

Original article ■

Cervical Cancer Trends in the Toplica District

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SUMMARY

Cervical cancer is the third most common malignant neoplasm in women. It is also the fourth cause of death in women amongst malignant neoplasms in the Toplica District. The aim of the paper was to show the most important epidemiological characteristics of cervical cancer and to analyze its incidence and mortality trends during the period 1999-2012. Data on cancer for Toplica District were obtained in the Public Health Institute Niš. Descriptive epidemiological method was used. Crude rates were calculated per 100.000 inhabitants (Census 2002).

During the study period, there were 230 newly diagnosed women, out of which 84 died due to cervical cancer. The average age of women who were diagnosed with cancer was 58.9 years. The average age of deceased women was 60.6 years. The average annual crude incidence rate was 32.12 and mortality rate was 11.74. Cervical cancer incidence rates decreased while mortality rates showed a slight increase. The highest incidence rate was in the municipality of Prokuplje (25.45) and the highest mortality rate was in the municipality of Kuršumlija (8.11). The lowest incidence rate was in the municipality of Blace (16.15) and the lowest mortality rate in the municipality of Žitorađa (6.01).

Cervical cancer is an important sociomedical problem amongst women during their reproductive period. Efficient implementation of primary and secondary preventive measures may lead to a reduction in the incidence and mortality rates due to this cancer.

Key words: cancer, cervix uteri, incidence, mortality, trend

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INTRODUCTION

Cervical cancer is the second most common malignant neoplasm in women, after breast cancer. More than 80% of the global burden occurs in developing countries (1,2).

The mortality rate in Central Serbia was gradually increasing from 4.6/100,000 in the period from 1971 to 1985, to 6.8/100,000 in the year 2000. The mortality rate increased by 47.83% and has continued to rise in the 21st century. The mortality rate was 7.2 in 2002, while in 2008 it increased to 8.0. Thus, during a period of six years, the mortality rate increased by 11.1% (2-6).

According to data from the population register of Serbia in 2002, the standardized mortality rate in the Republic of Serbia was 6.9, which was lower compared to other countries in the region. In the same year, the standardized incidence rate was 29.1, being the highest in Europe at the time (3, 5).

Cervical cancer and its precursor lesions (cervical neoplasia - CIN and squamous intraepithelial lesions-SIL) are caused by infectious agents. For the onset of the disease, it is necessary for these pathological changes to exist in the cervix, as they represent the entry point for carcinogenic agents and oncogenic types of human papilloma virus (7-9).

Apart from the presence of infectious agents, for the onset of malignant process on the uterine cervix, the contribution of other risk factors is necessary (so-called cofactors): cigarette smoking, alcohol abuse, immunodeficiency, frequent change of sexual partners and other factors (10).

Cervical cancer occurs mainly in women aged 35 to 55 years; however, in the recent years, it has been registered in younger women (11). The most important prognostic factor for survival is the stage of disease. In our country, cervical cancer is diagnosed in less than one third of affected women in the early invasive stage when surgical intervention is possible (7, 9, 12).

In a large number of women cervical cancer is diagnosed in its advanced stages, when apart from surgical treatment, it is necessary to administer postoperative radiotherapy, which prolongs and adds to the cost of treatment, and may lead to serious complications during treatment (2, 13).

AIM

The aim of the paper was to show the most important epidemiological characteristics of cervical cancer and to analyze its incidence and mortality trend in the period 1999-2012 in the Toplica District.

METHODS

Data were obtained from the population-based cancer register of Serbia. Data on cancer for Toplica Di-

strict were obtained in the Public Health Institute Niš. Data on newly diagnosed and deceased women were analyzed. The 10th Revised International Classification of Diseases was used (codes C53.0 - C53.9). Descriptive epidemiological method was performed. Crude incidence and mortality rates were calculated per 100,000 women (Census from 2002). Incidence and mortality trend lines were assessed.

RESULTS

In the period 1999-2012, there were 230 newly diagnosed cases. The average annual crude incidence rate was 32.12/100,000. The highest annual crude incidence rate was 45.0 and it was noted in 2001 and 2003, while the lowest was 21.5 and it was registered in the years 2007 and 2008.

The total number of deceased women due cervical cancer in the period from 1999-2012 was 84. Average annual crude mortality rate was 11.74/100,000. The highest annual crude mortality rate was 25.44 (in 2006) and the lowest was 3.91 (in 2003). The annual mortality rate increased by 6.5 times during these three years (Figure 1).

Breast cancer took the first place with an incidence of 22% and a mortality rate of 17%. The second place was taken by colorectal cancer with 10% in incidence and 11% in mortality. Lung cancer took the third place as the cause of death (12%); however, it took the fourth place in the overall incidence rate (7%). The third place in incidence (9%) and fourth in mortality (7%) belonged to cervical cancer along with gastric cancer.

Given the structure of malignant neoplasms in women in the Toplica District during the observed period, these ten localizations accounted for 72% in incidence and 76% in mortality.

The youngest woman who got cervical cancer was 28 years old, and the youngest woman who died because of cervical cancer was 31 years old. The oldest woman was 90 years old. The average age of new cases was 58.9 years, while the average age of deceased women was 60.6 years (Figure 2).

During the observed period, the incidence trend of cervical cancer decreased. The value of incidence trend was: $y = -1.3264x + 42.098$; $R^2 = 0.3238$.

During the same period, the mortality trend increased slightly: $y = 0.0689x + 11.225$; $R^2 = 0.0019$ (Figure 3).

The highest average age-specific incidence rate was registered in women aged 45-49 years (80.8/100,000), while the lowest was registered in women aged 25-29 years (4.7/100,000).

The highest average age-specific mortality rate was in women older than 75 years (29.89/100,000) and the lowest was in women aged 35-39 years (2.4/100,000) (Figure 4).

The highest incidence rate was in the Municipality of Prokuplje (25.45) and the highest mortality rate was in the Municipality of Kuršumlija (8.11). The

lowest incidence rate was in the Municipality of Blace (16.15) and the lowest mortality rate was in the Municipality of Žitorađa (6.01).

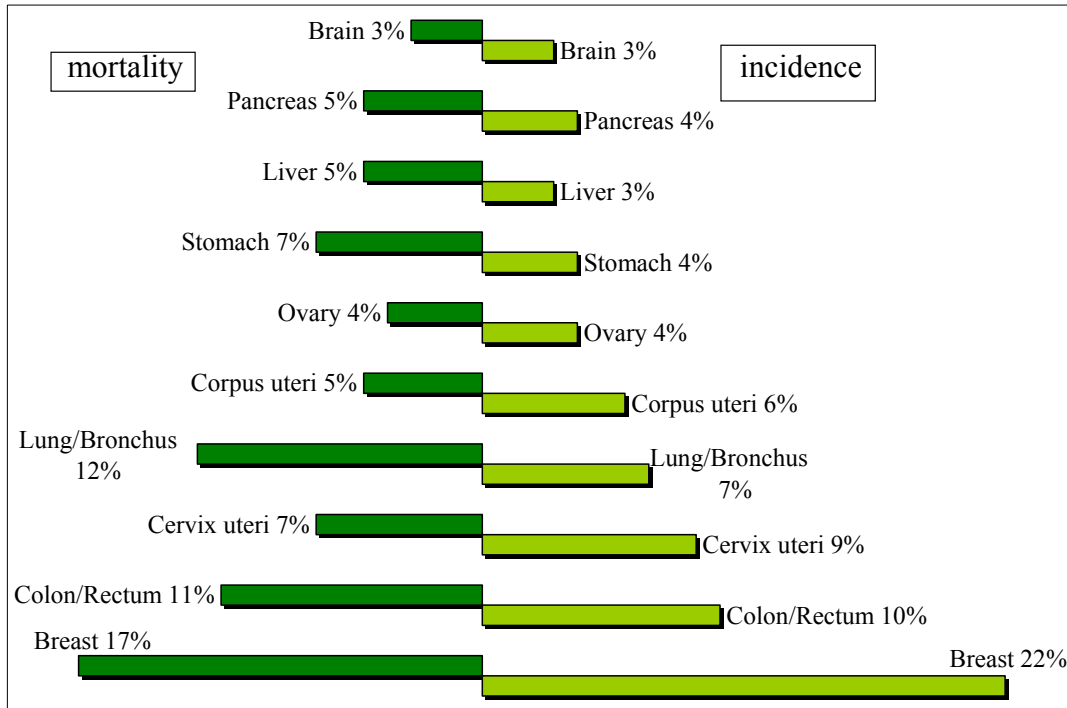


Figure 1. The percentage of the ten most common localizations of malignant diseases in women in the Toplica District in the period 1999-2012

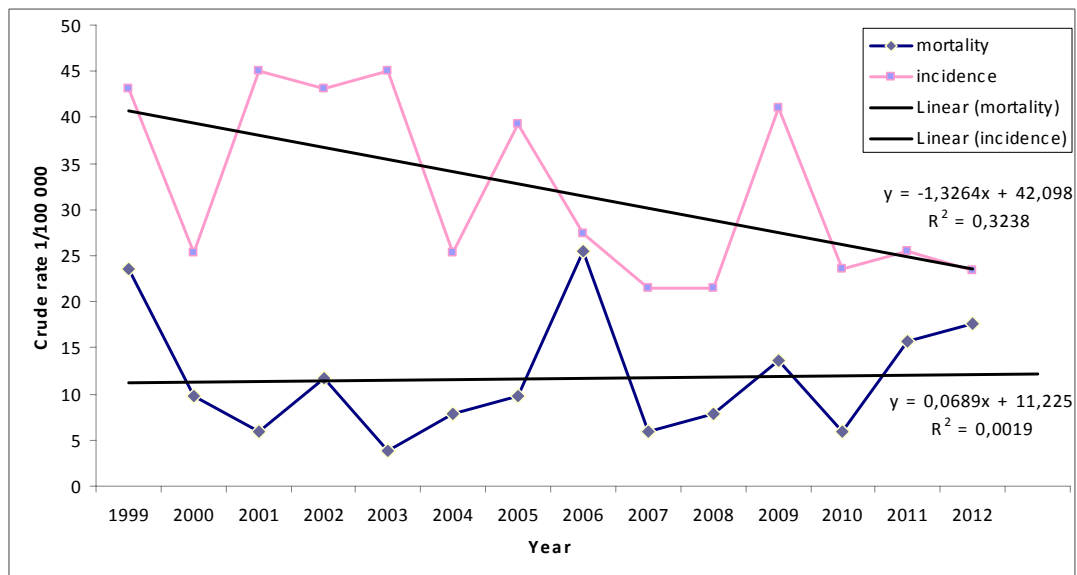


Figure 2. The incidence and mortality trend of cervical cancer in the period 1999-2012 in the territory of the Toplica District

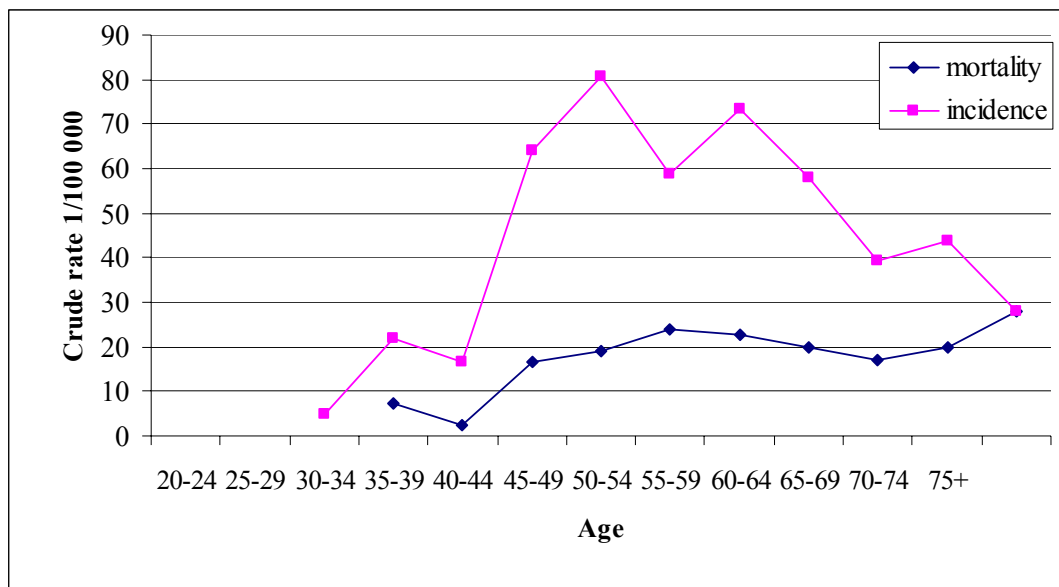


Figure 3. Average age specific incidence and mortality rates in the period 1999-2012

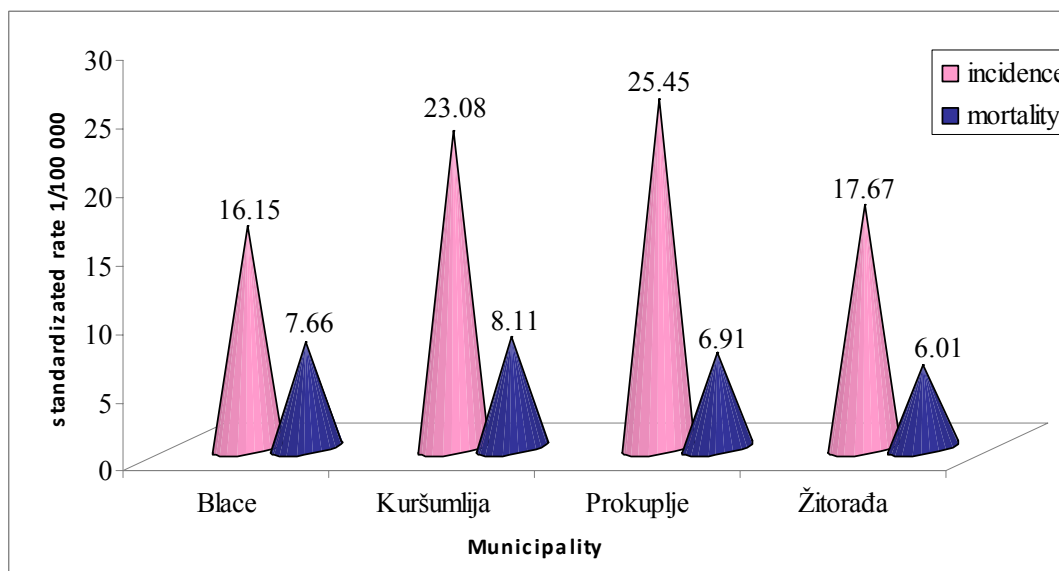


Figure 4. Average annual crude incidence and mortality rates of cervical cancer by municipalities of the Toplica District in the period 1999-2012

DISCUSSION

In undeveloped countries, cervical cancer represents one of the leading causes of death amongst young and middle-aged women despite the fact that efficient measures of primary and secondary prevention exist (13, 14).

According to the presented results, there is a decreasing incidence of cervical cancer in the Toplica District. The average crude incidence rate in the Toplica District is the lowest compared to other districts in Serbia (4).

This indicates that in the Toplica District there is significant under-registration of new cases, especially in the smallest municipalities of the district (the municipalities of Blace and Žitorađa). Women from the suburbs, villages, poor households and lower educational status do not visit a gynecologist regularly, which in turn accounts for under-registration of new cases.

Based on the declining incidence trend as well as on the slightly increasing mortality trend, we can conclude that women from the Toplica District visit the gynecologist when the cancer is in its advanced stages. This explains why the five-year survival is very low, amo-

unting to about 10%. The rise in mortality among women in the Toplica District could be attributed to insufficient primary prevention and women's poor response to regular screening (7, 13).

The average annual crude mortality rate was 11.74. In the Nišava District, during the same period, it was 12.18. Both mortality rates are lower than the crude mortality rate in central Serbia which was 12.9 (8).

The mortality trend showed a slight increase in both districts, however, this was not of statistical significance (8).

The incidence and mortality rates rise with increasing age among women. The highest crude incidence rates were reported in women aged 45-49 years and the highest mortality crude rates were observed in women older than 75 years.

In the surrounding countries in the region, such as Romania, mortality has been increasing since 1975 in women aged 30-39 years, and since 1985 it has been continuously rising in women aged 40-49 years (15). In Bulgaria, the mortality trend is stable, but it shows an increasing tendency among women aged 30-59 years (15).

On the other hand, mortality rates did not change in women older than 60 years in the Baltic countries: Estonia, Latvia and Lithuania, and they also showed a slight decline in women older than 80 years (15).

The highest incidence rate was registered in the Municipality of Prokuplje. In this municipality, the mor-

tality rate was lower than the average mortality rate in the Toplica District. The reason for this is the existence of the General Hospital and Oncology Dispensary in Prokuplje.

Women in urban areas have a higher level of health education and visit a gynecologist more frequently than women from the suburbs or rural areas. The highest mortality rates were noted among women in the Municipality of Blace, which is the smallest municipality in the Toplica District (4).

CONCLUSION

Cervical cancer is an important medical and socio-economic problem among women during their reproductive period. In the Toplica District territory, during the period from 1999-2012, this cancer was the third leading cause of morbidity and the fourth leading cause of death in women. The highest incidence rate was in women younger than 50 years of age. The highest mortality rate was in women above 75 years. Mortality trend showed a slight increase, while there was a decrease in the incidence trend. Efficient implementation of primary and secondary measures may lead to reduction in the incidence and mortality of women having cervical cancer.

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TREND INCIDENCIJE I MORTALITETA OBOLELIH OD RAKA GRLIĆA MATERICE U TOPLIČKOM OKRUGU

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Sažetak

Rak grlića materice je na trećem mestu po obolevanju i na četvrtom mestu po uzroku umiranja žena od malignih bolesti u Topličkom okrugu. Cilj rada bio je da prikaže najvažnije epidemiološke karakteristike raka grlića materice i analizira trend incidencije i mortaliteta u periodu 1999-2012. godine. Izvor podataka bili su zvanični podaci populacionog registra za rak, koji se za teritoriju Topličkog okruga vodi u Institutu za javno zdravlje u Nišu. Izračunavane su stope incidencije i mortaliteta na 100 000 žena (popis iz 2002). Određen je linearni trend. U četrnaestogodišnjem periodu ukupno je registrovano 230 novoobolelih žena, a 84 žene su umrle od raka grlića materice. Prosečna starost kod obolelih žena iznosila je 58,9 godina, a umrlih 60,6 godina. Prosečna godišnja nestandardizovana stopa incidencije iznosila je 32,12, a mortaliteta 11,74. Trend registruje pad incidencije i blagi porast mortaliteta. Najviša stopa incidencije beleži se u opštini Prokuplje (25,45), a mortaliteta u opštini Kuršumljija (8,11). Najniža stopa incidencije beleži se u opštini Blace 16,15, a mortaliteta u opštini Žitorađa 6,01. Rak grlića materice je značajan socio-medicinski problem žena u reproduktivnom periodu. Efikasna primena mera primarne i sekundarne prevencije može dovesti do smanjenja u obolevanju i umiranju žena od ovog malignoma.

Ključne reči: rak, grlić materice, incidencija, mortalitet, trend