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Prevalence and Epidemiology of Breast Cancer in Bukhara Region

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Annotation. This article provides information on the prevalence and epidemiology of breast cancer in the Bukhara region. The data was taken on the contingent of patients with malignant neoplasms of the mammary gland registered in oncological institutions of the Bukhara region in 2021.

Key words: malignant neoplasms, mammary gland, cancer, epidemiology.

Relevance. The results of epidemiological studies conducted in different countries indicate that breast cancer (BC) is one of the most common forms of cancer in the general population and the most common malignant neoplasm in women. Every year, up to 1 million new cases are detected worldwide. According to Professor M.N. Tillyashaykhova, in the Republic of Uzbekistan at the end of 2021, 113,168 (in 2020 – 107,196) patients were registered in oncological institutions, i.e. 0.3% of the country's population. It should be noted that currently breast cancer ranks first in the structure of cancer incidence in the female population. In this regard, clarifying the epidemiological situation and developing criteria for assessing the risk of developing breast cancer is an urgent task [1]. Along with the registered dynamics of increasing incidence, there is also an improvement in early diagnostic and screening methods, which make it possible to identify patients with precancerous diseases and the initial stages of malignant processes. Risk factors and methods of prevention are being actively studied, global WHO programs are being developed, such as “Cancer prevention and control in the context of an integrated approach” and “Global action plan for the prevention and control of non-communicable diseases”, treatment regimens are being improved, which allows preserving health of patients, as well as increase life expectancy [1]. Today, there is a wealth of data showing the influence of lifestyle and environmental factors on the development of breast cancer. These factors include a high-fat diet, alcohol consumption, and lack of physical activity. These factors can be corrected and will reduce morbidity and mortality [A.B. Shertaeva, 2022].

Endogenous risk factors for breast cancer include place of residence before diagnosis, age at menarche, pregnancy history, breastfeeding, and lactation. Among the exogenous ones are taking contraceptive drugs, taking hormonal drugs, number of sexual partners, family history, smoking and alcohol.

Abortion is considered an undeniable risk factor. It not only injures the uterus, but also causes various disorders in the hypothalamic-pituitary-ovarian system, and interrupts the physiological proliferative processes in the mammary glands [2]. If we talk about breastfeeding, it has a protective effect against breast cancer, apparently due to physical changes in the gland tissue during milk production, interruption of ovulation and changes in the nature of the secretion

of pituitary and ovarian hormones under the influence of lactation [3]. Up to 7.3% of women under 45 years of age with breast cancer are pregnant or lactating [9]. These factors can be corrected, which entails a reduction in morbidity and mortality [5]. Secondary prevention methods, including diagnostic tests such as mammography, ultrasonography, magnetic resonance imaging, allow early detection of tumors or conditions predisposing to the development of tumors[6][7]. There is evidence that one in eight women in the world will develop breast cancer, but only 5–10% of all cases of this cancer are associated with genetic disorders, while the remaining cases are attributed to environmental and behavioral factors[10][11][12] [13]. Genetic and environmental factors working together are known to significantly increase the risk of breast cancer. Environmental and behavioral factors often include: ionizing radiation, hormonal therapy, reproductive behavior (eg, late age at first birth)[14][15], alcohol, dietary factors, obesity and physical inactivity[16][17][18][19]. Also, risk factors often include age and a history of malignant tumors in the family, especially with regard to breast cancer [20][21][22].

Most patients with breast cancer are the only family member, as most cases are associated with environmental or lifestyle factors. Less than 15% of women with breast cancer have a first-degree relative with the disease, and only a small proportion of the population has inherited germline mutations that increase the risk of developing cancer throughout life. The presence of mutations in each gene is rare, but collectively these mutations account for a significant proportion of hereditary cancer susceptibility in the population[33]. Mutations in two highly penetrance genes, BRCA1 and BRCA2, account for the majority of hereditary breast cancers and about 5–10% of all breast cancers[34]. Men and women with BRCA1/2 mutations are at increased risk of breast cancer. Additionally, BRCA1/2 mutations account for approximately 15% of ovarian cancers. Collectively, the inherited tendency to develop cancer associated with BRCA1/2 mutations is known as hereditary breast-ovarian cancer syndrome. In addition to these germline mutations, somatic BRCA1/2 mutations have also been described in ovarian cancer[35]. Mutations in a number of other genes, including PTEN, TP53, STK11, CDH1 and PALB2, have been found to increase the risk of developing breast cancer.

Certain foods and nutrients such as carbohydrates, saturated fat, and red meat are considered potential risk factors for breast cancer because they increase circulating levels of insulin-like growth factor (IGF-1) and proinflammatory cytokines. In contrast, fiber, ω-3 polyunsaturated fatty acids (PUFAs), and vitamins C and E may play a protective role by reducing the effects of oxidative stress.

Purpose of the study. The purpose of this study is to determine the prevalence and epidemiology of breast cancer in the Bukhara region.

Materials and methods. The data was taken on the contingent of patients with malignant neoplasms of the breast gland registered in oncological institutions of the Bukhara region in 2021.

Research results. The incidence rate of MN per 100,000 population in the Republic of Uzbekistan was 74.0 (to calculate all indicators, data from the State Committee of the Republic of Uzbekistan on Statistics on the average annual population by region for 2021 was used). In 2021, the highest incidence rates per 100,000 population were identified for breast cancer (12.0), stomach (5.6) and cervical cancer (5.3). Among the female population: malignancies of the breast (24.0), cervix (10.6) and ovary (5.7 per 100,000 population).

Information on the contingent of patients with malignant neoplasms of the breast gland registered in oncological institutions of the Bukhara region in 2021

Abs.number of	Per 100,000	Actively	Diagnosis	1-year mortality

detected cases	population	detected (%)	confirmed morphologically (%)	(%)
327	16,8	45,6	93,0	7,1

Distribution by disease stages (%)

I	II	III	IV	Registered at the end of the year (total)		
				Absolute number	Per 100,000 population	Of which 5 years or more (%)
7,0	60,2	18,0	14,7	1884	96,8	46,1

Information about patients who died from malignant neoplasms of the breast gland (C50) in the Bukhara region in 2021

Absolute number	men	women	Total	Rate per 100,000 population.
	1	72	73	7,5

Oncological incidence of the breast gland in the population of the Republic of Uzbekistan for 2015-2021 (per 100,000 population)

	years						
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Total MN	18,8	18,6	19,9	22,0	22,5	19,7	24,2

Conclusion. In conclusion, creating individual patient profiles and managing modifiable risk factors may be the most optimal prognostic and preventive strategy to prevent the occurrence of new cases of the disease.

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