

Is Bladder Cancer More Common among Opium Addicts?

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ABSTRACT

Purpose: Many environmental and occupational risk factors have been proposed for bladder cancer, among which opium consumption has been considered in few studies. We designed a study to determine the relationship between opium consumption and bladder cancer.

Materials and Methods: In a retrospective, case-control study, male patients with bladder cancer, who had been referred to our hospital in a three-year period, were selected. Data regarding age, gender, smoking, and opium consumption were collected from patients' records and compared with data of a control group, consisting of patients with benign prostatic hyperplasia (BPH).

Results: Fifty-two male patients with bladder tumor (group 1) were compared with 108 patients with BPH (group 2). Of the patients with bladder cancer, 36 (68%) were smokers, of whom 12 were also opium addicts. In general, 13 (25.5%) patients were opium consumers (one opium consumer was not smoker). From 108 patients with BPH, 25 (23%) were smokers, of whom, 5 were also opium addicts. Mean duration of cigarette smoking was 31 ± 13.6 and 20.2 ± 14.7 years in patients with bladder cancer and BPH, respectively. The duration of opium consumption was 11.9 ± 1.4 and 6.2 ± 1.3 years in groups 1 and 2, respectively. The duration of cigarette smoking and opium consumption in group 1 was greater than that in group 2. In addition, smoking increases the risk of bladder cancer 3.8-fold (OR = 8.3, 95% CI = 1.8-7.8). Simultaneous cigarette smoking and opium consumption increases the risk of bladder cancer 6.2-fold (OR = 6.2, 95% CI = 2.04-18.7).

Conclusion: There are few studies regarding the carcinogenic effect of opium on bladder. We demonstrated that, the incidence of bladder cancer in smokers, who are simultaneously opium consumers, was higher than in patients who were only smokers. Simultaneous opium addiction and cigarette smoking may have some roles in the pathogenesis of bladder tumor. However, further studies with large sample sizes are warranted.

KEY WORDS: bladder cancer, risk factors, cigarette smoking, opium addiction

Introduction

Bladder cancer is the fourth common cancer in men and the eighth in women.⁽¹⁾ The known risk factors are smoking, little water consumption, Aristolochia (a Chinese herb using to lose weight), exposure to aromatic amines, immunosuppressives, cyclophosphamide, radiotherapy,

arsenic, chronic cystitis, and with in all probability, tea and coffee.⁽²⁾ Few researchers have also proposed opium as a risk factor for bladder cancer, but there is not enough evidence of carcinogenic effect of opium in bladder malignancies. We designed this study to determine the relationship between opium consumption and bladder cancer.

Materials and Methods

In a case-control study, all of the male patients with a pathological diagnosis of bladder cancer or

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BPH, who had undergone surgery in Shaheed Modarress Medical Center, between 1997 and 2000, were reviewed. Data regarding age, gender, cigarette smoking, and opium consumption, and the duration of smoking or addiction were collected from patients' records. Patients with bladder cancer and BPH were considered as subjects (group 1, 52 cases) and controls (group 2, 108 cases), respectively. Females were excluded from this study in order to achieve more matched groups. The age range was 48 to 75 years and mean age was 67.5 ± 7.4 and 65.3 ± 9.8 years in group 1 and 2, respectively. The statistical analysis was done using Chi-Square and Odds Ratio tests. The P value less than 0.05 was considered significant.

Results

The mean age was 61.2 ± 16.6 (median 61.5) years in the patients with bladder cancer and 67.0 ± 7.4 (median 65.5) years in those with BPH. Without considering opium consumers, 36 patients (68%) with bladder cancer and 25 with BPH (23%) were smokers ($P < 0.01$). The probability of cigarette smoking in patients with bladder cancer (with and without opium consumption) was 7.5-fold greater than that in patients with BPH (OR = 7.5; 95% CI = 3.6-15.6).

The rate of simultaneous cigarette smoking and opium consumption was 23.3% and 4.6% in groups 1 and 2, respectively ($P < 0.001$, table 1). In comparison with control group, the probability of simultaneous cigarette smoking and opium consumption in patients with bladder tumor (group 1) was 6.2-fold greater (OR = 6.2; 95% CI = 2.04-18.7). Excluding opium consumers, the rate of cigarette smoking was 46.1% and 17.3% in groups 1 and 2, respectively ($P < 0.001$) and the probability of cigarette smoking in patients with bladder tumor was 3.8-fold greater in comparison with control group (OR = 8.3; 95% CI = 1.8-7.8).

Regular cigarette smoking duration was significantly longer in patients with bladder cancer than in control group ($P < 0.005$, table 1). Also, opium positives in group 1 had a longer history of opium consumption ($P < 0.0001$, table 1).

The likelihood of bladder cancer in association with simultaneous cigarette smoking and opium consumption is twice in comparison with only smoking. There was not any significant relationship between opium consumption and bladder tumor.

TABLE 1. *Statistic data of the patients in groups 1 and 2*

	Patients with bladder cancer (group 1)	Patients with BPH (group 2)
Number	52	108
Smokers \pm opium consumption	36 (68%)	25 (23%)
Opium consumers	13 (25.5%)	5 (4.5%)
Smokers only	24 (46.1%)	20 (17.3%)
Opium consumers only	1 (1.93%)	0 (0%)
Opium & cigarette consumers	12 (23.3%)	5 (4.6%)
Smoking duration	31.0 ± 13.6	20.2 ± 14.7
Opium consuming duration	11.9 ± 1.4	6.2 ± 1.3

Discussion

The prevalence of cigarette smoking and opium consumption is relatively high in Iran.⁽²⁾ Although various studies have been done on the carcinogenic effect of opium in esophageal cancer in the northeast of Iran, studies regarding its relationship with bladder cancer are scarce. Investigations on the prevalence of esophageal cancer in the northeast of Iran have shown its association with opium, especially the burned form, (opium pyrolysates).⁽³⁻⁷⁾ Cigarette and alcohol are the most important risk factors of esophageal cancer; ethanol increases DNA alkylation in mucosal cells and it has been reported that high doses of morphine can have the same effect in rats.⁽⁸⁾ Accordingly, narcotic agents may have the same pathogenesis that can lead to malignancy.

This study demonstrated that the number of smokers and opium addicts are higher in subject group. In addition, simultaneous cigarette smoking and opium consumption increases the likelihood of bladder tumor 2-fold in comparison with only smoking. However, due to the paucity of opium-only consumers (one patient), the correlation between opium and cancer could not be assessed in our study. Sadeghi and co-workers in Shiraz showed that of 3500 opium addicts, 15 had bladder cancer, while the prevalence of bladder cancer in the respective province was 6.6 in 100000. They concluded that, opium is a risk factor for bladder cancer.⁽²⁾ Nonetheless, 85% of patients had been smokers, and of 15 patients with bladder cancer, 14 were smokers, so that only simultaneous smoking and opium consumption could be considered as the risk factor for bladder cancer.

Documentation of the carcinogenic effect of opium on bladder tumor requires further studies with purely opium addict subjects, but due to the paucity of such a population, it is not viable unless through a great scale study. Also, animal experimental studies can shed light on this issue.

Conclusion

It seems that simultaneous opium consumption and cigarette smoking plays a role in bladder tumor pathogenesis, but for clarifying the effect of opium, separately, further studies with greater subjects are needed.

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Editorial Comment

As the authors acknowledged in this retrospective study, the data regarding opium consumption were from the patients' record. Due to legal and social aspects of opium consumption, such retrospectively collected data could not be accurate. Also due to the paucity of sample size, one cannot separate smokers from opium addicts. As a result, estimating the independent effect of opium on bladder cancer is not valuable. The results with wide confidence intervals are due to the little sample size. However, it should be noted that conducting a prospective and comprehensive research on the issue is not easily possible, and since there are few studies showing the association of simultaneous cigarette smoking and opium consumption with bladder cancer, the result achieved in this study are valuable.

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