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Review article

Epidemiology of Gastric Cancer in the World and in Uzbekistan

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Abstract

Stomach cancer is also one of the most common tumors in the world. The incidence in men is almost twice as high as in women. This trend can be seen all over the world. In total, more than 1 million cases of stomach cancer were reported in 2020. Cancer also has a high mortality rate, about 80% of newly diagnosed patients die. Gastric cancer incidence rate is high in Asian countries.

The purpose of the study is to research the main morbidity and mortality rates for stomach cancer in the world and in Uzbekistan in recent years.

This article was analyzed based on stomach cancer data provided by GLOBOCAN 2020 and the The International Agency for Research on Cancer, as well as other available bibliography.

Data from a bibliography analysis showed that the incidence of stomach cancer in the world and in Uzbekistan remains high. Mortality rates from stomach cancer are high in Asian countries, and this is most likely due to the prevalence of Helicobacter pylori in Asia.

Key words: stomach cancer, morbidity, mortality, cancer epidemiology.

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Introduction

Stomach cancer (SC) is still a pressing problem in medicine. This is due to high morbidity rates, increased mortality, insufficient registration of primary cases, unsatisfactory treatment results, and continued exposure to adverse environmental factors [1,2]. The incidence of stomach cancer in men is almost twice as high as in women. This trend can be seen all over the world. In total, more than 1 million cases of GC were registered in 2020 [3,4]. GC also has a high mortality rate - about 80% of newly diagnosed patients die.

In the world, there is a pronounced uneven distribution of SC across regions, as with other main forms of cancer. SC incidence rate is high in Asian countries [4].

The uneven distribution of gastric cancer can be interpreted with the influence of numerous exogenous and

endogenous risk factors that contribute to the occurrence of stomach cancer. These include the nature and diet, lifestyle, genetic, environmental and socio-demographic factors [5-8]. *Helicobacter pylori* infection increases the risk of cancer [7]. Numerous epidemiological studies show that the above factors have geographic variability, and the incidence of stomach cancer tends to decrease [7-9], which is certainly associated with the success of the prevention and diagnosis of this pathology.

Purpose of the study: to research the main morbidity and mortality rates for stomach cancer in the world and in Uzbekistan in recent years.

Methodology

The bibliography review was conducted based on data presented by GLOBOCAN 2020 [10] and the International Agency for Research on Cancer (IARC) [11]. When preparing the bibliography review, a research of available bibliography was also carried out using the

keywords <stomach cancer>, <Incidence>, <mortality>, <prevalence> in the following databases, such as Cochrane Library, PubMed, Medline Complete, Wiley Online Library, Springer Link, Google Scholar, Elibrary since 2020.

Current epidemiological indicators of stomach cancer in the world

According to GLOBOCAN 2020 [10], the incidence of SC in the world was 1,089,103 (5.6%) cases, and the mortality rate was 768,793 (7.7%). The highest incidence rates by gender were observed in East Asian countries, where the rate among men was 32.5 per 100,000 population and among women was 13.2. The overall incidence rate for 2020 in these countries was 22.4 per 100,000 population, and the mortality rate was 14.6. The lowest incidence rates were observed in the countries of Southern Africa

(morbidity was 3.3, mortality was 2.9) (Figures 1-3). Thus, the highest mortality rates are observed in East Asia and Eastern Europe.

Later, high rates of SC incidence and mortality from this type of cancer pathology were also noted to be high in the studies of Siegel R L. et al (2023) and Chhikara B.S. et al (2023) [2,3].

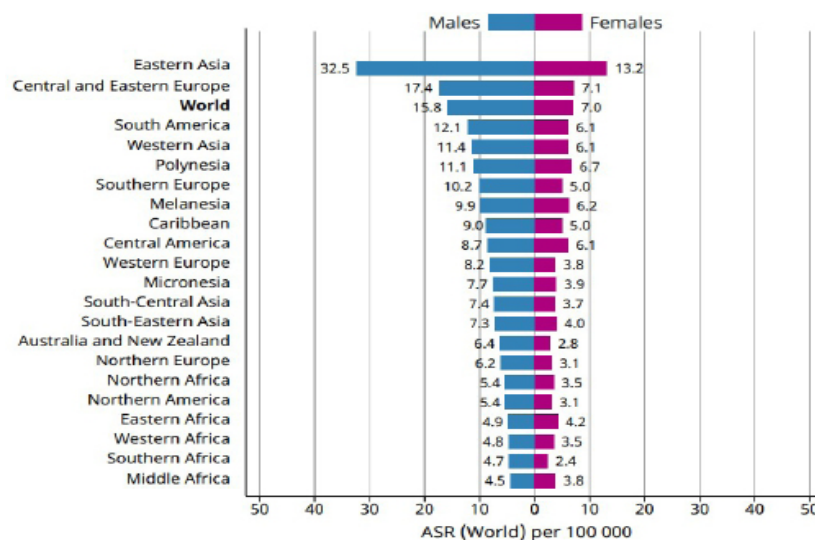


Figure 1 - Age standardized (World) incidence rates, by sex [10]

The probability of stomach cancer development increases with age, with most cases occurring in people over 50 years of age. According to the American Cancer Society, the average age of diagnosis is 68 years. Men are more likely to have stomach cancer than women. The ratio of men to women among patients with stomach cancer is approximately 2:1 [12-14].

There is also some difference in the probability of stomach cancer development depending on ethnicity.

For example, stomach cancer is more common in Asian countries such as Japan, Korea, and China. There it is one of the most common types of malignant neoplasms. Stomach cancer is less common in Western countries but is still a significant problem. It is especially common among certain ethnic groups, such as Hispanics and African Americans [3,9,15].

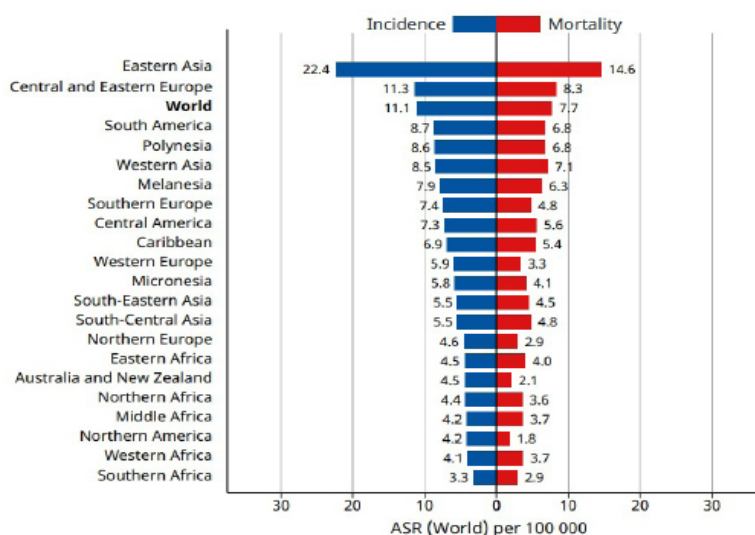


Figure 2 – Age standardized (World) incidence and mortality rates [10]

In the Russian Federation, the prevalence of stomach cancer is comparatively lower than in the countries of the Asia-Pacific region, however, the one-year mortality rate is very sad and reaches 49.8%. Some authors associate this

with the late presentation of patients. According to Skopin P.I. et al. (2022) only 10% of all new cases (SC stages I-II (stage) are detected in only 30%, and in 48% of cases SC is detected at stage IV) [7].

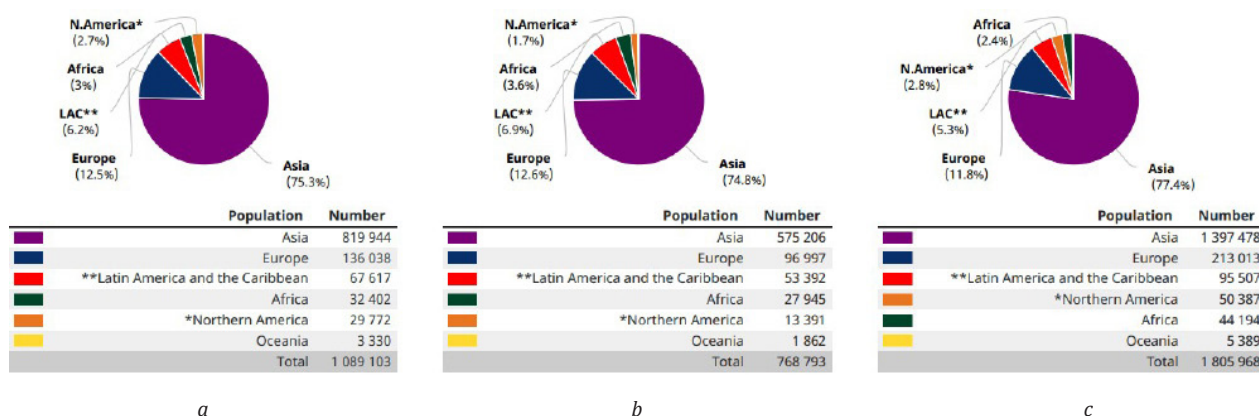


Figure 3 – (a) Incidence, (b) mortality and (c) 5-year prevalence, both sexes [10]

The largest number of cases of gastric cancer occurs at the age of 50-60 years; 25% of cases occur at the age of 40-50 years. The incidence of gastric cancer among men is 2 times higher than among women. Thus, the dynamics of

the incidence of gastric cancer in Russia has recently been decreasing but remains high, in Russia 13.4 per 100,000 population [7,16].

Incidence and mortality rates from stomach cancer in Uzbekistan

SC incidence rates in Uzbekistan also remain high. According to Tillyashaykhov M. N. et al. (2021) according to the incidence rate of SC was 5.1 per 100,000 population,

ranking second after breast cancer and showing a leading position among the male population of the country (6.2 per 100,000 men).

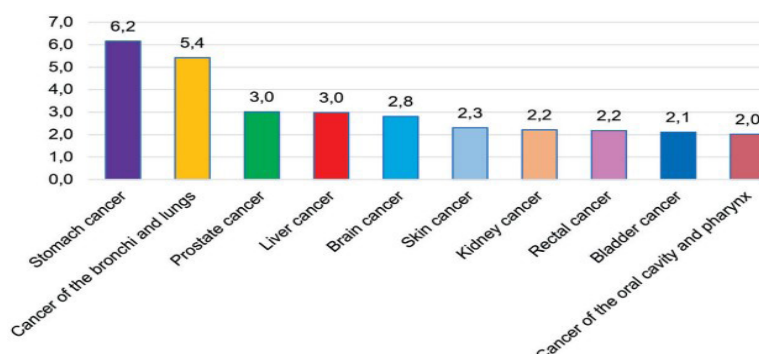


Figure 4 – The structure of male cancer incidence in the Republic of Uzbekistan, 2020 [18]

Noteworthy is the fact that SC belongs to the category of oncopathologies, which are more common in the age group of 30-45 years, among men the share of SC was 8.0% and was included in the big five, and among women was 3.8% [18] (illustration 4).

In 2015, 1,826 new cases of stomach cancer were identified in Uzbekistan, and in 2019 there was an increase in new cases, it was 1,895. The increase compared to 2015 was 3.6%. In 2015 and 2019, the incidence rate per 100,000 population was 5.8 [17, 18].

Compared to 2019, the highest incidence was in the city of Tashkent, the Republic of Karakalpakstan and the Tashkent region with rates of 10.1; 8.5 and 7.5, respectively, and the lowest was in Syrdarya (3.6), Navoi (3.8) and Namangan (4.1) regions. Unfortunately, in 55-60% of patients in our Republic, stomach cancer is diagnosed in advanced stages III-IV. According to statistics,

Conclusion

Thus, the literature analysis data showed that the incidence of stomach cancer in the world and in Uzbekistan remains high. Mortality rates from gastric cancer are high in Asian countries, and this is most likely due to the prevalence of *Helicobacter pylori* in Asia.

Knowledge of the basic patterns of the spread of cancer in certain regions contributes to the timely

18-25% of them are patients with stage IV, when palliative chemotherapy or symptomatic therapy is the priority treatment method. No more than 38% are patients with stage III, where it is still possible to save or extend the patient's life for several years [17-19].

We also attempted to relate incidence rates to risk factors. Although in many studies *Helicobacter pylori* is the number one carcinogenic agent, the incidence of gastric antral cancer of the total number was no more than 12.1%, which shows the low significance of *Helicobacter pylori* for the development of gastric cancer among individuals in the Uzbek population. The authors think that this issue, taking into account customs, life and mentality, requires a more in-depth study [20,21].

Thus, we provide indicators of regional and age-sex characteristics of SC in Uzbekistan in recent years.

implementation of preventive measures aimed at reducing morbidity levels and elucidating the etiological causes and possible pathogenetic aspects of the development of oncopathology in each localization.

Conflict of interest. None.

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Асқазанның қатерлі ісігінің әлемдегі және Өзбекстандағы эпидемиологиясы

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Түйіндеме

Асқазанның қатерлі ісігі де әлемдегі ең көп таралған ісіктердің бірі болып табылады. Ерлердегі ауру әйелдерге қарағанда екі есе дерлік жоғары. Бұл үрдісті бүкіл әлемде байқауға болады. Жалпы, 2020 жылы 1 миллионнан астам асқазан қатерлі ісігінің жағдайы тіркелді. Асқазанның қатерлі ісігінен де өлім-жітім жоғары - жаңадан анықталған науқастардың шамамен 80% қайтыс болады. Азия елдерінде асқазанның қатерлі ісігімен ауыру деңгейі жоғары.

Зерттеудің мақсаты – әлемде және Өзбекстанда соңғы жылдардағы асқазан қатерлі ісігінің негізгі сырқаттанушылық пен өлім-жітім көрсеткіштерін зерттеу.

Бұл мақала GLOBOCAN 2020 және Онкологиялық зерттеулер жөніндегі халықаралық агенттік ұсынған асқазан қатерлі ісігі деректеріне, сондай-ақ басқа да қолжетімді әдебиеттерге негізделген.

Әдебиеттерді талдау деректері әлемде және Өзбекстанда асқазан қатерлі ісігімен сырқаттанушылық әлі де жоғары деңгейде екенін көрсетті. Асқазан қатерлі ісігінен болатын өлім-жітім деңгейі Азия елдерінде жоғары және бұл, ең алдымен, Азияда *Helicobacter pylori* таралуына байланысты.

Түйін сөздер: асқазан обыры, эпидемиология, аурушаңдық, өлім-жітім.

Эпидемиология рака желудка в мире и в Узбекистане

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Резюме

Рак желудка также входит в число наиболее распространенных опухолей в мире. Заболеваемость у мужчин почти в два раза выше, чем у женщин. Такая тенденция прослеживается во всем мире. Всего в 2020 году зарегистрировано более 1 млн случаев рака желудка. При раке желудка отмечена также высокая смертность – умирают около 80% от числа впервые выявленных больных. Показатели заболеваемости раком желудка высоки в азиатских государствах.

Цель исследования – изучить основные показатели заболеваемости и смертности при раке желудка в мире и в Узбекистане за последние годы.

В данной статье был проведен анализ на основе данных по раку желудка, представленных GLOBOCAN 2020 и Международным агентством по исследованию рака, а также другой доступной литературы

Данные анализа литературы показали, что заболеваемость раком желудка в мире и в Узбекистане все еще остаются высокими. Смертность от рака желудка в странах Азии высокие, и, вероятнее всего, это связано распространенностью *Helicobacter pylori* в Азии.

Ключевые слова: рак желудка, эпидемиология, заболеваемость, смертность.