

Cervical Cancer - Recent Trends of Incidence and Mortality in Lithuania

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Key words: cervical cancer; incidence; mortality; risk factors.

Summary. Time trends of the cervical cancer in Lithuanian population were analysed. Changes in age standardised cancer incidence rates (World standard) in Lithuania were analysed between 1978 and 1999. Incidence rates were calculated by periods - 1978-1982, 1983-1987, 1988-1992, 1993-1997 and 1998-1999. Incidence was analysed among 15-34, 35-49, 50-64, 65-74 and 75+ age groups. From 1978-1982 cervical cancer incidence decreased from 15.4 to 12.9 per 100000 in 1993-1997. Increase was observed from 1993-1997 up to 17.4 per 100000 in 1998-1999. In 1998-1999 only 49.2 percent of all cervical cancer cases were diagnosed at stages I and II. During 1978-1992 cervical cancer mortality rates were not decreasing despite the reduction of incidence (6.8, 7.0 and 6.8 cases per 100000 women in 1978-1982, 1983-1987 and 1988-1992 respectively). Starting from 1993 the increasing number of new incidence cases is being registered, but mortality rates were not subjected to changes (7.6 and 7.7 cases per 100000 women in 1993-1997 and 1998-1999 respectively). The higher increasing rates in incidence and mortality were observed among women below 50 years. The causes of increase of cervical cancer incidence are demanding detailed studies. The incidence and mortality of cervical cancer can be reduced by the implementation of national-wide screening program for cervical cancer.

Introduction

Cervical cancer is the second most common cancer after breast cancer among women worldwide. In developing countries it occupies the first place, however in the developed countries it is the sixth most common malignancy among women (1).

A lot of research works were done to clear out the importance and the relations of various risk factors on the etiology of cervical cancer. In the very early epidemiologic studies the correlation between cervical cancer and sexual behaviors was shown. Now HPV (Human Papilloma Virus) is the most widely known basic risk factor for cervical cancer. HPV (mainly high risk types) is considered to be the cause of cervical cancer in 90% of cases (2). The risk factors for HPV infection and cervical cancer are similar. The women that are at a greater risk for HPV infection are those that started early their sexual activity and have had multiple sexual partners (3,7). Viral infections, other than HPV, which are simply related with a higher risk for cervical cancer among women that are infected with herpes simplex and cytomegaly viruses (8,9).

The data about smoking, the use of oral contraceptives and the socioeconomic status as risk factors for cervical cancer is controversial. The importance of smoking on the development of cervical cancer is shown in some epidemiologic studies (5,8,10). However, other studies did not confirm the relation between smoking and cervical cancer (6). The possible effect of oral contraceptives on the increased risk for cervical cancer was shown in various studies among women with a history of oral contraceptive use (5,8,11,13). However, other studies did not show a reliable higher risk (6), or the relation with the use of oral contraceptives was not determined due to HPV infection (14). The incidence and the mortality of cervical cancer are closely related with the socioeconomic status. About 80 % of cervical cancers occur in developing countries (27). Everywhere this disease is more frequent among women of a low socioeconomic status. The studies made among women with cervical cancer to determine the dependence of the incidence rate on a socioeconomic status showed that HPV infections and other sexually transmitted diseases are more frequent among women of a low socioeconomic status. The

socioeconomic differences explain the preponderant difference in the spread of HPV (15). Other studies showed the risk dependence for cervical cancer on low socioeconomic status (16), however, not all statistical data demonstrate a reliable dependence (4,6)

The effect of diet on cervical cancer is not very clear and it has to be analyzed taking into account the presence of HPV infection. The link between cervical cancer and carotenoids, vitamin C, E, A and Zn was determined to be inversely proportional; however, among women with negative HPV, the effect of supplement nutrition was not confirmed (17).

The incidence of cervical cancer in the future may decrease due to the appearance of an effective vaccines, and control of sexual behaviors because there is a close relation between cervical cancer and HPV infections. Having in mind the risk factors for cervical cancer, the possibility for primary prevention through correction of sexual behavior can be reached (7,18). The latest data about the possibility of vaccination have opened a wide perspective and hope to avoid a large number of new cervical cancer cases in the future (20,22).

Cancer of uterine cervix in Lithuania in the year 1999 accounted for 6.5 % of all malignant diseases among women (461 cases were diagnosed). Cervical cancer occupies the fifth place among all malignancies after breast, skin, colon and ovarian malignant tumors. The deaths because of cancer (225 cases) (23).

The incidence of cervical cancer rate and the mortality due to this disease are very closely related. Trends in the incidence rate are effected by the degree of exposure to the related risk factors, however, mortality mainly depends on the level of incidence rate and can be regulated by the implementation of prevention programs. Of great importance is to look over the trends in the incidence and mortality due to cervical cancer and to determine the underlying causes for these changes. A comprehensive epidemiologic analysis for cervical cancer aided by health care organizers is needed for planning prevention programs and for evaluation of its efficiency in the future.

Aims of the present study:

1. To determine the age-adjusted incidence and mortality for cervical cancer
2. To evaluate the trends in the incidence rate and mortality in the age group

Material and Methods

This study analyzes the data of the incidence rate and mortality due to cervical cancer in the year 1978-1999. The analysis of the incidence rate is based on the data from the Lithuanian Cancer Registry. The

mortality data are taken from the Department of statistics for the years 1978-1992 and for the years 1993-1999 the data from the Lithuanian Cancer Registry.

To avoid the effect of annual random variations in the incidence rate and mortality, the rates are presented for every five-year periods (1978-1982, 1983-1987, 1988-1992 and 1993-1997) and for the year 1998-1999. The incidence rate and mortality were analyzed in five age groups (15-34, 35-49, 50-64, 65-74 and older than 75 years of age). The incidence and mortality rates in every age group are presented by standardized rates. The trends in the incidence rate and mortality for every age group are presented in percentage for the years 1978-1982

The rates were standardized according to the world population using the direct standardization method, and the confident intervals are presented with 95 % reliability (24).

Results

The trends in the incidence rate of cervical cancer and the mortality due to this disease were not consecutively analyzed for the mentioned period (Figure 1). The incidence rate for cervical cancer gradually decreases from the year 1978 to 1993 (from 15.4 cases per 100,000 women to 12.9 cases per 100 000 respectively), however, since the year 1994 the incidence rate started to increase and in the year 1998-1999 it reached 17.4 cases per 100 000 women (table 1). No reliable data about the trends in the mortality rates for cervical cancer in the years 1978-1997. Although, the number of deaths due to cervical cancer increased the mortality rates remained unchanged.

The incidence rates showed total qualitative changes in the occurrence of this disease, which can be different in the different age groups. Few studies made in Lithuania to analyze the trends in the incidence rate of cervical cancer and the mortality due to this disease. As in all other countries, in Lithuania the incidence rate of cervical cancer decreased for the time period 1964-1988 by 1.7 % every year ($p < 0.001$) (25). A comprehensive analysis of the incidence rate for cervical cancer showed a very clear difference in the trends of the incidence rates among the age groups for the years 1983-1997 (26). For the mentioned period, the incidence rate decreased among women of 50-64 years old (average annual changes-2.9%), however, the incidence rate used to increase by 3.5% every year among women with of 30-49 years of age A graphic illustration for the incidence rates of cervical cancer and its trends for the years 1978-1999 is presented (Figures 2 and 3). The changes in the incidence rate depend on age, older women have a characteristic high

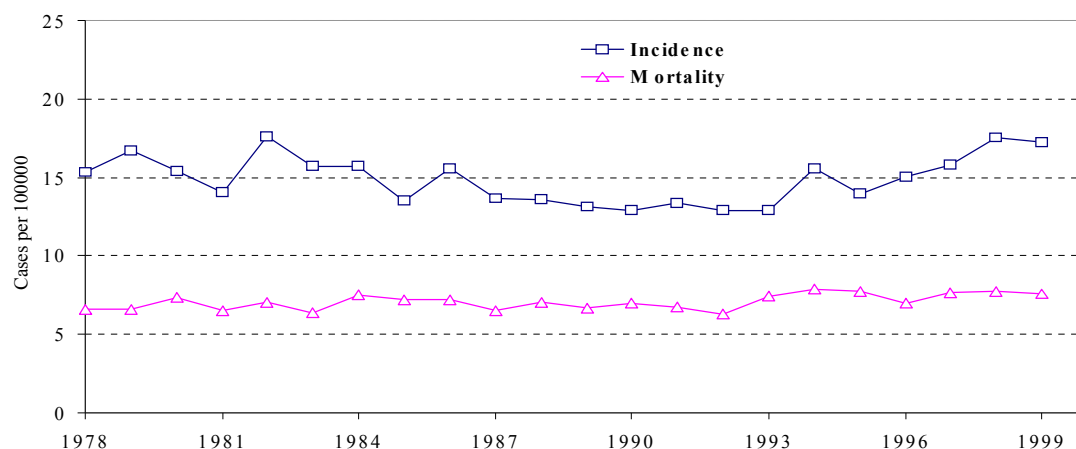


Figure 1. Standardized rates of incidence and mortality of cervical cancer in Lithuania

Table 1. The Incidence and Mortality of Cervical Cancer in Lithuania 1978-1999

	1978–1982	1983–1987	1988–1992	1993–1997	1998–1999
Number of patients	1869	1841	1714	1949	926
Incidence, cases per 100000					
crude rates	20.7	19.6	17.6	19.9	23.7
standardized rates	15.9	14.8	13.2	14.8	17.4
(confidence intervals)	(15.1–16.6)	(14.1–15.5)	(12.5–13.8)	(14.1–15.4)	(16.2–18.6)
Number of deaths	870	945	967	1093	454
Mortality, cases per 100000					
crude rates	9.6	10.1	9.9	11.1	11.6
standardized rates	6.8	7.0	6.8	7.6	7.7
(confidence intervals)	(6.4–7.3)	(6.5–7.4)	(6.3–7.2)	(7.0–8.0)	(6.9–8.4)

incidence rates, except for the age group of 75 years old and more. The highest incidence rate is for the age group 65-74 years, a little lower in the age group 50-64 years. The decrease in the incidence rate for the time period 1983-1987 is visible among all age groups. The incidence rate for the age group 35-49 years is less than that for the older ones, but a successive increase in the incidence rate started. The lowest incidence rate is among younger women (15-34 years); however, even in this group an increase in the incidence rate was noticed as well.

The incidence rate is presented in percentage (Figure 3) from the starting time period. This states that the trends in the incidence rate among the age groups are independent from extent of the incidence rate in one group. During the whole time period there were a slight changes in the incidence rate of cervical cancer (the incidence rate in the year 1998-1999 was 14.7% higher than that in the years 1978-1982).

The incidence rate of cervical cancer had decreased among older women, however, among young women it increases. The incidence rate mostly decreased for women that are 65-74 years old (30.8%). The incidence rate also decreased for the age groups 50-64 and 75 years and older, it was respectively 15.0% and 6.2% less at the end of the study period than that at the beginning. The incidence rate among young women (15-34 years) had increased till the end of the period and reached 122.7%, and for the age group 35-49 years the incidence rate increases to 56.9%. The difference in the trends of the incidence rates among all age groups determines the total incidence rate for cervical cancer.

The mortality rates have a characteristic distribution by age similar to that of the incidence rates, but here the highest mortality rates are for the old and very old age groups (Figure 4). In the first two periods the mortality due to cervical cancer was the highest among the age group 65-74 years, however, since the years 1988-1992

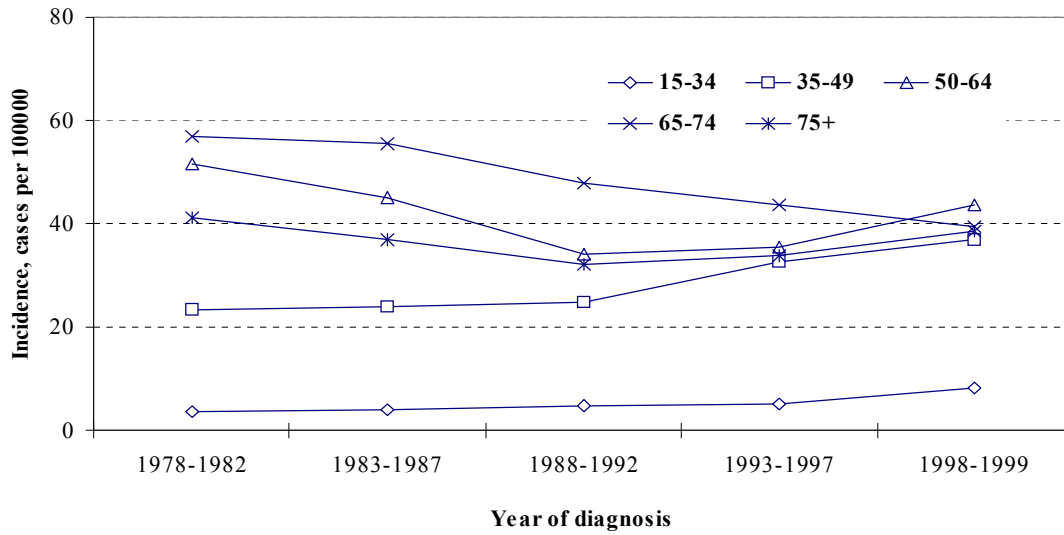


Figure 2. Trends of incidence rates of cervical cancer among the age groups 1978-1999

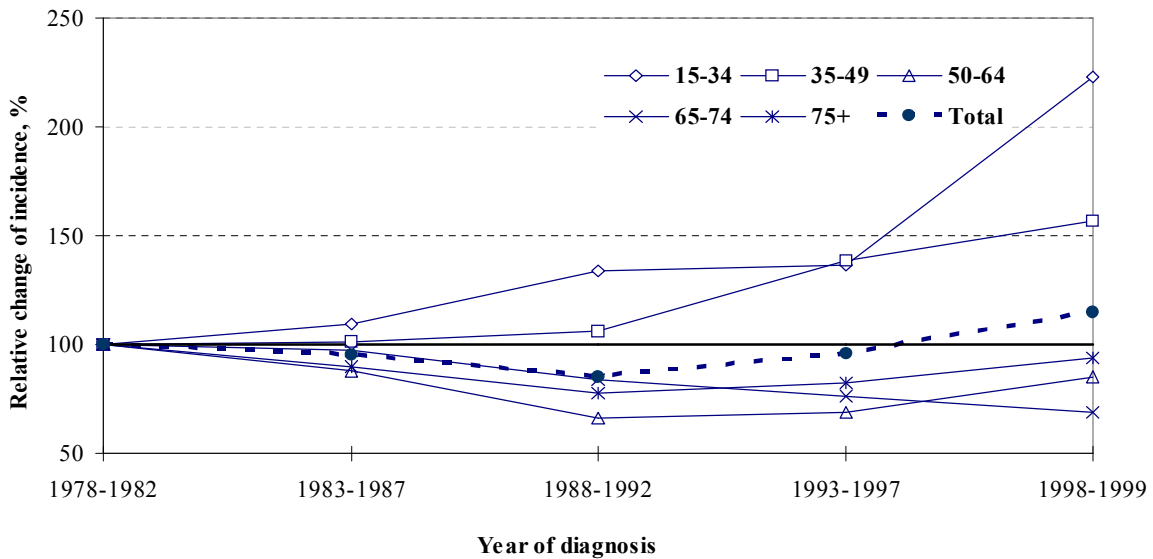


Figure 3. Relative change of incidence of cervical cancer 1978-1999

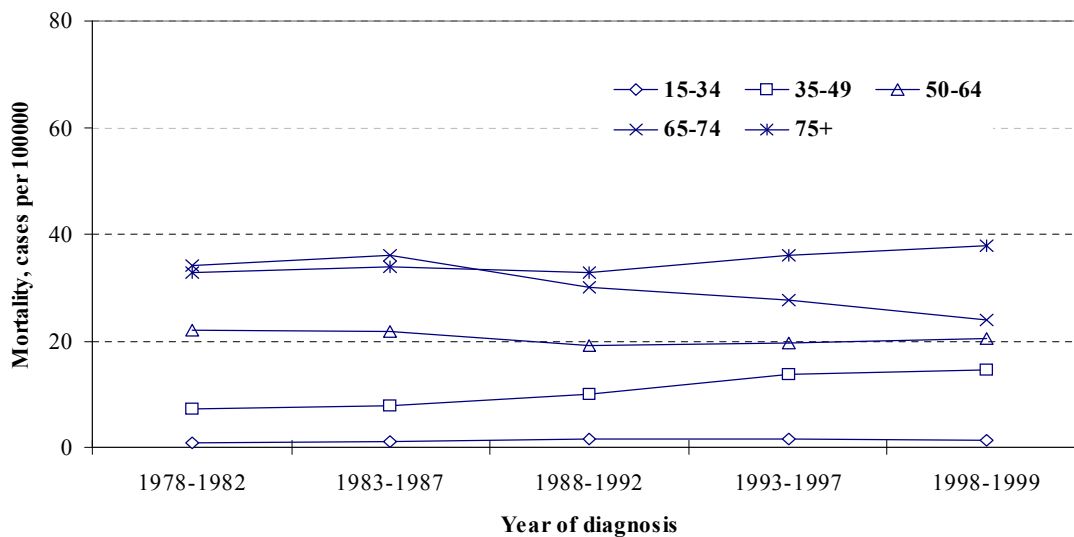


Figure 4. Trends of mortality rates of cervical cancer among the age groups 1978-1999

it started to decrease and this tendency remained till 1993-1997 years. In the last two periods the highest mortality was for women that are 75 years old and older however, mortality rate decreased for the age group 65-74. The mortality rate is a little lower in the age group 50-64 years, and is much lower in the age group 35-49 years but in this age group a clear increase in the mortality rate was noticed. The lowest mortality is among younger women (15-34 years).

The trends in the age groups is clearly visible by the percentage changes in the beginning of the study period (Figure 5). The mortality for old age women (65-74 years) at the end of the study period was 30.3 % less than that at the beginning. Also the mortality of women who are 75 years and older and the age group 50-64 years had decreased by 15.1% and 7.4% respectively. The mortality for young age women had significantly increased. The mortality almost doubled for women that are 15-34 years old. In the year 1998-1999 the mortality was 82.2% higher than that at the beginning of the study. The mortality for women who are 35-49 years old had significantly increased to 56.9%. The total mortality due to cervical cancer in all age groups is 14.7%.

The reason for the increase in the incidence rate in cervical cancer requires a comprehensive analysis. The mortality as well as the incidence increased for young women under 50.

The reason for the increased mortality with the low incidence rate is due to the diagnosis of advanced stages of the disease (Figure 5).

Since 1960 associate professor Luchantas wrote about the early diagnosis and prevention of this dis-

ease in Lithuania "all women according to their ages must have a systemic screening as the main way to decrease cancer diseases, and this is based on my data and that from literature" and "due to the dominance of the III and IV stages of cervical cancer the result of treatment is not satisfactory". The I and II stages of the disease were diagnosed only in 37.4% of cases (29) in the state oncologic hospitals for the years 1947-1954. In the last 40 years the situation had slightly changed. The diagnosis of the I and II stages of cervical cancer in Lithuania for the years 1994-1999 accounted only for 50% of all newly diagnosed cases.

Discussion

The trends in the incidence rate and mortality in Western countries were comprehensively analyzed. In the countries where national screening programs for cervical cancer are active it was noticed a decrease in the incidence rate of cervical cancer and mortality due to it. Organized screening programs in the Northern countries started to work since 1960. In all these countries till the year 1995 a significant decrease in incidence rate and mortality were reached. The incidence rate for the age group 20-29 years started to increase in most of these countries, except Finland, where the incidence rate increased for the age group 30-54 year (28). The screening programs were gradually implemented in Finland since the year 1963. There was a stable decrease in mortality till the year 1995 with an increase in the incidence rate. The incidence rate markedly increased (60%) among women younger than 55 years old (29). The screening in Austria started

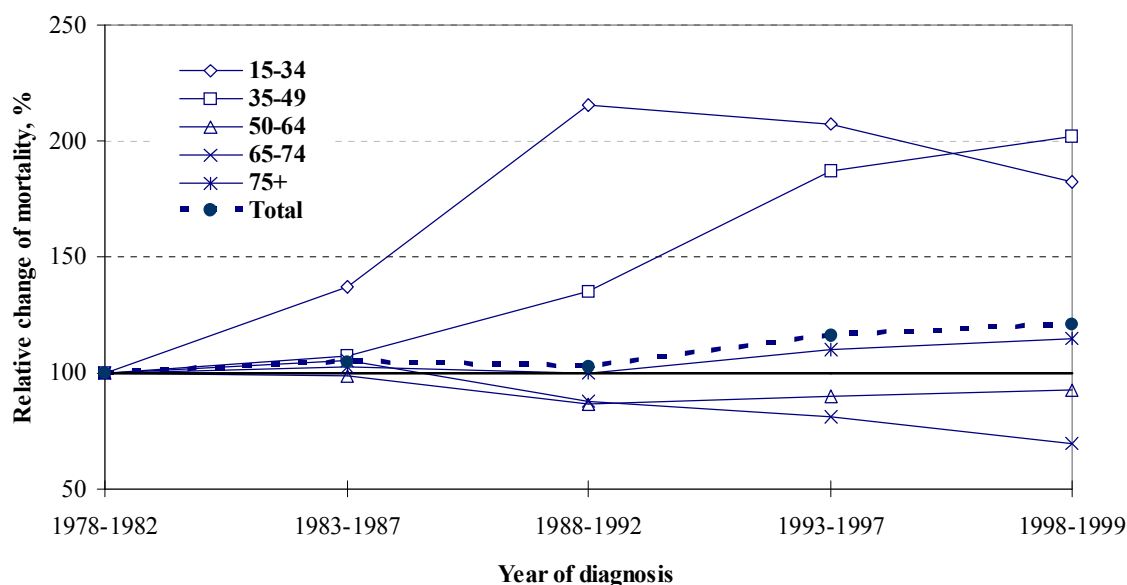


Figure 5. Relative changes of mortality rates due to cervical cancer 1978-1999

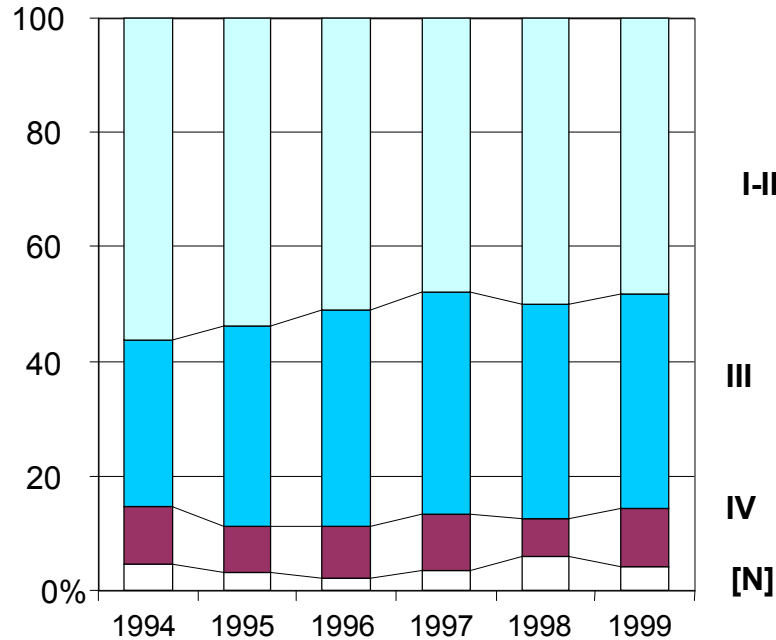


Figure 6. The distribution of the diagnosed cases of cervical cancer according to the stages of the disease 1994-1999. (N-stage not shown)

at the end of 1960. The mortality rate decreased 44% between the years 1980-1989 (30). The incidence rate in Scotland highly changed in the years 1975-1989, but it started to decrease since the year 1990.

The incidence rate significantly decreased in the mentioned period for the age group 50-64 years and the decrease in the mortality rate for all age groups started since the year 1990. The decrease in the incidence rate led to a decrease in mortality. The mortality in the year 1994 was 30 % less than that in the year 1997. The main reason for a decrease in mortality is the implementation of screening (31). Also in Belgium it was noticed a decrease in mortality up to 39.7%, and in all age groups between 30-69 years the mortality had decreased. In the last fifteen years a slight increase was noticed in the mortality among women younger than 50 years old (32). The mortality in Spain approaches to that of the above mentioned countries, and had increased among women younger than 40 years old (33). The incidence rate of cervical cancer and mortality in Lithuania and in some European countries are increasing among young women. A decrease is noticed among women older than 50, however, the incidence rate is increasing among women younger than 50 years of age. The increase in the incidence rate among young women will lead to further increase in the incidence rate of cervical cancer. The trends in the incidence rate and mortality rate in Lithuania showed that there is necessity for active implementation of preventive measures for cervical cancer. The

primary prophylactic measures are averted towards minimizing the exposure to the risk factors and thus avoiding a part of this illness. The secondary prophylactic measures include early diagnosis of the disease. The early diagnosis of the disease itself is very important for effective treatment and this will result in a decrease in the mortality. The experience acquired from developed countries by implementation of screening programs for cervical cancer with early diagnosis of the disease and thus effective treatment will lead to a significant decrease in the incidence and mortality of cervical cancer.

Conclusions

1. The incidence rate of cervical cancer in Lithuania had decreased from 15.9 cases per 100,000 women in the years 1978-1999 to 13.2 cases per 100,000 in the years 1988-1999, later it started to increase and in the year 1998-1999 had reached 17.4 cases per 100,000 women.

2. The total increase in the incidence and mortality of cervical cancer is due to the increase in the incidence and mortality among women under 50 years old.

3. The I and II stages of cervical cancer were diagnosed in about 50 % of all new cases in the years 1994-1999.

4. In order to decrease the incidence and mortality of cervical cancer in Lithuania it is important to implement a national-wide screening program for cervical cancer. The early diagnosis of the disease leads to a decrease in mortality due to cervical cancer in the future.

Gimdos kaklelio vėžys. Sergamumo bei mirtingumo pokyčiai Lietuvoje

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Raktažodžiai: gimdos kaklelio vėžys, sergamumas, mirtingumas, rizikos veiksniai.

Santrauka. Išnagrinėti sergamumo gimdos kaklelio vėžiu ir mirtingumo pokyčiai Lietuvoje. Standartizuoti (pasaulio populiacijai) sergamumo duomenys analizuoti 1978–1999 metų laikotarpiu. Tirti su amžiumi susijusių ir mirtingumo duomenų pokyčiai penkiose amžiaus grupėse (15–34, 35–49, 50–64, 65–74 ir 75 metų, ir vyresnių). Nuo 1978 iki 1992 metų moterų sergamumas gimdos kaklelio vėžiu palaipsniui mažėjo (atitinkamai nuo 15,4 atvejo 100 tūkstančių iki 12,9 atvejo 100 tūkstančių gyventojų), o nuo 1993 metų sergamumas pradėjo didėti ir 1998–1999 metais pasiekė 17,4 atvejo 100 tūkstančių gyventojų. 1998–1999 metais tik 49,2 proc. ligonių gimdos kaklelio vėžys buvo diagnozuotas I–II stadijos. 1978–1992 metais mirtingumas nuo gimdos kaklelio vėžio nemažėjo, nors sergamumas mažėjo (6,8, 7,0 ir 6,8 atvejo 100 tūkstančių gyventojų 1978–1982, 1983–1987 ir 1988–1992 metais, atitinkamai). Nors nuo 1993 metų užfiksuojamas vis didesnis naujų susirgimų skaičius, mirtingumo duomenys reikšmingai nekinta (7,6 ir 7,7 atvejo 100 tūkstančių 1993–1997 ir 1998–1999 metais, atitinkamai). Sergamumo gimdos kaklelio vėžiu ir mirtingumo nuo jo didėjimas lemiamas sergamumo ir mirtingumo didėjimo tarp moterų iki 50 metų. Sergamumą gimdos kaklelio vėžiu būtina išsamiai tyrinėti. Siekiant sumažinti sergamumą gimdos kaklelio vėžiu ir mirtingumą nuo jo, Lietuvoje tikslinga plačiai įdiegti gimdos kaklelio patologijų profilaktikos programas.

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