Chirilă S.¹, Rugină S.², Broască V.³

Neoplastic Diseases Incidence in Constanta County During 2007 – 2012

¹Discipline of Medical Informatics, Faculty of Medicine, University „Ovidius” of Constanța

²Discipline of Infectious Diseases, Faculty of Medicine, University „Ovidius” of Constanța

³Discipline of Public Health and Sanitary Management, Faculty of Medicine, University „Ovidius” of Constanța

ABSTRACT

According to the reports provided by the World Health Organization, cancer is a leading cause of death worldwide. Recognised methods for reducing the burden of cancers are screening for early detection followed by proper treatment.

We studied the cancer incidence during 2007 – 2012 for the population in Constanta County.

The main results support the importance of wide screening programs in early detection of neoplastic diseases, especially for elder and lower access to medical services populations, such as people from rural areas.

Keywords: neoplastic diseases, incidence, screening

Introduction

According to the reports provided by the World Health Organization, cancer is a leading cause of death worldwide.[1] Main causes of cancer death are lung cancer, liver cancer, stomach cancer, colorectal cancer, breast cancer and oesophageal cancer.[1]

The main problem that arises is the best way to reduce the burden of neoplastic diseases. Among the recognised methods, one of the best interventions is the screening for early detection.[2] When such program starts, initially there is an increase in the incidence, but the mortality rates will drop in time, leading to a less important burden.[3]

By studying the incidence of different types of cancer over a certain period of time allows public health specialists to find trend in order to anticipate the best interventions that can apply for the studied population.

Chirilă Sergiu

Discipline of Medical Informatics, Faculty of Medicine, University „Ovidius” of Constanța
Aleea Universității, Nr. 1, Campus B
Constanța, România
sergiu.chirila@univ-ovidius.ro

Material and Method

Data was collected from the Report of main health indicators for Constanta County, during the 2007- 2012 period.

Types of investigated cancers are:

- Skin Cancer.
- Breast Cancer
- Cervical cancer
- Broncho-pulmonary cancer
- Stomach cancer
- Prostate cancer

Available data was used to calculate annual incidence ratio and prevalence for each of the health indicators.

Total incidence represents the total number of new cases of disease in a population, during a specified time interval. In this study I report incidence per 100,000 persons over a 1 year interval for the general incidence and 10,000 persons for specific incidences. To calculate these rates I used statistic population at 1st of July for each year.

Results

All Cancers

First I analyzed incidence for all types of cancer. The mean incidence during this time interval was 316.3 new cases of neoplastic diseases for 100.000 inhabitants. The highest incidence was recorded in 2009, with 342 new cases for 100.000 inhabitants and the lowest incidence in 2012 with 256 cases/100.000. (Figure 1). The trend indicates an increasing incidence in the first four years of the study, followed by an important decrease of the incidence in the last two years.

Figure 1 incidence for all types of cancer (/100,000 inhabitants)

For Skin Cancers, the incidence is between 2.7 during 2011 and a peak recorded in 2008 of 7 new cases/100.000 inhabitants. We note the fact that there is a very high variability of the incidence for this disease during the time period of the study.

In the case of breast cancer, average incidence for 6 years is 5.94 cases. The highest value of the incidence, of 7.2 was recorded in 2008. Following that year, the incidence decreased constantly until 2011, with an increase in 2012.

An interesting result is observed when data is analysed based on the background of the patients. Thus, statistics for rural area suggest a much higher incidence of breast cancer during 2007 to 2010 time period, with an incidence twice as high as the one in urban area. For 2011 and 2012, the incidence is still higher, but the difference is much smaller.(Figure 2)

Figure 2 Breast cancer incidence according to background (/10,000 women)

For cervical cancer the numbers present a uniform distribution, with a marked decrease in incidence in 2011, to an incidence of 2.3. The average for that period of time is 3.05.

The trend observed for breast cancer is also present in the case of cervical cancer. In the case of women from rural areas the incidence is almost twice the incidence recorded in the population from the urban area for the years 2007 to 2010. After 2011, the incidence decreases significantly in the rural area. For the urban area, the incidence is constant during the time period covered by the study.

Broncho-pulmonary cancers have an incidence of 5.1 cases/10,000 inhabitants. The highest value was recorded in 2010, with a value of 5.73 new cases for 10,000 inhabitants. There is a clear increasing trend from 2007 to 2010, with values constantly increasing from one year to another. In 2011 a decline in the incidence was recorded (24% decrease in 2011 compared to 2010).

Comparing the results based on the background of the patients, we notice, as in the case of other types of studied cancers an incidence which is almost double for the rural background.

For stomach cancers, the average incidence over six years of study is 1,54/10.000 inhabitants. The peak of the incidence is in 2008 with a value of 1,9. Compared to all other types of cancers in this study, stomach cancer is the only one with a constant increasing trend (Figure 3).

Figure 3 Stomach cancer incidence (/10.000 inhabitants)

When the incidence is compared for urban area with rural area, we observe two different

trends. For the urban area the values are smaller in all years, except 2012. Also, for urban area the trend is ascending, while for rural area the values are very high during 2007 and 2008 (a maximum incidence of 2.7) and decrease until to 2012 to an incidence of 1.5 (Figure 4).

Figure 4 Stomach cancer incidence based on background (/10.000 inhabitants)

For prostate cancer, the decline in incidence is very high. From values between 2.34 to 2.7 recorded in the period 2007 – 2010 to values between 1.3 – 1.5 during 2011-2012 time period. (Figure 5)

Figure 5 Prostate cancer incidence (/10.000 males)

For men from urban area the incidence of prostate cancer has values which are twice as large as the ones seen in the rural male population. This difference is present throughout the study period, with small variations.

Discussion

For all the studied cancers we noticed an important increase during 2008 – 2009 time period. During that time, incidence rates are the highest for all types of cancer. After that, the incidence decreases constantly.

This trend can be in direct relation with a National Program of Health Evaluation [4] that took place in Romania during 2007 – 2008. The purpose of the program was a complex evaluation of the health status and risks for all Romanian citizens.

Generally we observed a higher incidence for all types of cancer for the population in the rural areas. A possible explanation might be related to the lower access to medical services for this population. This might be explained by the fact that during the later period of the study the incidence rates tend to equalize. As the results were not standardized for age, another possible explanation for the higher incidence of neoplastic diseases in the rural area is related to the older age of the population in this environment.[5]

Conclusions

Most of the studied cancers have a decreasing trend of the incidence during the 2007 – 2012 time period.

The only type of cancer that has an increasing trend is the family of stomach cancers.

Most of the neoplastic diseases have a higher value of the incidence in the rural area, especially during 2007 – 2008 time period.

The stomach cancer is the only one with a higher incidence in the urban area compared to the rural area.

A possible explanation for the higher incidence among people living in rural area might be the fact that this population tends to be older than the population in the urban area

Most of the cancers have a lower value of the incidence in the rural area in the last two years compared to the previous years.

This study reiterates the importance of health evaluation programs in early and wide detection of neoplastic diseases, especially in populations with

lower access to medical services.

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