

Original Article

Evaluation of Bladder Cancer in Opium Addicted Patients in the Kerman Province, Iran, from 1999 to 2003

A. Ketabchi MD*, M. Gharaei MD **,
M. Ahmadinejad Ph.D***, T. Meershekari MD****

ABSTRACT

Background: It seems that there may be a relation between opium addiction and bladder cancer. This study has been performed to find this relationship in Kerman province.

Methods: We evaluated opium addiction in 150 patients with bladder cancer (study group) and 150 tumor-free patients (control group) and compared them by two-tailed t-test and X² test.

Results: The rate, duration, amounts and methods of opium abusing in the study group were significantly higher than control group.

Conclusion: The results suggest that the carcinogenic effects of opium addiction may be related to the amount, duration and the method of opium abuse.

Keywords: bladder tumor, addiction, opium

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Experiments have shown that N-nitrosamine, which is a known carcinogen in the opium, alkylates the DNA of lung cells in mice and causes lung cancer¹. The incidence of bladder cancer may rise by the same compound. On the other hand, abuse of opium dross (pyrolysis) has been experimentally shown to cause production of pro-mutative compounds, which can cause cancer in addicted people who take opium dross orally^{2, 3, 4}. The rate of bladder cancer among men is two to four times more than those of women, while in a report the researchers showed that this rate in the males is nine times more than females^{5, 6, 4}. Because most carcinogens are excreted through the kidneys, thus their concentration is higher in the urinary tract. Since the effect of a carcinogen depends on its dose (amount and stasis time), and the highest stasis time of urine is in the bladder, so tumors are

more prevalent in the bladder than any other parts of the urinary tract. We conducted a case-control study in Kerman, Iran. To evaluate the association of opium addiction with bladder cancer.

Subjects and Methods

In a case-control study, 150 known cases of bladder cancer and 150 tumor-free patients were established as study and control groups respectively and were matched individually with together (for the same age and sex ratio) in the urology wards of Shafa Hospital in Kerman, Iran. The patients who had permanent abuse of opium and its derivatives were considered addicted. After excluding unsuitable patients from both groups (all of them who had varieties of addiction except for

*Urologist, Urology Ward, Hospital No. 2, Kerman University of Medical Sciences, Kerman, Iran.

**Plastic surgeon, surgery ward, Hospital No. 2, Kerman University of Medical Sciences, Kerman, Iran.

***Molecular Geneticist, Medical Research Center, Kerman University of Medical Sciences, Kerman, Iran.

****Pathologist, pathology ward, Hospital No. 2, Kerman University of Medical Sciences, Kerman, Iran.

Correspondence to: Dr. Dr. M.Gharaei, Plastic surgeon, Kerman, Iran. E-mail: mogharaei@yahoo.com

opium or had contact with known risk factors of bladder cancer [e.g. dye, rubber workers and cigarette smokers]), we came up finally with 112 and 130 objectives in the study and control groups, respectively. Information regarding the addiction (methods, amount and the time period of addiction) was obtained by a questionnaire form from both study and control groups, with their permission.

Ultimate diagnosis of bladder tumors made by pathological processes and Classification of the tumors was based on the decision of the second international meeting regarding bladder tumors in Japan, 1987 in which bladder tumors were classified into three groups: superficial tumors, which had Tis, T1, and Ta; advanced tumors; and aggressive tumors^{7, 8}. The obtained data from the study and control groups, were analyzed statistically through the t-test, X², and OR estimation.

Results

The mean age had no significant difference between two groups. Sex ratio (male/ female) was 4/1. The prevalence of opium addiction in the study and control groups were 71.4% and 23%, respectively (P<0.001). In this study the chance of bladder cancer incidence among the opium-addicted patients was 7.99 times more than control group (OR=7.99 [95%], CI 5.3 to 12.5) (Table 1). A higher percentage (61%) of addicted people in the study group were eating the opium, compared to the control group (5.3%), in which there is a significant difference (P<0.001). 48.2% of the study and 5.3% of the control groups were abusing more than one gram of opium per day (p<0.001) and 48.16% of the study and 4% of the control groups were addicted for more than 10 years (P<0.001) (Figure 1). The highest percentage of addiction was among those who were >70 years old and this percentage in the study group was 50.89% but in the control group it was 15.38%. There was a positive correlation between the amount of abused opium and the duration of opium abuse in both groups (correlation coefficient [r] in study and control groups were 0.84 and 0.65, respectively [p=0.24]). In general, 93.7%

of the tumors were transitional cell carcinoma and the rest of them were esquamous cell carcinoma (5.5%) and adenocarcinoma (0.8%).

Table 1. Calculation of odds ratio (OR) for studing the relationship between opium addiction and bladder cancer.

Opium addiction	Bladder cancer (+) (cases)	Bladder cancer (-) (controls)	Total
Yes	80	31	111
No	32	99	131
Total	112	130	242

OR=7.99, [95%] CL 5.3 – 12.5

X² = 54.64 , df = 1 , p<0.0001

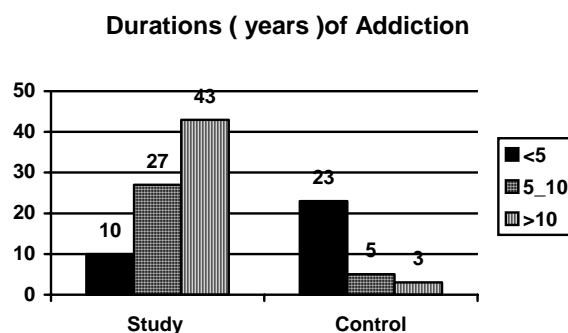


Fig 1. Comparison of addiction durations (years) of study and control groups

Discussion

This study showed that addiction to opium and opium derivatives could cause carcinoma in the bladder. The carcinogenic effects of opium are affected by the amount of daily use, the period of addiction, the age, and finally the method of opium abuse. According to the other researches, the opium dross which most of addicts eat it, has numerous carcinogens.

Opium addiction not only causes a lot of psychological and social problems, but also by increasing the chances of deadly diseases such as malignant tumors in different organs including the bladder, causes an increase of economic, sociologic, and health problems in a society. We can conclude that to uproot of addiction and also the medical check-up of addicted people before the incidence of cancer is very important.

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