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The Incidence of Pharyngeal Cancer in the Republic of Azerbaijan for 2019–2022

Anar N. Mamedov[1]

[1]*Outpatient Chemotherapy Department II, National Center of Oncology of the Ministry of Health of the Republic of Azerbaijan, Baku, Azerbaijan*

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Corresponding author:
Anar N. Mamedov.
Email: olganasirova@list.ru.
ORCID: 0009-0002-5061-1187.

Abstract

Introduction: Pharyngeal cancer is a rapidly progressing disease that leads to disability. Epidemiological studies are one of the components of the anti-cancer measures. Knowledge of the territorial prevalence of tumors allows us to solve the issues of their prevention and early detection.

The **aim** of the present study was Epidemiological analysis of the incidence of pharyngeal cancer in the Republic of Azerbaijan.

Methodology: The analysis of the epidemiological situation was carried out using incidence rate, attack rate and age-standardized rate per 100.000 population from 2019 to 2022 in the Republic of Azerbaijan

Results: The incidence rates of pharyngeal cancer in the Republic of Azerbaijan for the period 2019–2022 were varied in the range 1,0–1,2 (men) and 0,5–0,7 (women). A similar case was observed in attack rates which were 4,9 -5,7 in males, 3,2- 3,5 in females. The highest values of the standardized rates of the incidence of pharyngeal cancer were observed in the age group of 50–59 years and 60–69 years for both sex.

Conclusion: The incidence of pharyngeal cancer remained stable over the study period. The incidence of this form of cancer was relatively higher among men than among women.

Keywords: pharyngeal cancer, morbidity, incidence rate, attack rate, age-standardized rate.

Introduction

Cancer of the mucous membrane of the oral cavity and oropharynx account for up to 3.5% of the total cancer incidence. Since the 80 s of the last century, there has been a steady increase in the incidence of this pathology. The cancer growth aggressiveness in this localization, the high frequency of local and distant metastases leads to high rates of one-year mortality and low long-term survival in these patients [1]. All of this makes this problem one of the urgent problems of modern oncology.

The mucous membrane of the oral cavity and oropharynx, and the underlying tissues, represent an anatomically complex area and determine the specificity of the clinical course and treatment of cancer developing here. Among malignant tumors of the head and neck, cancer of the oral cavity and oropharynx ranks second in frequency after cancer of the larynx. The overall five-year survival rate in patients with cancer of the oral mucosa and oropharynx in stages I-II is up to 45%, but in stage III it reaches no more than 30%. At stage IV of the process, the chances of a long-term recovery from the cancer process are almost minimal. The survival rate for this tumor prevalence is only about 5-11% [2, 3].

Pharyngeal cancer almost always occurs in the squamous cell form. The following variants are rarely observed: basaloid squamous cell carcinoma, undifferentiated carcinoma. In recent decades, the incidence of HPV-related squamous cell carcinoma in the oropharynx has increased 3-4 times, while the incidence of HPV-negative squamous cell carcinoma in the oropharynx has decreased 2 times [4, 5].

Although pharyngeal cancer is traditionally considered a disease of adults, it occurs at a younger age than other squamous cell carcinomas of the head and neck and has a bimodal age distribution. Recently, there has been an increase in the incidence of pharyngeal cancer at a young age, and approximately 6% of this disease is detected before the age of 45 years.In some parts of the world, 20% of pharyngeal cancer cases (especially in men) are detected before the age of 30.

In the United States, pharyngeal cancer is approximately 20 times more common in African Americans than in white-skinned young adults. Pharynx cancer is observed 4-5 times more often in men than in women [4, 6].

It has been noted that smoking and the use of other tobacco products increases the risk of developing pharyngeal cancer, especially carcinoma of the oropharynx and hypopharynx. Excessive alcohol consumption can increase the risk of developing pharyngeal cancer by up to 10 times [7–9]. Dietary factors, especially the consumption of salty foods, are also thought to play a role in the development of pharyngeal cancer [10]. Recently, a lot of evidence has accumulated that there is a definite connection between human papillomavirus (HPV) and pharyngeal cancer. A high risk of developing pharyngeal cancer is also associated with immunodeficiency [11, 12].

Based on the above, the aim of this study was to research the incidence of pharyngeal cancer in the Republic of Azerbaijan for the period 2019–2022.

Materials and methods

The epidemiological situation of the incidence of pharyngeal cancer in the republic was assessed on the basis of statistical data from the National Center of Oncology and statistical reporting forms No. 7 of the Ministry of Health of the Republic for the period 2019–2022. The following indicators were used as analysis indicators: extensive percentage rate among other types of cancer (in %), incidence rate (per 100.000 population), attack rate (per 100.000 population) and age-standardized rate (per 100.000 population). These values are calculated according to the methods used in oncology, as well as according to the method recommended by WHO for quantitative assessment of health status.

Results. Study revealed that in the structure of the incidence of cancer in the population of the republic, pharyngeal cancer during the studied period was insignificant and in terms of the percentage rate varied in the range of 0.8–1.1% in males and 0.4–0.6% in females, and the highest extensive indicator was noted in 2020, both in males (1.1%) and females (0.6%). It should be noted that the incidence rates are higher (3.9 times) in males compared to females (Figure 1)

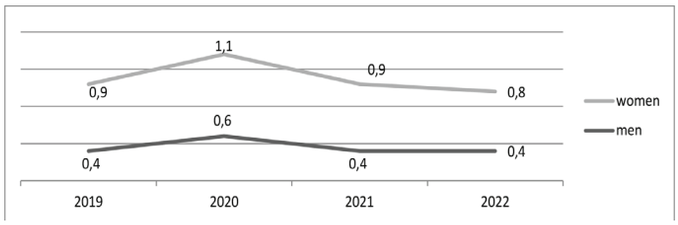

Figure 1 – Percentage rates of pharyngeal cancer in the structure of the incidence of cancer in the Republic of Azerbaijan for 2019–2022 (%)

Incidence is a measure of a disease that allows us to determine the probability of the number of new cases of a disease being diagnosed during a given period. The calculation of the intensity indicator revealed fairly stable values of this indicator for the studied period, both in males, the range was 1,0–1,2 (per 100.000) and in females, this value ranged from 0.5 to 0.7 (per 100.000) The highest level of this indicator was noted, as in the case of the extensiveness indicator, in 2020 for both males (1.2 per 100.000) and females (0.7 per 100.000). A higher incidence rate (1.9 times) was found in males compared to females (Figure 2).

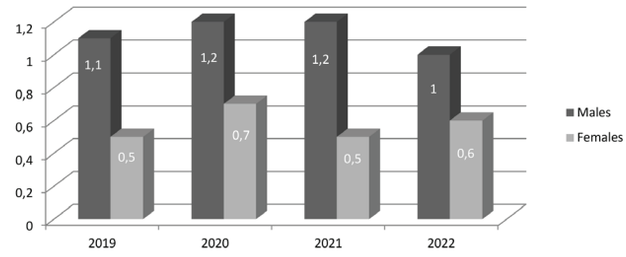

Figure 2 – Incidence rates of pharyngeal cancer in the Republic of Azerbaijan for 2019–2022 (per 100.000)

Attack rate (or prevalence) is a measure of disease that allows us to determine a person's likelihood of having a disease. Therefore, the number of prevalent cases of pharyngeal cancer is the total number of cases of this type of cancer existing in a population.

The range of attack rate was 4.9 -5.7 (per 100.000) in males, and in females – 3,2–3,5 (per 100.000). The highest attack rate was noted in 2022 for both males (5.7) and females (3.5). A higher incidence rate (1.7 times) was found in males compared to females (Figure 3).

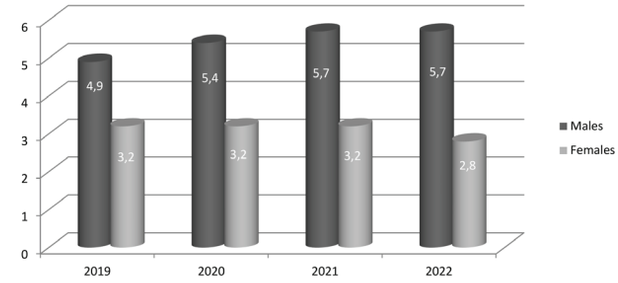

Figure 3 – Attack rates of pharyngeal cancer in the Republic of Azerbaijan for 2019–2022 (per 100.000 population)

Comparisons of incidence rates between time periods are usually more representative if differences in the age structure of the populations are taken into account. This is especially true if the disease being observed varies with age. Age-standardized rates are often used to make such comparisons in oncology because they take into account differences in cancer incidence in the age structure of the populations being compared. Based on this, age-standardized indicators for 2019 and 2022 were calculated to assess the overall incidence of pharyngeal cancer in the Republic of Azerbaijan (Tables 1 and Table 2).

As shown in Table 1, the incidence of pharyngeal cancer in 2019 in the age group 0–17 years was not detected. The lowest values of this incidence were observed in the age group of 18–29 years and 30–39 years in both males – 0.02 and females – 0.02. Starting from the age group of 40–49 years, there is an increase in the incidence of both males (0.3) and females (0.1), reaching a peak in the age group of 50–59 years (0.4) in the case of males and 60–69 years (0.2) – in the case of females. The value of the standardized indicator, regardless of age, was 1.1 for males and 0.5 for females with an excess of 2.2 times.

The values of the age-standardized incidence rate of the population with pharyngeal cancer in 2022, presented in Table 2, also indicate an increase in incidence. The lowest values of this indicator were found only in females, in the age group 0–17 years (0.02).

Table 1 Age-standardized incidence of pharyngeal cancer in the Republic of Azerbaijan for 2019 (per 100.000)

Years	Incidence (per 100 000)		Average standard		Standardized indicator (per 100 000)	
	males	females	males	females	males	females
0–17	-	-	28135,3	24411,2	-	-
18–29	0,1	0,1	20092,1	18804,8	0,02	0,02
30–39	0,1	0,1	16951,7	17262,1	0,02	0,02
40–49	2,3	0,8	12424,2	13100,5	0,3	0,1
50–59	3,1	1,0	12263,5	13626,3	0,4	0,1
60–69	4,1	2,5	6862,1	8033,3	0,3	0,2
70 >	3,1	1,3	3271,1	4761,8	0,1	0,06
	1,1	0,5	100000	100000	1,1	0,5

Table 2 Age-standardized incidence of pharyngeal cancer in the Republic of Azerbaijan for 2022

Years	Incidence (per 100 000)		Average standard		Standardized indicator (PER 100 000)	
	males	females	males	females	males	females
0–17		0,1	27858,6	24217,4		0,02
18–29	0,1	0,5	18681,9	17106, 0	0,02	0,08
30–39	0,2	0,3	17354,3	17732,9	0,03	0,05
40–49	0,9	0,6	12689,0	13220,7	0,1	0,08
50–59	3,9	1,5	11947,5	13390,8	0,4	0,2
60–69	3,0	1,3	7922,7	9231,5	0,2	0,1
70 >	6,1	1,2	3546,0	5100,7	0,2	0,06
	1,0	0,6	100000	100000	0,9	0,6

This is followed by an increase in incidence, the peak level occurs in the age group 50–59 years, both in males (0.4) and in females (0.2), with a subsequent decrease towards the age group 70 >, both in males (0.2) and in females (0.06). The value of the standardized indicator, regardless of age, was 0.9 for males and 0.6 for females.

Discussion

Cancer is the leading cause of death and loss of life expectancy in every country in the world. According to the World Health Organization (WHO) 2019 estimates, cancer is the first or second leading cause of death under age 70 in 112 of 183 countries, and the third or fourth leading cause in another 23 countries. Rising cancer mortality comes amid declining stroke and coronary heart disease mortality rates in many countries [1–3].

Oral cavity and pharyngeal cancer is the sixth most common cancer in the world. Due to widespread tobacco and alcohol use worldwide, oral cavity and pharyngeal cancer (OPC) incidence rates are increasing every year. The estimated annual incidence is about 275,000 for oral cavity cancer and 130,300 for pharyngeal cancer, excluding the nasopharynx, with two-thirds of these cases occurring in developing countries [6–8].

Our study analyzed the incidence rates of pharyngeal cancer in the Republic of Azerbaijan. In the structure of malignant neoplasms incidence in the population of the republic, pharyngeal cancer for the period 2019–2022 was in 9–10 places and in terms of percentage among other types of cancer varied in the range of 0.8% – 1.1% in males and 0.4–0.6% in females. The results of the study showed a slight increase in them during the study period, the values of which varied in men in the range of 1.0–1.2, and in women and 0.5–0.7.

In many countries, the incidence of pharyngeal cancer in men is several times higher than in women. Increased incidence of oropharyngeal cancer was observed both in middle-aged men (40–59 years) and in older men (≥60 years). In Republic of Azerbaijan, the highest values of age-standardized incidence rate of pharyngeal cancer in men were noted in the age group of 50–59 years (0.4), and in women in the group of 60–69 years 0.2.

Thus, the results of the analysis of the situation on pharyngeal cancer in the Republic of Azerbaijan can form the basis for the development of primary and secondary prevention of this type of cancer among the country's population.

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