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Some epidemiological characteristics of laryngeal cancer in the province of Vojvodina from 1985 to 1996

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The aim of this article was to evaluate, through a retrospective study, the epidemiological situation of in the province of Vojvodina during the twelve-year period of 1985-1996. The data regarding larynx carcinoma were regularly collected and classified in the Cancer Registry of Vojvodina at the Institute of Oncology in Sremska Kamenica. During the observed period 2,076 patients with malignant tumors of the larynx were registered. The average incidence was 16.1/100 000 in male patients and 1.4/100 000 in female patients; the morbidity index according to sex was 11.2:1 (male:female). The study indicated that laryngeal carcinoma was a disease of elderly people, with the peak age in the seventh (65-69) decade of life in men. The average mortality in men was 10.1/100,000 and in females 0.7/100 000. The mortality trend by age showed peaks in males of 65-69, 75-79, 85-89 years of age; in females it had an increasing tendency after the sixth decade of life and was linear in the group of older patients. This study showed an unsatisfactory epidemiological situation for this disease because laryngeal carcinoma is a disease that with adequate prevention (anti-smoking campaign) and early detection can be reduced as a mortality factor and extend life expectancy.

KEY WORDS: *Laryngeal Neoplasms; Epidemiology*

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INTRODUCTION

Malignant diseases are diseases with high case-fatality rates. In overall cause of mortality they are second, following the cardiovascular diseases, constituting 18% of all diseases. Laryngeal carcinoma is not a disease with high frequency, and although the larynx is part of the respiratory tract, malignant tumors at this location are less frequent than the carcinomas of the lower part of the respiratory tract. Laryngeal cancer constitutes 1-3% of all malignant tumors, but in the head and neck region it constitutes 20% of all tumors and is the most frequent in this region. The incidence of malignant tumor of the larynx in males is on the sixth place in the province of Vojvodina, while in females, it is not in the ten most frequent (1).

The province of Vojvodina was included in the registrations of the malignant diseases in the world as early as 1904. However, the data of malignant diseases have systematically been recorded since 1966 when the Province Registry for Malignant Diseases was founded. Today, this registry is a part of the Department of Epidemiology at the Institute of Oncology in Sremska Kamenica. The epidemiological situation of laryngeal carcinoma in the province of Vojvodina is followed through periodical studies of which the last one included the period from 1977 to 1992 (2,3).

Because of the extreme demographic changes that have happened in the last ten years (significant migration and changes in living conditions) which can influence the epidemiological situation connected with the occurrence of a malignant disease, the aim of this article is to evaluate the epidemiological situation of laryngeal carcinoma in the province of Vojvodina in the twelve-year period (1985-1996) through retrospective study.

MATERIALS AND METHODS

In this article, we used data from the Cancer Registry of Vojvodina, Institute of Oncology in Sremska Kamenica covering a twelve-year period (1985-1996).

RESULTS

During the twelve years, from 1985 through 1996, in the province of Vojvodina 2076 patients were registered with malignant tumors of the larynx. More were from the area of Bačka (1040 patients), than area of Banat (712 patients) or the area of Srem (324)

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patients. Most were from the largest towns in the Province: from Novi Sad 252 patients, Subotica 171 patients, Pancevo 141 patients, Zrenjanin 137 patients, Sombor 92 patients. This group makes 38.2% of all registered patients (Table 1.).

Table 1. Number of the new cases of laryngeal cancer in the towns of Vojvodina from 1985 to 1996

Town	Number	Town	Number
Novi Sad	252	Žabalj	29
Subotica	171	Senta	29
Pančevo	141	Beočin	28
Zrenjanin	137	Ada	28
Sombor	92	Novi Bečej	24
Sremska Mitrovica	66	Titel	22
Bačka Palanka	65	Nova Crnja	22
Kovin	61	Temerin	21
Kikinda	59	Srbobran	21
Stara Pazova	58	Pećinci	21
Kovačica	57	Sečanj	20
Vršac	56	Čoka	19
Vrbas	52	Bač	17
Šid	52	Bela Crkva	15
Bečej	50	Kanjiža	14
Kula	46	Irig	14
Indjija	44	Bački Petrovac	14
Odžaci	39	Mali Idjoš	12
Alibunar	39	Sremski Karlovci	11
Žitište	36	Plandište	10
Apatin	35	Opovo	8
Bačka Topola	31	Novi Kneževac	8
Ruma	30		

The average incidence of the laryngeal carcinoma was significantly different between men and women (Figure 1). In males, the average incidence was 16.1/100 000 and in the female group 1.4/100 000 and the sex index in the morbidity was 11.2:1 (male: female).

Incidence in the province of Vojvodina had slowly increased and showed a greater increase in males than in females (Figure 1).

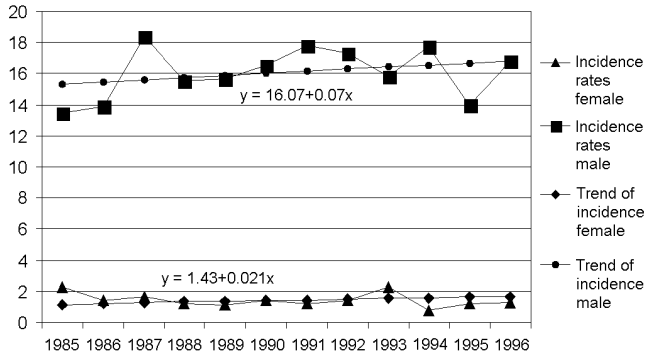

Figure 1. Incidence rates and trends of laryngeal cancer in male and female in province of Vojvodina from 1985 to 1996.

There was a great difference in incidence of laryngeal carcinoma according to age as well. It was a disease of elderly people, with the peak age in the seventh (65-69) decade of life in men. Distribution was similar in females, but the curve was more linear after the sixties (Figure 2).

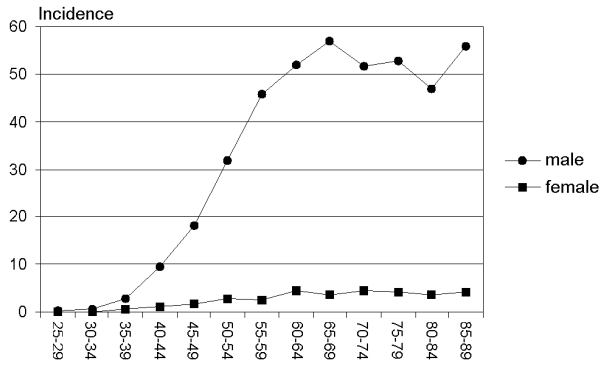

Figure 2. Average age-specific incidence rate of laryngeal cancer in the province of Vojvodina from 1985 to 1996

In overall cause of mortality, laryngeal carcinoma was sixth in males, while in females it was not even in the first ten causes of death. Average mortality rate in men was 10.1/100 000 and in women 0.7/100 000.

The mortality trend showed a slow increase both in males and females (Figure 3).

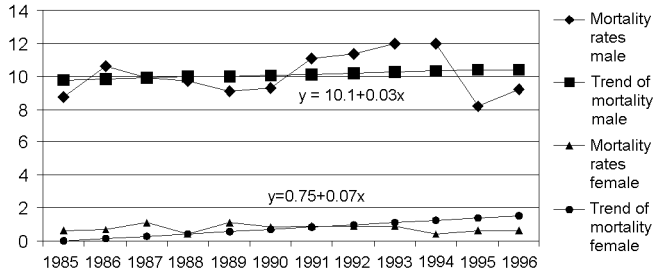

Figure 3. Mortality rates and trends of laryngeal cancer in male and female in the province of Vojvodina from 1985 to 1996

The mortality trend according to age, showed peaks in 65-69, 75-79, 85-89 years in males while in females had an increasing tendency after the sixth decade of life and it was linear in the group of older patients (Figure 4).

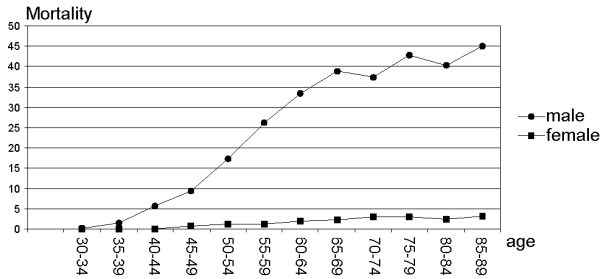

Figure 4. Average age-specific mortality rates of laryngeal carcinoma in the province of Vojvodina from 1985 to 1996

DISCUSSION

It is very difficult to summarize valuable data about the epidemiological situation of some diseases in one region. Difficulties are multiform and because of that, data with respect to level of valid-

ity presents a true picture of the real epidemiological situation at the region involved in registration.

Laryngeal carcinoma is the disease of males, because it occurs twelve times more frequently in males than in females (12:1). If we exclude sex connected malignancies, laryngeal carcinoma is the malignancy with the most unequal sex distribution. There has been a lot of research done in order to discover the reasons for such great difference between the sexes, but they have failed so far (4). Differentiation in the sex distribution is not the result of geographic, climatic, or race characteristics because sex difference presented by other authors from all over the world was 10:1(5, 6) to, 8:1 (7).

Geographic variations in the appearance of laryngeal carcinoma are different in frequency of localization of the cancer inside the larynx. Krejović at al. (4) in Yugoslavia found a predominancy of the supraglottic laryngeal cancer. This localization is presented in Sweden with only 15% of the cases (8).

In the province of Vojvodina most patients (38.2% of cases) come from the five largest towns with the most concentration of the habitants. Some authors published that laryngeal cancer has a higher occurrence in towns than in villages. They connected that with more consumption of tobacco and alcohol in towns and the influence of the other carcinogenic factors, such as air pollution, in the town's environment (8).

With a morbidity of 16.7/100 000 the province of Vojvodina has a high incidence of laryngeal carcinoma. This data differs from those from Parkin et al, (9) where Yugoslavia was presented with an incidence of 13/100 000. These data are higher than those of Shumrich (8) who published an incidence in former Yugoslavia of 6.7/100 000, which placed Yugoslavia with Finland among countries with the highest incidence in Europe. This incidence was higher than in Sweden with an incidence of 2/100 000 and higher than the incidence for the province of Vojvodina, which we presented in our previous paper (2, 3) when the incidence for men was 9/100 000 for the period 1977-1988.

Differences between the data are the result of the influence of many factors. The most important is the registration system, health service organizations, validity of reporting, etc.

We did not notice cyclic variations in incidence of laryngeal carcinoma as some authors presented for other locations (10).

Trend of morbidity showed a moderate increase in males and females.

Laryngeal cancer was a disease of the elderly and not registered in males and females younger than 25 years in the province of Vojvodina in the period 1985 through 1996. In the structure of morbidity the sixth, seventh, and eighth decade of life were predominant without oscillation in occurrence.

Average mortality of 10.1/100 000 was very close with mortality of 9/100 000 which Popov-Dragin at al, (2) presented in a previous paper for Vojvodina (period 1977-1988) and was higher than data of other authors of 3.2/100 000 (4).

If we compare average mortality with morbidity we notice that increased morbidity was not followed by increased mortality, which suggests better quality treatment.

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