DIAGNOSIS OF PROSTATE CANCER IN THE CONDITIONS OF THE BUKHARA REGION

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

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

Relevance. Prostate cancer (PC) remains a major public health problem worldwide, as it is associated with high morbidity and mortality rates. According to the World Health Organization, in 2018, 1.3 million new cases of the disease and 359 thousand deaths were registered, and therefore prostate cancer was the 2nd most common malignant neoplasm (MNC) and the 5th leading cause of death from cancer in men all over the world [Startsev V.Yu., et al., 2022, Popov S.V., et al., 2023]. In high income regions (HIC), the highest incidence rates of this malignant neoplasm have been reported [Torre LA, Siegel RL, Ward EM, Jemal A., 2016]. Mortality rates from prostate cancer are declining in some HIC regions, while in low and middle income countries (LMIC) they are trending upward. The incidence rate of prostate cancer increases manifold in men who change their place of residence from countries with a low risk of developing this pathology to countries with a high risk [Bleyer A, Spreafico F, Barr R., 2019]. Despite the improvement of prostate cancer diagnostic methods and the introduction of prostate-specific antigen (PSA) level monitoring in a number of clinics, the incidence of advanced forms of prostate cancer remains high. Prostatic intraepithelial neoplasia (PIN) plays an important role in the development of prostate cancer. Prostate cancer is detected in 30% of cases in patients with previously identified high-grade PIN [Kogan M.I., 2016]. At the same time, a strong correlation between PIN and benign prostatic hyperplasia has been proven. Studying the totality of these processes can provide the key to further understanding the pathogenesis of prostate cancer and other cancers [Fokin I.V., 2021]. An important factor in the early development of prostate cancer is considered to be burdened heredity with a dominant male line. To date, new variants of this disease that are genomically associated with PSA have been identified [Schaid DJ, et.al., 2021]. In a two-stage study, D.J. Schaid et al. (2021) at the first stage, potential risk alleles were identified among men with prostate cancer with a family

history (491 cases with prostate cancer + 429 control cases of prostatic hyperplasia, prostatic hyperplasia). Multivariate analysis was based on Gleason score, tumor size, presence of metastases, tumor stage, PSA level at diagnosis, systemic relapse, and time to death from first PSA diagnosis. At the second stage, using an individual model, a number of genes were identified: the role of activation of genes associated with PSA, both known (ATM, BRCA2, HOXB13, FAM111A, EMSY, HNF1B, KLK3, MSMB, PCAT1, PRSS3 and TERT) and new (PABPC1, QK1, FAM114A1, MUC6, MYCBP2, RAPGEF4, RNASEH2B, ULK4, XPO7 and THAP3) [13]. Recent studies have shown that the combination of PCA heritable factors with an environmental quality index (EQI) increases the impact of each criterion risk of tumor development [Jagai JS, et.al., 2019]. Exogenous EQI factors have the ability to interfere with and/or alter biological processes such as hormone excretion and function, inflammation, DNA damage, and gene silencing/overexpression. The analysis proved the relationship between environmental factors and the rate of development of prostate cancer (CI 34,84 – 53,54) with concomitant drug therapy, metabolic syndrome and inflammatory diseases of the genitourinary system. An important role for the early diagnosis of prostate cancer is traditionally assigned to the characteristics of a person's diet, associated with an increased content of inflammatory factors in food (IL-6, C-peptide) and a hyperinsulinemic diet, which is accompanied by an increase in the level of glycated hemoglobin (HbA1C). Hyperinsulinemia and inflammation are two interrelated biological pathways that link diet to the development of PCA. According to a study over 28 years of observation of 41,209 men working in medical institutions, 5,929 cases of prostate cancer were registered, of which 667 cases were fatal [Fu BC, Tabung FK, Pernar CH, 2021]. For each standard deviation of the hyperinsulinemic diet, the risk of PCA progression was 7% higher (HR: 1.07; 95% CI: 1.01 – 1.15) and the risk of death was 9% higher (HR: 1,09; 95% CI: 1,01 – 1,15). 95% CI: 1.00 – 1,18). A high-inflammatory diet was associated with a lower risk of advanced prostate cancer in an age-adjusted model, but there was no significant association between dietary adjustment and prostate cancer in the overall study population. Some data indicate a clinically significant relationship between the risk of developing prostate carcinoma and the patient's lifestyle at any age and his diet [Zuniga KB, Chan JM, 2019]. The role of green tea catechins, tomato lycopene and other products that can model carcinogenic pathways of response to oxidative stress is suggested. Omega-3 fatty acids, foods high in saturated fat, ellagitannins in pomegranate extract, foods containing isoflavones, genistein and daidzein, vitamins and mineral supplements, selenium and much more all have some effect on the development of prostate cancer.

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.

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

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

Research results. The highest rates were detected for MN among the male population for MN of the stomach (7,0), bronchi and lung (6,3) and prostate gland (3,6 per 100,000 population). The frequency of detection of tumors in the early (I-II) and late (III-IV) stages is the most important indicator of the organization of medical care, including the activities of clinics, offices of district oncologists, hospitals, their material and technical equipment, the state of sanitary education work with the population, oncological training of medical personnel, etc. The indicator of neglect (stage IV) of the prostate gland

was 29,3%. The rate of late diagnosis of prostate cancer among men in the Bukhara region in 2021 was 79,3%.

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

Abs.number of detected cases	Per 100,000 population	Actively detected (%)	Diagnosis confirmed morphologically (%)	1-year mortality (%)
58	3,0	0,0	70,7	24,3

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 (%)
1,7	3,4	15,5	79,3	125	604	17,6

Information about patients who died from malignant neoplasms of the prostate gland (C61) in the Bukhara region in 2021

Absolute number	men	women	Total	Rate per 100,000 population.
	24	0	24	205

Oncological incidence of the prostate 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	23,4	19,4	20,7	23,4	20,5	25,1	29,3

Conclusion. Diagnosis and treatment of young men (under 50 years old) with prostate cancer are of great medical, social and economic importance. It is necessary to develop standardized examination algorithms based on the results of molecular genetic studies in combination with anthropometric, genetic, environmental, racial, dietary and somatic factors of the individual. Taking these factors into account will ensure timely detection of aggressive forms of prostate carcinoma in young and middle-aged men. In turn, this will allow maintaining the working capacity of the male population of reproductive age and fully taking into account medical expenses to ensure the upcoming treatment process.

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