

REVIEW ARTICLE

EPIDEMIOLOGY OF MALIGNANT TUMORS OF THE RESPIRATORY ORGANS IN THE TRANSCARPATHIAN REGION DURING 2015-2019

DOI: 10.36740/WLek202105132

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ABSTRACT

The aim: Study and analysis of the epidemiological situation of malignant neoplasms of the respiratory system at the regional level during 2015-2019.

Materials and methods: The study was based on the analysis of data from the state statistical reporting (forms №7, №35 – healthy) and the database of the National Cancer Registry during 2015 – 2019, which was approved by the conclusion of the bioethics commission of Uzhgorod National University (protocol №2/2 of 15.02.2021).

Conclusions: The study found an increase in the level of malignant neoplasms of the respiratory system by 17,28%, as well as the uprise in the proportion of malignant neoplasms of the respiratory system in the structure of all tumours, by 11,98%; detection of malignant neoplasms of the respiratory organs in the late stages; the predominance of the death rate of men from MT over women, as well as mortality rate of the respiratory organs MT up to 1 year from the moment of diagnosis among men is higher over women.

KEY WORDS: malignant neoplasms, respiratory organs, morbidity, mortality

Wiad Lek. 2021;74(5):1219-1221

INTRODUCTION

Malignant neoplasms are the most important medical and biological problem for Ukraine and most countries overall. Socio-economic significance of the problem is since cancer reduces the life expectancy of the male population of Ukraine by 3,6 years, and female, by 2,5. The life expectancy of patients with oncopathology decreases by 17-18 years and is up to 40% of that period for working age. In Ukraine, the number of patients with malignant neoplasms of the respiratory system per year exceeds 16 thousand. Most lung cancer patients die within a year of diagnosis [1].

Lung cancer is most commonly diagnosed among all malignancies and is the leading cause of cancer death worldwide [2].

Lung tumour is the leading cause of cancer mortality worldwide, exceeding prostate, breast and colon cancer mortality combined [3]. However, it has one of the worst survival outcomes of all malignancies, as the vast majority of patients get diagnosed in the later stages when surgery or other treatments are less effective [4].

A national lung screening study has shown that low-dose computed tomography screening for lung cancer reduces mortality by 20% [5]. In practice, the success of any lung cancer screening program will depend on the efficient identification of high-risk individuals. Risk prediction models have been recognized as a method of identifying individuals at high risk of developing lung cancer [6].

Research suggests that there is a link between previous respiratory illnesses (ARIs), including chronic bronchitis, emphysema, tuberculosis, pneumonia, and a diagnosis of lung cancer [7].

Tobacco is a common risk factor for STDs and lung cancer. However, the mechanisms of PRP independent affection on the risk of lung cancer are insufficiently studied, but it is hypothesized that inflammation caused by PRP may act as a catalyst in lung tumours development [8].

The results of international lung cancer cases consortium (SYNERGY project) show that comorbid respiratory diseases such as chronic bronchitis and emphysema, continue to be positively associated with lung cancer [9].

Identifying high-risk individuals will facilitate early diagnosis, reduce overall costs, and improve current poor lung cancer survival [10].

In Ukraine, malignant neoplasms of the respiratory organs (larynx, trachea, bronchi and lungs, pleura) occupy the first place in the structure of morbidity of workers with occupational cancer (78.2%). Among them, bronchial and pulmonary diseases predominate (90,4%). The average age of the primary establishment of PR of respiratory organs is (years): pleura – 55,3 ± 13,5; larynx – 57,9 ± 9,7; bronchi and lungs – 60,1 ± 9,2 [11].

THE AIM

To study and analyze the state of the epidemiological situation of malignant neoplasms of the respiratory system in the Transcarpathian region during 2015-2019.

MATERIALS AND METHODS

The data of the state statistical reporting (forms №7, №35) and the database of the National Cancer Registry in the dynamics

for 2015-2019 were analyzed. The research methodology involved the use of a set of following methods: medical-statistical, epidemiological and bibliosemantic, which was approved by the conclusion of the bioethics commission of Uzhhorod National University (protocol №2/2 of 15.02.2021).

REVIEW AND DISCUSSION

An urgent problem of modern medicine is malignant neoplasms (MN) of man, which in the general structure of mortality of the population of most countries on earth takes the 2nd-3rd place [12]. According to the study, it was found that the level of primary incidence of malignant neoplasms in the period from 2014 to 2019 increased by 5,55%. Regarding malignant neoplasms of the respiratory system, there was also a tendency for the level increase by 17,28% during that period. The incidence of laryngeal oncopathology during the study period decreased by 13,81%, while the level of malignant neoplasms of the trachea, bronchi and lungs increased by 23,80%.

During the study period, the proportion of patients diagnosed with malignant neoplasms, in general, decreased by 26.83% during preventive examinations, and the proportion of detected malignant neoplasms of the trachea, bronchi and lungs during preventive examinations ranged from 3,00% to 3,50 %.

The share of malignant neoplasms of the respiratory system in the structure of all malignant neoplasms ranged from 10,59% in 2018 to 13,08% in 2017 and increased by 11,98%. Thus, in 2015 the of laryngeal oncopathology was 1,84%, and in 2019 – 1,48%, which is 19,47% less than in 2015. The proportion of tracheal, bronchial and lung cancer cases during the study period increased by 17,15% (in 2015 it was 9,35%, and in 2019 – 10,95%), but the proportion of laryngeal cancer decreased by 19,47%. The percentage of cases of malignant neoplasms of the respiratory organs detected during preventive examinations, increased by 38,5% (2015 – 2,62%, 2019 – 3,63%).

When studying the proportion of patients with a newly diagnosed malignant neoplasm of the respiratory system, depending on the stage of the disease, the following trends were found: the largest group are patients with stage IV disease, ranges from 41,71% in 2019 to 51,00 and 76,00% in 2018. The second place is taken by patients diagnosed with stage III respiratory neoplasms (31,19% -35,89%), and the lowest percentage of patients diagnosed with stage I-II disease (16,39% – 23,72%). Studying the proportion of patients with a newly diagnosed laryngeal cancer, it was found that the largest target is patients with stage III disease (from 44,68% in 2018 to 71,43% in 2015), while for malignant neoplasms of the trachea, bronchi and lungs the first place is taken by patients with stage IV disease and ranges from 39,89% in 2016 to 56,31% in 2018. Next, are patients diagnosed at the I-II stage of the disease (18,37% – 42,50%), for the trachea, bronchi and lungs – at the III stage (25,94% – 32,90%). The last place for laryngeal cancer are patients diagnosed with stage IV (10,00% in 2019 to 23,40% in 2018), for tracheal, bronchial and lung cancer – in stages I-II (from 16,00% in 2015 to 21,29% in 2019).

The 5-year survival of patients with laryngeal cancer in 2015 was 1,56%, and in 2019 – 1,62% (during the study period, the figure increased by 3,80%), in turn, survival for 5 years or more in patients with cancer of the trachea, bronchi and lungs in 2015 amounted to 2,57% and increased to 2,85% in 2019, which reflects an increase of 10,80%. In general, the level of 5-year survival of respiratory tract infections increased by 8,23% (from 4,13% in 2015 to 4,47% in 2019).

During the study period, at the regional level, the frequency of deaths of men from MT exceeds the frequency among women, although among women the level increased by 16,38% within 5 years. It was found that the level of deaths of men from respiratory disease is much higher (from 3,95 % in 2019 to 4,69 % in 2016), while in women this figure ranges from 0,55 (in 2015 to 0,78 % in 2018). However, during the study period, the level of respiratory failure among men decreased by 4,78%, among women – increased by 31,09%. Regarding localization, the mortality rate from laryngeal malignancies among women is lower than among men and ranges from 0,00 % in 2016 to 0,06 % in 2018. The frequency of deaths from TN of the trachea, bronchi and lungs among women increased from 0,54 % in 2015 and 2017 to 0,72 % in 2018, ie by 31,96%, while among men it is 3,52-4,14%.

If we analyze the proportion of respiratory deaths from MT in the structure of total mortality from MT, the following trend is revealed. Mortality from the respiratory disease has a different trend and ranges from 30,77% in 2019 to 32,56% in 2018.

In general, the study found that the level of deaths from MT up to 1 year from the date of diagnosis among men is higher than among women. The same tendency is confirmed also about MT of respiratory organs. During the study period, the death rate before the age of 1 year among men decreased by 15,94%, and among women increased by 64,19%. The frequency of the number of patients with laryngeal cancer who received special treatment in the dynamics from 2015 to 2019, both in general and among the first registered decreased by 22,56% and 14,10%, respectively. The level of patients with oncopathology of the trachea, bronchi, lungs who received special treatment increased by 54,75% in total and among those first detected by 74,74%, which confirms the tendency to decrease the incidence of laryngeal fibroids and increase the incidence of tracheal fibroids, bronchi and lungs.

In general, during the study period, special treatment among patients with the respiratory disease increased by 29,49%, and among newly registered – by 43,65%. Among patients with respiratory diseases who receive special treatment, the first place is occupied by the chemotherapeutic method, the second – the chemoradiation method, the third – the combined or complex method, the fourth-place – the radiological and the fifth – surgical. In the dynamics of 5 years, the proportion of patients who received surgical treatment of respiratory disease increased by 23,70%, chemotherapy – by 26,39%, radiation and combined – 1,56 and 1,33 times, respectively, while the proportion of patients who received chemoradiation treatment decreased by 31,40%.

Concerning localization, among patients with laryngeal

MT special treatment is mainly combined or chemoradiation. There is a tendency to increase the use of such methods as surgical (2,2 times), radiation (by 10,84%) and combined, or complex (by 94,17%), as well as reducing the use of chemotherapy (by 35,31%) and chemoradiation (by 22,36%). A special treatment of trachea MT, bronchial tubes and lungs chemotherapeutic and combined methods of treatment prevail. There is an increase in the use of radiation (by 5,68%), chemotherapy (by 8,44%), combined or complex (by 78,12%) and a decrease in surgery (by 5,33%), chemoradiation (by 53,79%) methods.

The percentage of respiratory disorders in the structure of respiratory organs in general among the population of the region is 12,24% – 13,77% and for 5 years increased by 7,82%. The share of the respiratory tract is higher among men and increased by 9,37%, and among women by 4,72%.

Further research will be aimed at studying the characteristics of the risk factors for the development of malignant neoplasms of the respiratory system, the assessment of patients' availability and quality of care for respiratory disorders, etc., which in the future will help to scientifically substantiate and develop an optimized model at the present stage.

CONCLUSIONS

1. The study found: 1. Increase in the level of malignant neoplasms of the respiratory system for 5 years by 17,28%, as well as the proportion of malignant neoplasms of the respiratory system in the structure of all malignant neoplasms by 11,98%.
2. Negative is the tendency to detect malignant neoplasms of the respiratory organs in the late stages.
3. The frequency of deaths of men from STIs exceeds the frequency among women, although among women the mortality rate increased by 16,38% within 5 years.
4. In general, the mortality rate from MT to 1 year from the moment of diagnosis is higher among men than among women. The same tendency is confirmed also about MT of respiratory organs.

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The article is done within the complex research framework for «Research of geopolitical, sanitary-hygienic, ecological, medical-demographic and socio-economic features of the Transcarpathian region as factors of health care reform in the region» state registration number 0120U100987

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Conflict of interest:

The Authors declare no conflict of interest.

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Received: 10.12.2020

Accepted: 29.03.2021

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article