areata: Phase 2 results from a randomized controlled study. J Am Acad Dermatol. 2021 Oct;85(4):847-853. doi: 10.1016/j.jaad.2021.05.050.
7. King B, Ohyama M, Kwon O, Zlotogorski A, Ko J, Mesinkovska NA, et al. Two Phase 3 Trials of Baricitinib for Alopecia Areata. N Engl J Med. 2022 May 5;386(18):1687-1699. doi: 10.1056/NEJMoa2110343.
8. Liu LY, Craiglow BG, Dai F, King BA. Tofacitinib for the treatment of severe alopecia areata and variants: A study of 90 patients. J Am Acad Dermatol, 2017 Jan;76(1):22-28. doi: 10.1016/j.jaad.2016.09.007.
9. Jabbari A, Sansaricq F, Cerise J, Chen JC, Bitterman A, Ulerio G, et al. An Open-Label Pilot Study to Evaluate the Efficacy of Tofacitinib in Moderate to Severe Patch-Type Alopecia Areata, Totalis, and Universalis. J Invest Dermatol, 2018 Jul;138(7):1539-1545. doi: 10.1016/j.jid.2018.01.032.
10. Almutairi N, Nour TM, Hussain NH. Janus Kinase Inhibitors for the Treatment of Severe Alopecia Areata: An Open-Label Comparative Study. Dermatology. 2019;235(2):130-136. doi: 10.1159/000494613.
11. Mackay-Wiggan J, Jabbari A, Nguyen N, Cerise JE, Clark C, Ulerio G, et al. Oral ruxolitinib induces hair regrowth in patients with moderate-to-severe alopecia areata. JCI Insight. 2016 Sep 22;1(15):e89790. doi: 10.1172/jci.insight.89790.
12. King B, Guttman-Yassky E, Peeva E, Banerjee A, Sinclair R, Pavel AB, et al. A phase 2a randomized, placebo-controlled study to evaluate the efficacy and safety of the oral Janus kinase inhibitors ritlecitinib and brepocitinib in alopecia areata: 24-week results. J Am Acad Dermatol, 2021 Aug;85(2):379-387. doi: 10.1016/j.jaad.2021.03.050.