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SUMMARY OF THE DOCTORAL DISSERTATION

"Changes in the risk of selected malignant neoplasms in the Podlaskie Voivodship in the context of demographic and socioeconomic changes in the years 2000-2015"

Cancer is a major health, social and economic problem, and the burden of these diseases is increasing globally. The trends in incidence and mortality from malignant neoplasms in Poland, which have been observed for many years, are determined by both the age structure of the population and changes in the population's exposure to carcinogens. Changes in demographics and socioeconomic conditions are among the factors affecting incidence risk. The incidence of cancer is expected to increase. To counter this trend, comprehensive, evidence-based cancer control strategies need to be developed and implemented. An important component of health policy programs for cancer prevention should be primary prevention activities, including health promotion, which may contribute to reducing exposure to risk factors and thus influence the reduction of future cancer incidence and death, and bring positive health and socio-economic benefits to the population.

The aim of the study was to determine changes in the epidemiological situation of selected malignancies: lung cancer and colorectal cancer in the population of the Podlaskie Voivodship in the years 2000-2015 in the context of demographic and socio-economic changes.

The study materials included the information about the number of cases of malignant neoplasms in the population of Podlaskie Voivodeship in 2000-2015, derived from the Mz/N-1a Malignant Neoplasm Notification Cards, made available by the Podlaskie Cancer Registration Office, operating within the organizational structure of the Białystok Oncology Center. Data from the demographic and socioeconomic areas, as well as on the number of deaths due to malignant neoplasms in the population of the Podlaskie Voivodship in the analyzed years, were obtained from the databases of the Central Statistical Office (GUS). The scope of the data from 2000 and 2001 was not published in the available databases of the Central Statistical Office and, therefore, the data were obtained for a fee. The study examined the epidemiology of malignant neoplasms in general, as well as lung cancer and colorectal cancer. Selected cancer types were analyzed for their commonness. The epidemiological analysis was carried out using absolute, specific, crude and standardized numbers using the direct method according to the "European standard population" (ASR) of the following

epidemiological measures: incidence, mortality, potentially years of life lost (PYLL). The indicators were calculated by age groups with a division into sex (male/female) and place of residence (urban/rural). In addition, the study calculated average annual incidence and mortality rates. The assessment of changes in risk was carried out using trend analysis with joinpoint models. This method is an extension of linear regression, in which the time trend is expressed by lines connected to each other at the “joinpoints” in which it changes its direction statistically significant way ($p < 0.05$). Based on a linear regression model in which the natural logarithm of the coefficients was the dependent variable and calendar year was the independent variable, the Average Annual Percent Change (AAPC) was determined using which the average APC over a multi-year period was determined. The study examined the relationship between socioeconomic factors and the occurrence of malignant neoplasms using the Statistica 13PL package. Spearman's rank order correlation was used.

The obtained results of the analysis demonstrated the dependence of the epidemiological situation in the area of incidence and mortality in relation to demographic and socioeconomic factors. In the voivodeship over the period 2000-2015, the burden of cancer differed by sex and place of residence. In the male population, a decrease in incidence, mortality and premature mortality is observed, while in the female population, an increase in morbidity and a decrease in mortality and premature mortality are observed. Malignant neoplasms constituted a greater threat to the urban population. In the voivodeship, the risk of incidence and mortality of men and women in urban and rural areas, due to colorectal cancer is increasing. A significant increase in the risk of this cancer is observed in the population of urban and rural women who are middle-aged (45-54 years). Premature deaths due to colorectal cancer are a significant burden for men living in rural areas. In the region, the risk of lung cancer is decreasing in the male population and increasing in the female population, where an increase in risk is observed in the age groups from 55 years of age. Lung cancer is a greater risk among men in rural areas and women in urban areas. Higher levels of incidence and mortality were observed due to malignant neoplasms and colorectal and lung cancer among men than among women, but trend analysis demonstrated that the rate and direction of change in incidence and mortality is more unfavorable in the female population.