ABOUT LUNG CANCER IN ROMANIA AND CONSTANTA COUNTY

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ABSTRACT

Abstract: In Romania lung cancer represents the second most common cancer after breast cancer, for both sexes, and is the leading cause of death among patients with cancer.

Between 2011 and 2019 the incidence of cancer had a growing trend for both Romania and Constanta County. Unfortunately, the forecast regarding the incidence of cancer in Romania shows a trend of continuous rise of new cancer cases until 332.7%000 inhabitants by 2025.

In these conditions we wanted to analyze some aspects of lung cancer situation in Constanta County.

Keywords: health, lung cancer, mortality

Introduction

In 2020 in the statistics of World Health Organization (WHO) were more than 19200000 new cases of cancer around the world, with 9 958 133 deaths (1). Lung cancer represents the second most common cancer (11,4%) after breast cancer, for both sexes, and is the leading cause of death among patients with cancer (18% of all deaths) (2).

In 2020, in Romania were 98886 new cases of cancer and 54486 deaths caused by cancer. In our country lung cancer represents the second most common cancer (12.3% of all cancers) but after colorectal cancer (breast cancer is on third

place).

In Romania cancer is the second leading cause of death after diseases of the circulatory system. When it comes to mortality, lung cancer tops the other forms, with 19.8% of cancer-related deaths (3, 4).

It is important to note that 40% of cancers can be prevented with a healthy life style: diet rich in vegetables and fruits, without tobacco use, regular physical activity, with an optimal weight, and avoiding physical, chemical and biological carcinogens from environment. Also by early detection of cancer and early treatment increases the healing rate.

In these conditions we wanted to analyze

some aspects of lung cancer situation in Constanta County.

Material and methods

For this study data were taken from the reports of Public Health Department-Constanta (2011-2019) and from the record files of patients (from 2011 to 2016), who were hospitalized in the Department of Medical Oncology at Constanta Emergency Clinical County Hospital. As for the analysis, we have used statistical quantitative methods.

Results

The incidence rates of cancer in Romania and Constanta County are presented in figure 1 and figure 2.

Figure 1 – Incidence of cancer in Romania per 100000 persons

Figure 2 – Incidence of cancer in Constanta County per 10000 persons

The lung cancer incidence rate in Romania was between 38 and 44 per 100000 persons (figure 3). The mortality rate for this type

of cancer (figure 4) increased from 43.4 per 100000 persons (43.4%000) to 44.2%000 with a maximum of 46.5%000 in 2015 (5-7).

Figure 3 – Incidence of lung cancer in Romania per 100000 persons

Figure 4 – Cancer mortality rates in Romania per 100000 persons

The incidence rate of lung cancer in Constanta County fluctuated between 4 and 6.11 per 10000 persons between 2011 and 2019 (5, 8, 9). Regarding the mortality rates we do not have data for Constanta County, as we found official data only for national statistics.

Due to the pandemic conditions we had access to the record files of patients only from 2011 to 2016. During this time, 79 patients with lung cancer were hospitalized in the Department of Medical Oncology of the Emergency Clinical County Hospital of Constanta.

Most cases were recorded in urban areas (50.63%). This distribution of cases in Constanta County is consistent with the situation found at national level.

Most cases of lung cancer (approximately 95% of the total) occur in people over 51 years old. The 61-70 age groups are the most affected. Furthermore, over 87% of cases occur in males.

92.4% of patients worked in a noxious environment that contained: radiation, pollutants from the oil industry, and pollutants from the wood industry.

97.46% of patients were heavy smokers that have smoked for 15 to 40 years (figure 5). 10.13% of the patients had a history of lung diseases that increase the risk of cancer: chronic bronchitis and chronic obstructive pulmonary disease.

Figure 5 – Proportion of lung cancer cases according to the number of cigarettes smoked per day

The proportion of symptoms for our patients is shown in Figure 6.

Figure 6 – The proportion of lung cancer cases depending on the presence of clinical signs and symptoms

51 of the patients (64.55%) already had extrathoracic metastases by the time of hospital admission. Most extrathoracic metastases were found in lymph nodes and liver, 41.77% and 8.86%, respectively, but there were also other metastatic sites: brain, peritoneum, bone, intestine, kidney, and adrenal glands.

To establish the diagnosis and monitor the therapy, the following investigations were

performed: radiological examination, computed tomography (CT), bronchoscopy with biopsy, sputum cytology, ultrasound examination (to detect metastases) and laboratory tests (hematological and immunochemical tests).

Unfortunately, after imaging examinations, we found out that most patients were already in stage II or III at the time of diagnosis.

Among the laboratory tests that have been performed and are significant for cancer we mention (figure 7): cytokeratin fragment 19 (Cyfra 21-1), neuron specific enolase (NSE) and carcinoembryonic antigen (CEA).

Figure 7 – Proportion of lung cancer cases according to laboratory test results

In cancer patients, for Cyfra 21-1 the values exceed 3.3 ng/mL. The average value of this study was 17.3 ng/mL, with a maximum of 30.1 ng/mL.

For cancer, the values for NSE exceed 16.3 ng/mL. The average value was 28.28 ng/mL with a maximum of 60.3 ng/mL.

In case of carcinoembryonic antigen, the values were different for smokers and non-smokers: over 5.0 ng/mL, respectively, over 3.0 ng/mL. In this study only two of the patients are non-smokers. In both cases, the CEA values were increased; the average value was 29.5 ng/mL, and the highest value was 44 ng/mL. For smokers the average value for CEA was 17.50 ng/mL, with a maximum value of 44 ng/mL.

Discussions

Between 2011 and 2019 the incidence of cancer had a growing trend for both Romania and Constanta County. Unfortunately, the forecast

regarding the incidence of cancer in Romania shows a trend of continuous rise of new cancer cases until 332.7%000 inhabitants by 2025. In these conditions, a greater emphasis must be placed on prevention and improvement of the quality of life.

The average age of the patients in this study when diagnosed is 62 years. The minimum age registered in lung cancer patients is 40 years, and the maximum age is 80 years. The distribution of cases by age groups is similar to that existing one at national level, about half of the cases of lung cancer in Romania being in people aged 45-65 years.

Moreover, the same situation can be found if the distribution of cases is made by gender, but with a growing trend among women.

According to clinical trials, the exposure to occupational toxins increases the risk of lung cancer by 10 to 30 times depending on the period of exposure but with a history of cigarette smoking the risk is even greater (10).

In tobacco smoke are several thousand toxic substances and at least 70 are known to cause cancer (11).

It is well known that 70-90% of lung cancers are due to smoking, depending by: gender, duration of smoking (number of years), number of cigarettes smoked per day, type of cigarettes, manner of inhalation and the age of initiation of tobacco use.

Because more than half of the patients smoked one or even more packs of cigarettes per day, and the age of smoking in these patients varies between 15 and 40 years, we can say that the risk of lung cancer was very high.

As can be seen in figure number 6, in most patients the clinical situation was dominated by: cough, breathlessness, loss of appetite and asthenia.

National and European statistics show that these clinical manifestations, along with weight loss, are the most commonly reported problems in patients at the time of diagnosis. Regarding weight loss, a quarter of patients reported this weight change. The biggest weight loss was 15 kg in two months.

According to clinical trials, 55% of lung cancer patients have bone, liver, or brain metastases at the time of diagnosis, and a third

of them have clinical manifestations due to these metastases. In the present study, the percentage of patients with extrathoracic metastases is higher and approaches 65%. Unfortunately, statistics show that patients with extrathoracic metastases have a poorer prognosis.

For the three tumor markers evaluated to monitor patients, high values are recorded in over 90% of cases. Values are 3 to 10 times higher than normal and are associated with a poor prognosis for survival rate.

Depending on the stage and type of cancer, the treatment options for our patients were represented by a combination of: surgery, radiotherapy and chemotherapy.

Conclusions

With this upward trend in the evolution of lung cancer we can say that is very important to encourage healthy habits for cancer prevention and also regular medical tests for an early diagnosis of cancer in the case of people who fail to quit smoking.

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