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Research Article

Gastric Cancer Incidence at the Kyrgyz Republic

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Abstract

Stomach cancer (SC) remains one of the most common diseases in the world. Almost more than 1 million cases are registered annually. In the vast majority of countries, the incidence of SC in men is 2 times higher than in women. The incidence rate varies quite widely-from high rates in Asian countries and low rates in North America, Africa. In this original paper we demonstrated the incidence rate of SC at the former Soviet Union country (Kyrgyz Republic). We analyzed the state of incidence rate in Kyrgyzstan in 462 patients with stomach cancer during 2017. The registered cases of SC were additionally provided with data on the total and sexual population of the studied region. Age-specific or age-specific indicators of morbidity in a certain age class are calculated as the ratio of the number of cases of SC in this age class to the corresponding population multiplied by 100 000. Standardized incidence rates were determined by the direct method of standardization of morbidity rates using the world standard population. In the structure of oncological morbidity of the population of Kyrgyzstan in 2017, the first place was occupied by SC with an intensive (crude) rate of 10.0 per 100 000 population. The highest incidence of SC was registered in the Naryn region-19.6 per 100 000, and the lowest-in the Batken region (5.5). High incidence age specific rates were also noted in the age groups 55-59 and 60-64 years (48.6-58.0 per 100 000, respectively). Incidence rate of SC in male was 2 times high comparing female-22.7 and 10.5, respectively. This results obtained make it possible to form groups of increased risk for stomach cancer and optimize preventive measures.

Keywords: Gastric; Cancer; Kyrgyz Republic

Introduction

Stomach cancer (SC), despite the decline in the incidence, remains one of the most common diseases in the world. Almost more than 1 million cases are registered annually. In the vast majority of countries, the incidence of SC in men is 2 times higher than in women. The incidence rate varies quite widely-from high rates in Asian countries and low rates in North America, Africa [1]. In 2012, 732,000 patients with SC died worldwide [2]. For example, the annual age-standardized incidence rates of SC per 100 000 men are 65.9 in Korea versus 3.3 in Egypt. In the United States, the incidence is relatively low, especially among whites, with an estimated incidence per 100 000 of 7.8 and 3.5 among non-Hispanic white men and women, respectively [3]. Rates also vary by race. For example, in the United States, rates are higher among Hispanics (13.9 per 100 000 men and 8.2 per 100 000 women) than among non-Hispanic whites. Indigenous peoples, especially Inuit in the circumpolar region, Indians in the USA and Maori in New Zealand, suffer from high levels of SC [4].

The incidence of SC is decreasing in most regions of the world. For example, in the United States, the incidence rate decreased by 1.7% for men and 0.8% for women annually from 1992 to 2010. For most of the leading non-communicable diseases, the number

of deaths increased by 42% between 1990 and 2013 (from 27.0 million in 1990 to 38.3 million in 2013), but age-standardized mortality rates decreased. Taking into account changes in the age structure of the world population in the period from 1990 to 2013, the age-standardized mortality rate from non-communicable diseases decreased by 18.6% and by 22% for cardiovascular diseases [5].

Helicobacter pylori plays a major role in gastric carcinogenesis. Colonization of H. pylori leads to chronic gastritis, which transforms into atrophic gastritis, intestinal metaplasia, and dysplasia and eventually into stomach cancer. Screening, treatment and prevention of H. pylori colonization can reduce the incidence of SC. Other factors, such as dietary measures, smoking cessation, low alcohol consumption and adequate physical activity can also give a similar preventive effect, although to a lesser extent [6].

Russia also belongs to the countries with a high incidence of SC, where more than 50 thousand new cases are registered annually. According to literature data, the Russian Federation firmly holds the leading position in the world in terms of mortality from breast cancer (25.1 per 100 thousand), although it is significantly inferior in terms of morbidity to Japan, Chile and China. Every year about 45 thousand Russians die from SC, the annual mortality rate in the Russian Federation is 55.3% and has a steady upward trend. In 2011 in the Russian Federation, 19 031 people died from cancer (11.5% in the structure of cancer mortality), the all-Russian mortality rate was 30.4% higher than the world. In the structure of oncological morbidity in men, SC ranks 2nd (11.4%), among women-3rd (7.7%), in the structure of mortality, SC came in 1st place (16.3%) [7].

Objectives -study of stomach cancer incidence at the Kyrgyz Republic.

Materials and Methods

We analyzed the state of incidence rate in Kyrgyzstan in 462 patients with stomach cancer during 2017. The main directions of descriptive epidemiology are the study of spatial and temporal changes in the frequency of malignant tumors, as well as the calculation of directly or indirectly standardized indicators of the incidence of stomach cancer in the adult population of the republic. Methods of spatial analysis, studies on mapping the frequency of stomach cancer were used. The registered cases of SC were additionally provided with data on the total and sexual population of the studied region. At the same time, information on the size of the adult population in age groups was also used (15-19, 20-24, 25-29, 30-34 ... 80-84, 85 and more years). Information about each case of SC is accompanied by the type of medical institution where the cancer diagnosis was first established. The identification of features in the spread of SC in the adult population was carried out by comparative study of the corresponding indicators of their frequency. This comparison became possible as a result of collecting information, including data on registration, information on hospitalization of patients with SC. Age-specific indicators of morbidity are calculated. Age-specific or age-specific indicators of morbidity in a certain age class are calculated as the ratio of the number of cases of SC in this age class to the corresponding population multiplied by 100 000. Standardized incidence rates were determined by the direct method of standardization of morbidity rates using the world standard population.

Results

In the structure of oncological morbidity of the population of Kyrgyzstan in 2017, the first place was occupied by SC with an intensive (crude) rate of 10.0 per 100 000 population, breast cancer was in second place (8.5) and cervical cancer was in third place (7.2) table. 1. In comparison with 2001, the rate decreased from 13.6 to 10.0 per 100 thousand. Perhaps this was due to the low level of early diagnosis and insufficient organization of accounting and registration of cancer patients.

Geographical variability in the distribution of rye was noted in the Kyrgyz Republic. Regions with high, medium and low levels of stomach cancer incidence were noted. By region, the highest incidence of SC was registered in the Naryn region-19.6 per 100 thousand population (2017), and the lowest-in the Batken region (5.5).

When studying the extensive indicator among the male population, SC also took 1st place (16.1%), among the female population, SC was in 3rd place-7.4%. Stomach cancer also took the first place in the structure of mortality (10.0%). In the Kyrgyz Republic, low rates of early diagnosis (17.6%), high rates of neglect (35.3%) and one-year mortality (81.7%) were noted.

In the Kyrgyz Republic, age-related variability in the incidence of SC was noted. From fig. No. 1 shows that the highest intensive incidence rates of breast cancer by age were noted at the age of 65-69 years and amounted to 116 per 100 000 population. However, it should be noted that relatively high incidence rates were also not-

Regions	Years	Total	Esophageus	Stomach	Pulmon	Breast	Cervical	Rectum	Prostate	Skin
Republic	2016	3585	2.6	10.9	7.4	7.1	7.2	1.8	2.4	1.0
	2017	3501	2.4	10.0	6.8	8.5	7.2	1.5	1.0	1.1
Chuy	2016	777	2.5	13.3	12.0	16.3	15.2	2.5	6.5	4.4
	2017	706	2.4	11.1	11.7	10.5	12.9	3.0	2.2	2.1
Talas	2016	151	3.5	15.0	7.5	4.7	9.5	0.3	0.7	0.7
	2017	155	3.5	10.5	7.7	5.5	11.7	1.1	0.3	0.3
Issyk-Kul	2016	323	2.5	14.7	8.2	9.6	10.0	2.3	1.4	1.2
	2017	344	2.7	12.0	8.9	7.8	11.1	2.0	1.1	0.8
Naryn	2016	238	3.2	19.6	12.5	9.4	10.1	2.5	1.4	2.5
	2017	216	3.8	15.5	7.0	7.2	20.8	1.4	1.0	1.4
Osh	2016	785	5.3	12.9	7.7	4.1	5.5	1.8	0.7	0.7
	2017	689	3.3	10.1	6.3	5.4	4.1	1.1	0.6	1.4
Jalal-Abad	2016	488	1.9	9.1	4.8	6.0	6.0	0.7	0.5	0.6
	2017	537	2.6	9.5	4.7	6.9	6.3	0.8	0.5	0.9
Batken	2016	184	2.0	6.0	3.2	3.2	6.9	0.8	-	1.2
	2017	162	2.1	5.5	3.5	4.0	5.2	1.1	-	0.7

Table 1: Incidence of malignant tumors in the population of the main sites for 2016-2017 (per 100 000 population).

ed in the age groups 55-59 and 60-64 years (48.6-58.0 per 100 000, respectively). The incidence curve of SC has a gradually increasing appearance, reaching a peak at 65-69 years, then sharply decreases with increasing age (70-74 years and beyond). The crude or intensive incidence rate of SC decreased from 116 to 34 per 100 000 SC was registered at the level of 9 per 100 thousand of the corresponding population. When calculating standardized rates, there was 16.5 per 100 000, and the standardized indicator for the world standard population was 13.8.

Figure 1: Age groups crude rates in stomach cancer incidence (2017).

In the Kyrgyz Republic, the variability of SC by gender was also noted. Table 2 presents age-related indicators of the incidence of stomach cancer in men in Kyrgyzstan for 2017. According to Table. 2 it can be seen that in men the intensive indicator is relatively high and is equal to 22.7 per 100 thousand of the male population, and in women it is equal to 10.5 per 100 thousand of the corresponding population.

Age index (i)	Age-group	Number of registered cases (ri)	population (ni)	Age rate (ri/ni)
1	0-4	0	400 132	0
2	5-9	0	337 249	0
3	10-14	0	270 624	0
4	15-19	0	253 845	0
5	20-24	1	287 184	0.4
6	25-29	0	292 326	0
7	30-34	6	245 586	2.4
8	35-39	15	192 495	7.8
9	40-44	19	166 054	11.4
10	45-49	32	153 212	20.9
11	50-54	77	138 110	55.8
12	55-59	81	120 612	67.2
13	60-64	82	76 677	107.0
14	65-69	59	47 679	123.7
15	70-74	73	18 987	384.5
16	75-79	12	21 733	55.2
17	80-84	4	10 980	36.4
18	85+	1	9 025	11.1
Total		462	2 034 505	22.7

Table 2: Age-related indicators of the incidence of stomach cancer in men in Kyrgyzstan for 2017.

The highest age-related incidence rate of men with SC was registered in the age group of 70-74 years, which was equal to 384.5 per 100 thousand of the corresponding age group. A relatively high incidence rate was also noted in the age group of men 65-69 years-123.7 per 100 thousand. In third place was the age group of men 60-64 years old with an incidence rate of 107.0 per 100 thousand of the corresponding age. Age-related rough indicators of the incidence of SC in women are presented in table 3.

Age index (i)	Age-group	Number of registered cases (ri)	population (ni)	Age rate (ri/ni)
1	0-4	0	378 270	0
2	5-9	0	322 832	0
3	10-14	0	260 263	0
4	15-19	0	244 864	0
5	20-24	0	276 386	0
6	25-29	0	289 067	0
7	30-34	2	243 252	0.8
8	35-39	3	191 510	1.6
9	40-44	10	173 089	5.8
10	45-49	14	163 369	8.6
11	50-54	18	153 532	11.7
12	55-59	29	138 643	20.9
13	60-64	44	95 769	45.9
14	65-69	41	65 711	62.4
15	70-74	59	27 811	212.0
16	75-79	4	35 967	11.1
17	80-84	1	20 659	4.8
18	85+	0	16 696	0
Total		225	2 136 325	10.5

Table 3: Age-related indicators of the incidence of stomach cancer in women in Kyrgyzstan for 2017.

When comparing crude rates in men and women in almost all age groups, the incidence in men was 2 times higher (Figure 2). At the same time, the incidence curves by gender also coincided in form.

Conclusion

Thus, the incidence of stomach cancer in the Kyrgyz Republic is relatively high and crude (intensive) rates in 2017 amounted to 16.5 per 100,000 population (both sexes), and standardized rates for the world population amounted to 13.8 per 100 000 population (both sexes). In the Kyrgyz Republic, men fell ill 2.2 times more often than women-22.7 and 10.5 per 100 thousand of the corresponding population.

Figure 2: Comparative characteristics of age-related indicators of the incidence of stomach cancer in both sexes.

The incidence of stomach cancer increases with age. The peak incidence is in the age group of 65-69 years (116 per 100 thousand population). The data obtained make it possible to form groups of increased risk for stomach cancer and optimize preventive measures.

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