

SMOKING AND BLADDER CANCER

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Abstract:

The article reviews the evidence of a connection between smoking and the following types of urological cancer: prostate, bladder and kidney cancer.

Keywords: cancer, smoking, radiation and aromatic amines, tumor, risk.

Bladder cancer (BC) is the 5th most common malignancy in men worldwide and the 11th most common cancer in both sexes. The global age-standardized incidence rate (per 100,000 people/year) is 9.0 for men and 2.2 for women, and in the European Union it is 19.1 for men and 4.0 for women.

Cigarette smoking, ionizing radiation, and aromatic amines are the main established risk factors for the development of bladder cancer. Tobacco smoke contains aromatic amines and polycyclic aromatic hydrocarbons, which are excreted by the kidneys. Occupational exposure to aromatic amines, polycyclic aromatic hydrocarbons, and chlorinated hydrocarbons is the second leading risk factor for bladder cancer, accounting for about 10% of all cases.

Among all malignant tumors of the genitourinary system, bladder cancer is most closely associated with smoking. In 1955, Holsti first showed that oral exposure to tobacco tar increased the risk of papillary bladder tumors in mice. It has now been established that nitros-amines and polycyclic aromatic hydrocarbons present in cigarette smoke are carcinogens and cause various tumors of the genitourinary system. There is growing evidence that the risk of cancer depends on genetic polymorphisms that determine the metabolism or activation of carcinogens. These processes are regulated by various enzymes, including cytochrome P450, glutathione - S - transferase and N- acetyltransferase. There is evidence to suggest that the risk of malignancy may be dose dependent and may decrease after smoking cessation.

It is interesting to note that, in my data, patients who continue to smoke during intravesical chemotherapy or immunotherapy for recurrent non-invasive bladder cancer have lower treatment success rates than patients who quit smoking before treatment. Patients who quit smoking during treatment but resume smoking after treatment are more likely to have bladder cancer recurrence.

The epidemiology of kidney cancer is less well understood than the epidemiology of bladder cancer. Until the last decade, there was virtually no data on the

mechanisms of kidney cancer development, with the exception of rare hereditary forms of the disease. In 1994, the Danish scientist Møllerhøj first showed that men who smoked more than 40 packs of cigarettes per year were at risk for kidney cancer (risk ratio 2.3, 95% confidence interval 1.1-5.1).

Tobacco smoking has long been recognized as perhaps the single most important behavioral risk factor associated with the development of bladder cancer, and almost half of all bladder cancer cases are detected in chronic smokers.

Studies and meta-analyses conducted in the early 2000s demonstrate an increased risk of developing bladder cancer in those who smoke tobacco compared with those who do not smoke. These studies show a more than threefold increase in risk in current smokers and an approximately twofold increase in risk in former smokers. Smoking is more important and significant than any other known risk factor for the development of bladder cancer. These findings were confirmed in a meta-analysis of 89 studies over the past 50 years conducted in 2016. The risk of developing bladder cancer was also associated in a dose- dependent manner with the number of cigarettes smoked, with the risk peaking at 15 cigarettes smoked per day. Interestingly, smoking more than 15 cigarettes per day did not confer a significantly greater overall risk (possibly an underlying satiation phenomenon).

Although the global prevalence of tobacco smoking is decreasing, the age-adjusted incidence rate of bladder cancer remains relatively stable.

It should be noted that the level of awareness of medical workers about bladder cancer as a disease associated with tobacco smoking is significantly lower compared to that regarding other smoking-related diseases. In a survey of 535 urology patients, 94% recognized the connection between smoking and lung cancer, but only a quarter of these patients understood the connection between smoking and bladder cancer.

Health care providers, particularly urologists, can play a key role in secondary prevention of bladder cancer through smoking cessation counseling. The exceptionally high smoking cessation rates (up to 96%) observed among patients diagnosed with lung or oropharyngeal cancer [52–59] indicate the success of this work. One population-based study found that smokers diagnosed with bladder cancer were approximately 5 times more likely to quit smoking than people in the general population. Patients who quit the habit cited the diagnosis of bladder cancer and the recommendations of their urologist as the most common reasons for quitting smoking . Domestic urologists are not sufficiently involved in counseling on issues of smoking cessation, and the majority of practicing doctors

never draw the attention of patients to this problem, and almost 40% are convinced that this will not affect the course of the disease or will not change the results of treatment.

In conclusion, population-based observational studies of bladder cancer are expanding, which should contribute to more knowledge about how patients with bladder cancer should change their lifestyle to ensure the best possible treatment outcomes.

Literature:

1. Davydov M, Maksimovich D, Zaridze D. Dynamics of morbidity and mortality from malignant tumors . Bulletin of the Russian Research Center named after. N.N. Blokhina. 2019
2. Bashkatov S, Nemtsova M, Clinical significance of molecular genetic changes in urothelial cells in bladder cancer. Oncourology . 2016
3. Babayan A, Karyakin O, Teplov A. Molecular genetic changes that determine the pathogenesis of superficial and invasive bladder cancer. Molecular biology. 2019