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AI-NAHRAIN UNIVERSITY  
COLLAGE OF MEDECINE  
DEPARTMENT OF SURGERY

# RISK FACTORS OF BLADDER CANCER

A RESEARCH SUBMITTED TO THE COLLAGE OF MEDICINE, AL-NAHRAIN UNIVESITY, DEPARTMENT OF SERGURY IN THE FULFILLMENT OF THE REQUIRMENT OF THE GRADUATION.

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

نَزَعُ دَرَجَاتٍ مِّنْ نَّشَأِهِ

وَفَوْقَ كُلِّ ذِي عِلْمٍ

عَلِيمٍ

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## **Abstract**

### **Introduction**

Urinary bladder cancer has long been associated with specific etiological factors, the most important factor, even in industrialized societies, is cigarette smoking. Chronic Urinary tract infection and certain chemicals have also been identified as causing bladder cancer, as have a variety of occupational exposures that provides additional leads for investigating and potential preventing.

### **Aim**

The aim of this study is to evaluate the criteria of bladder cancer among Iraqi patients which include: age group, sex, smoking, chronic urinary tract infection, occupation, Diabetes and family history.

### **Patients and method**

this is a retrospective study from October 2018 – April 2019 in Al-Imamain Al-Kadhimain Medical City, in which 30 patients enrolled.

### **Results**

for 30 patients enrolled in this study, the disease is more common in age between 50-70 years, 80% males, 20% females, large number are smokers especially males 66.7% and 23.3% have chronic urinary tract infection, 16.7% of patients are diabetic, positive family history in 13.3% and exposure to insecticide and pesticide also 13.3%.

### **Conclusion**

Bladder cancer is more common among males in ratio 4:1 M: F, in age between 50-70 years, smoking is the major risk factor followed by chronic UTI and other risk factors.

## **Introduction**

Bladder cancer is the second most common urological malignancy and the fourth most common cancer in men, accounting for 5002 UK deaths in 2007; this represents 3% of all cancer deaths<sup>1</sup>. In the United States, bladder cancer is the fourth most common type of cancer in men and the ninth most common cancer in women. More than 62,380 men and 18,810 women are diagnosed with bladder cancer each year<sup>2</sup>. In Iraq Bladder cancer is known as the second most common cancer of the genitourinary tract <sup>3</sup>. One reason for its higher incidence in men is that the androgen receptor, which is much more active in men than in women, plays a major part in the development of the cancer.

## **Symptoms and Signs**

The commonest presenting symptom (85% of cases) is painless visible hematuria,. Asymptomatic non-visible hematuria found on routine urine stick testing accounts for an important minority of presentations. Lower urinary tract symptoms such as urgency or suprapubic pain. There is almost always microscopic or macroscopic hematuria. More advanced cases may present with lower limb swelling due to lymphatic/venous obstruction, bone pain, weight loss, anorexia, confusion, and anuria. General examination may reveal *pallor*, indicating anemia due to blood Loss or chronic renal impairment<sup>4</sup>.

## **Risk Factors**

General Risk Factors includes: Age; approximately 80% of newly diagnosed cases occur in people aged 60 years and above, Caucasian, Diet high in saturated fat, gender and Family history of bladder cancer.

Environmental Risk Factors includes: Smoking is the most commonly associated risk factor and accounts for approximately for 50% of all bladder cancers. Nitrosamine, 2-naphthylamine and 4-aminobiphenyl are possible carcinogenic agents found in cigarette smoke; Bladder cancer is also associated with industrial exposure to aromatic amines in dyes, paints, solvents, leather dust.

Medical Risk Factors such as chronic cystitis and certain drugs (Cyclophosphamide) <sup>5</sup>.

## **Diagnosis**

Tests and procedures used to diagnose bladder cancer include: Cystoscopy, Biopsy, Urine cytology and imaging tests such as CT, urogram or retrograde pyelogram<sup>6</sup>.

## **Pathological Classification**

90% of bladder cancers are transitional cell carcinoma. The other 10% are squamous cell carcinoma, adenocarcinoma, sarcoma, small cell carcinoma and secondary deposits from cancers elsewhere in the body <sup>7</sup>.

## **Staging**

The following stages are used to classify the location, size and spread of the cancer according to the TNM staging system<sup>8</sup>:

- Tis: carcinoma in situ.
- T1: cancer involves the lamina propria.
- T2: a) superficial muscle invasion.  
b) Deep muscle invasion.
- T3: perivesical fat or peritoneum invasion.
- T4: invasion of the contiguous organs (prostate, uterus, vagina, pelvic wall or abdominal wall).

## **Aim**

The aim of this study is to evaluate the risk factors of bladder cancer among Iraqi patients which include: age group, sex, smoking, chronic UTI, occupation, family history, and DM.

## **Patients & Method**

This is a retrospective study from October 2018-April 2019 in Al-Imamain Al-kadhimain Medical City in which 30 patients with CA bladder enrolled in this study to estimate the associated risk factors, such as age group, sex, smoking, chronic UTI, occupation, family history, and DM.



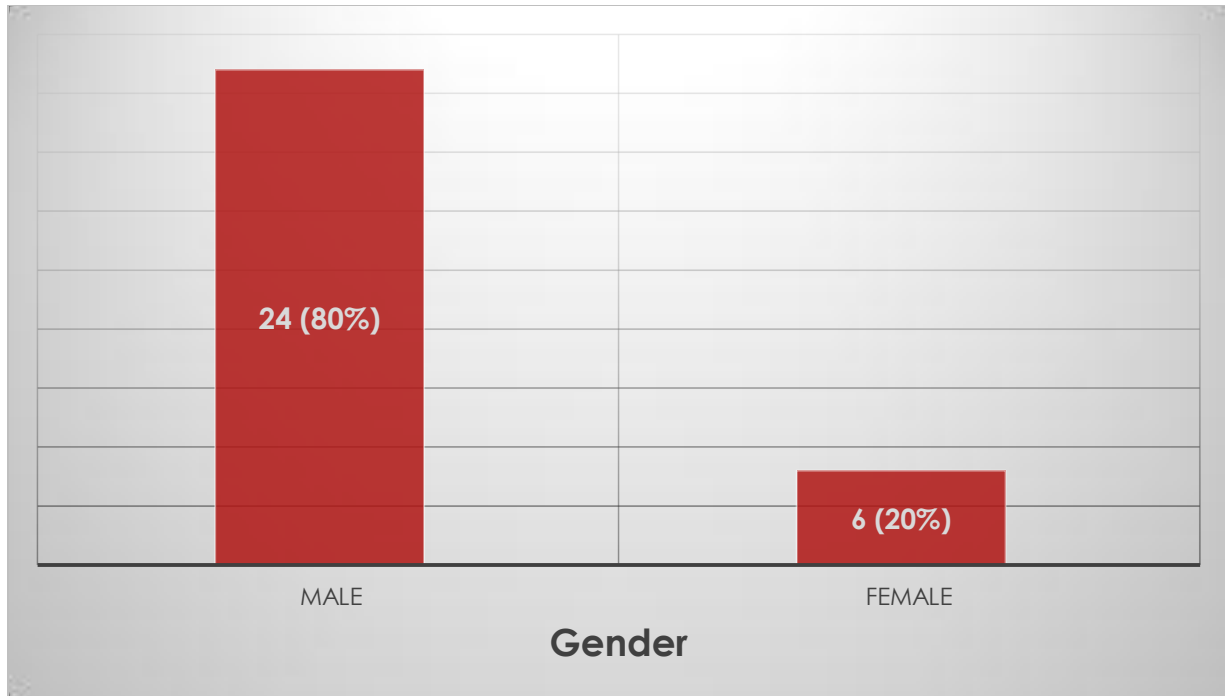
## **Results**

Table 1 show Distribution of the samples according to the bladder cancer risk factors.

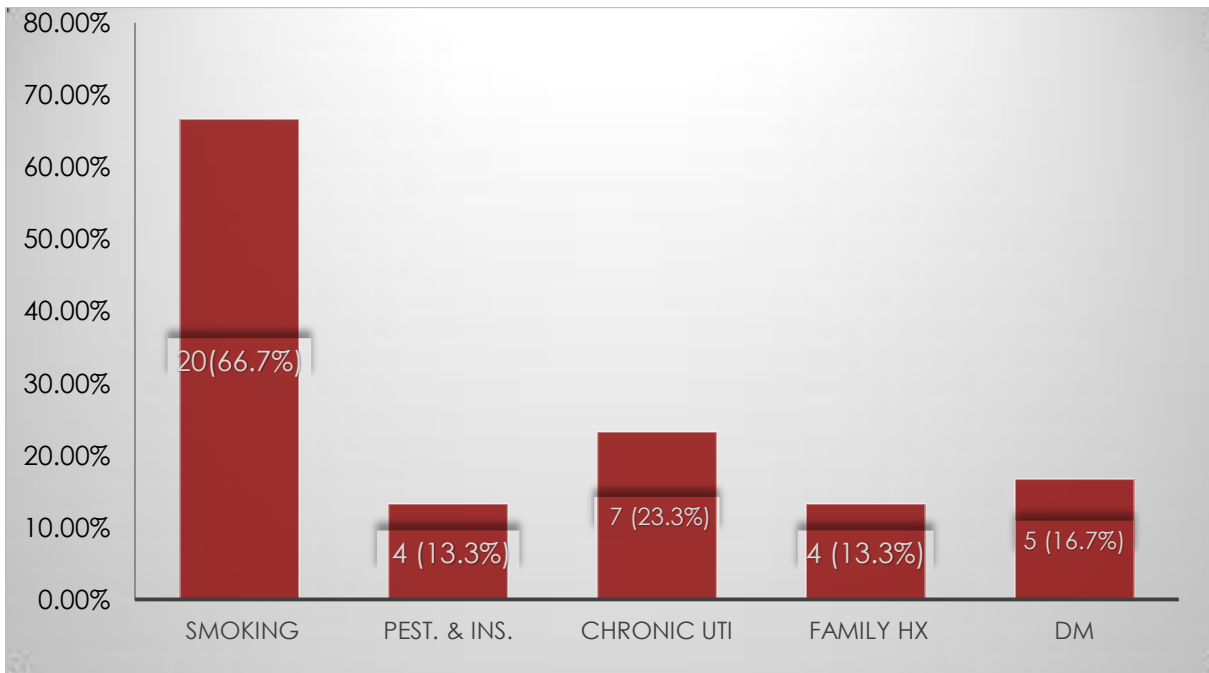
The percentage of male was 80% while female 20% (Fig: 1), 66.7% of the patients were smokers, 23.3% of the patients had chronic UTI, 16.7% with DM while family history and insecticide or pesticide show 13.3% (Fig: 2).

**Table 1:** Distribution of the samples according to the bladder cancer risk factors.

No. of cases	Male		Female		Smoking	Chronic UTI	DM	Family Hx	Insect. & pestisi.
	No.	%	No.	%					
30	24	80%	6	20%	66.7%	23.3%	16.7%	13.3%	13.3%



**Figure 1:** Distribution of Patients by Gender.



**Figure 2:** Distribution of the samples according to risk factors.

## **Discussion**

According to previous research of the National Cancer Institute (NCI) <sup>9</sup>. They found that the percentage of males affected by bladder cancer is 75%, which means that the ratio of affected males to females equals to 3:1. In other research done in southern Iran, they found that the sex ratio of males to females is estimated to be 8:1, and they mentioned that 468,351 bladder cancer cases occurred in 2015<sup>10</sup>. In the U.S., bladder cancer is the fourth most common type of cancer in men, and the ninth most common cancer in women. More than 62,380 men and 18,810 women are diagnosed with bladder cancer each year<sup>11</sup>. In this study, 80% of the patients were males. Therefore; the ratio of affected males to females equals to 4:1. Bladder cancer is most common between the ages 50 and 70, This is also the same age range of this study<sup>11</sup>. The NCI believes that there is strong association between smoking and the bladder cancer in which the rates are high in many southern and eastern European countries where smoking has been prevalent. Moreover, in developed countries the bladder cancer is primarily attributable to smoking, which accounts for 65% of males, and 35% females' cases<sup>12</sup>. In this study, the results were compatible with the NCI results for the smoking effect in the occurrence of bladder cancer, with the percentage of 66.7% of the affected patients, which means that smoking is the major risk factor for bladder cancer.

Frequent UTI can promote the growth of the abnormal cells in the bladder, which results association, especially in females. In Egypt and some Asian regions, chronic Cystitis is a major risk factor<sup>13</sup>. In this study, 23.3%of the affected patients having history of chronic UTI, which means that UTI is the 2<sup>nd</sup> important risk factor for bladder cancer.

This study provides further support of a role of diabetes in bladder cancer etiology that 16.6% of patients were diabetic, An approximate result with study done in Italy in 2015<sup>14</sup>.

Family history is other important risk factor. Therefore; 13.3% of the affected patient having positive family history, this is also supported by a study done in Italy in 2017 <sup>15</sup>.

Occupational risk is a major risk factor in European countries because of a lot of workers work in the factories of rubber, metal, chemicals, leather, plastic, and also painters or textile workers and truck drivers as they are at risk of exposure to aromatic amines, and farmers that in frequent contact with pesticides<sup>16</sup>. In this study, there are 33.3% of patients are free workers, 13.3% farmers, 23.3% are employee and housewives, 10% are retired.

## **Conclusion**

Bladder cancer is more common among males. The disease is more common at the age interval from 50-70s. Smoking is the major risk factor especially among males when females show less association with smoking maybe they denied smoking due to social reasons. History of chronic UTI showed strong association with bladder cancer. There is a strong association with certain occupations especially among workers. Farmers showed a high percentage of the affected individuals may be due to frequent exposure to the pesticides or insecticides. Positive family history is also important to be excluded in the affected individuals,

## **Recommendations**

Smoking is the most preventable risk factor; current studies believe that smokers are three times at more risk than the non-smokers and this depends on the duration and amount of smoking. Chronic UTI must be treated carefully to avoid the complications and to decrease the susceptibility of cancer development, Occupational risks are a major risk factor so we must provide all the protective procedures and advise all workers for continuous screening to help with early diagnoses and to improve the prognosis. Family history is another risk factor for the development of bladder cancer, so genetic counseling and study is very important to detect the persons whom at risk of developing bladder cancer.

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