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Research Article

**FREQUENCY AND DETECTION OF RISK FACTORS OF  
URINARY BLADDER TUMOR IN RURAL POPULATION OF  
SINDH PROVINCE**<sup>1</sup> Dr. Ahsan Ali Arain, <sup>2</sup> Dr. Javed Altaf Jat, <sup>3</sup> Dr. Arshia Adeel Arain and <sup>4</sup> Dr. Pooran Mal<sup>1</sup> Postgraduate, Department of Urology, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro<sup>2</sup> Assistant Professor, Department of Urology, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro<sup>3</sup> Senior Women Medical Officer Nuclear Institute of Medicine and Radiotherapy (NIMRA) Jamshoro Sindh Pakistan<sup>4</sup> Assistant Professor, Department of Nephrology, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro**ABSTRACT:****OBJECTIVE:** To identify frequency and detection of risk factors of urinary bladder tumor in rural population of Sindh province.**PATIENTS AND METHODS:** This retrospective/Analytical study was conducted in the department of urology, Liaquat university hospital, Jamshoro/Hyderabad & Department of Nuclear Institute of Medicine & Radiotherapy (NIMRA) Jamshoro were included in this study and included all admitted patients with diagnosed bladder cancer. The data was analyzed in SPSS and frequencies, percentages and mean  $\pm$ SD was computed.**RESULTS:** Mean ( $\pm$ SD) age was  $56.60 \pm 12.50$  years with M:F = 2:1. Smoking was the main risk factor found in 183 (50.4%) cases followed by Naas 37 (10.2%) cases, Naswar 29 (8.0%), Menpuri 7 (1.9%) and Betal nuts 4 (1.1%) respectively. Muscle invasive tumors was found in 268 (73.8%) cases as compare to non-muscle invasive 95 (26.2%) cases. Transitional-cell carcinoma (TCC) seen in 347 (95.6%) cases, squamous-cell carcinoma and others were found in 10 (2.8%) and 6 (1.7%) cases respectively.**CONCLUSION:** In this study smoking and muscle invasive tumors was dominant.**KEYWORDS:** Bladder tumor, Smoking, Muscle Invasive, Transitional cell carcinoma**Corresponding author:****\* Dr. Javed Altaf Jat,**

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## INTRODUCTION:

In malignancies of genito-urinary system, urinary bladder cancer is the common cancer and accounts 4<sup>th</sup> in men and 8<sup>th</sup> in females [1]. Globally 27 per 100,000 men and 6 per 100,000 women incidence rate has been reported, Incidence of Bladder tumor varies between country to country, Spain is on top in incidence rate while lowest rate is observed in Finland [2]. Mortality rate in Europe is 8 per 100,00 in men and 3 for women but globally it is 3 versus 1 per 100,000 in male and women respectively [2]. In some countries urinary bladder cancer incidence and mortality rate has been decreased, may be due to low impact of causative agents and increased standard care in developed countries [3, 4]. Non-muscle invasive tumors (Ta, CIS, T1) are 70-80% and 20-30% are invasive tumors (T2-T4) and mortality with cancer is high in muscle invasive tumors. At the time of diagnosis of a low risk NMIBC there is an up to two percent risk on synchronous upper tract cancer, risk increases up to 7.5 % when tumor is located at trigone area [5]. Patients with multiple and high risk tumors in the bladder have a three-fold higher risk of future upper tract tumor than patients with a single bladder tumor [6]. In Karachi-Pakistan 4,268 new cancer cases were registered during the period of 1995-1997 [7]. The lifetime probability of a bladder cancer diagnosis is 3.6%, which ranks fourth among cancers in Canada [8]. Although environmental exposures such as tobacco smoke and aromatic amines, and chronic bladder inflammation constitute the main risk factors for developing bladder cancer, most cases have no identifiable cause [9]. Mostly bladder cancer is diagnosed after the age of 50 years and it is believed that men have more chances to develop the disease due to their higher tobacco smoke and industrial toxin exposures [10]. Following smoking most of others factors has also been relation with bladder cancer like occupational exposure with aromatic amines, polycyclic aromatic and chlorinated hydrocarbons, such factors is present in paint, dye, metal and petroleum products accounts approximately 10% of urinary bladder cancers cases [11,12]. Trihalomethanes has also involved in bladder cancer causes specially when chlorine is used to disinfectant the water, at some level arsenic in drinking water also increases risk of bladder cancer [13]. The purpose of study was to find out the risk factors and frequency of urinary bladder tumor in rural population of Sindh, reported at Liaquat University Hospital Hyderabad/Jamshoro and Department of NIMRA Jamshoro. This contributes to planning preventive, screening and treatment strategies to overcome the morbidity.

## PATIENTS AND METHODS:

The retrospective / analytical study was conducted in the Department of Urology and NIMRA on the patients with diagnosed case of urinary bladder tumor on the basis of history, clinical examination, laboratorial and Histopathological investigation irrespective of their race, sex and age, admitted in Department of Urology and Department of Nuclear Institute of Medicine & Radiotherapy (NIMRA) Jamshoro, from outpatient department or referred from family physicians were included in study while the exclusion criteria was patients from urban areas of Sindh and those who have incomplete record or data. The Data was retrieved after getting a written permission from the Unit heads (in this case), and approval from the Research Ethics Committee (REC), Liaquat University of Medical & Health Sciences. A predesigned form (copy attached) was used as a tool for recording of relevant information. The result were analyzed by using SPSS version 16 software on computer and the student t test and Chi square test were used for comparison of variable. A p value of <0.05 were considered as significant.

## RESULTS:

Total 363 patients having Histopathological proven urinary bladder tumor were included who fulfilled the inclusion criteria, Out of 363 patients 244 (67.2%) were male and 119 (32.8%) were female with 2:1 male to female ratio. Risk factors of urinary bladder tumor as per age group is shown in Table-1. 129 out of 363 smoking history cases was found in > 50 years age and 54 cases <50 years. Similarly >50 years patient had Naas (26), Naswar(16), Menpuri(6) and betal nuts(1) while <50 years Naas(13), Naswar(13), Menpuri(1) and betal nuts(3). There is no risk factor found in 62 patients of >50 age & 41 of <50 age. Comparison is insignificant and P-value is 0.1. Risk factors as per gender is shown in Table-2 Majority of patient had history of smoking, in male 167 cases was found and 16 in female, likewise 20 male patient had history of Naswar as compare to female it was only 09 but history of Naas is more in females 34 patient in relation with male only 03 patient had Naas history. Other risk factors include Menpuri 06 male and 01 female likewise Betal Nuts 03 male and 01 female. No risk factors was found in 45 male and 58 female patients. P-value 0.00 that shows significant relation between them. Risk Factors as per District is shown in Table: 3. No significant relation were found between district and risk factors, P-value was 0.4. Unlikely there was no significant relation was found between invasiveness as per gender and district. Risk

factors as per Invasiveness is shown in Table-4. Transitional cell carcinoma was present in 347 (95.6%) cases, Squamous-cell carcinoma and other

types were 10 (2.8%) and 06 (1.7%) cases respectively. Table-5

**RISK FACTORS AS PER AGE**  
**TABLE - 01**

Risk Factors	Age < 50	Age > 50	P-Value
Smoking	54	129	0.1
Naas	13	24	
Naswar	13	16	
Menpuri	01	06	
Betal Nuts	03	01	
No	41	62	

**RISK FACTORS AS PER GENDER**  
**TABLE: 02**

Risk Factors	Male	Female	P-Value
Smoking	167	16	0.00
Naas	03	34	
Naswar	20	09	
Menpuri	06	01	
Betal Nuts	03	01	
No	45	58	

**RISK FACTORS AS PER DISTRICT**  
**TABLE: 03**

District	Risk Factors						P-Value
	Smoking	Naas	Naswar	Menpuri	BetalNuts	No	
Badin	32	03	03	00	00	19	0.4
Matiari	23	04	07	00	01	15	
Mirpurkhas	22	03	04	01	00	07	
Sanghar	17	06	03	01	01	13	
Dadu	15	07	03	01	00	15	
Tando Allah Yar	15	01	00	00	00	04	
Mithi	13	03	04	02	00	08	
Naushero Feroz	10	01	01	00	00	04	
Nawabshah	09	04	02	00	00	00	
Umerkot	08	01	00	00	00	04	
Tando. M. Khan	06	03	01	01	02	05	
Thatta	05	01	01	01	00	05	
Khairpur	04	00	00	00	00	02	
Jacobabad	03	00	00	00	00	00	
Others	01	00	00	00	00	02	

**RISK FACTORS AS PER INVASIVENESS****TABLE: 04**

Risk Factors	Invasiveness		P-Value
	Muscle Invasive	Non-Muscle Invasive	
Smoking	135	48	0.3
Naas	27	10	
Niswar	22	07	
Menpuri	03	04	
Betal Nuts	04	00	
No	77	26	

**HISTOPATHOLOGICAL FEATURES OF URINARY BLADDER TUMOR****TABLE: 05**

Histopathology	Number of Cases	Percentage
Transitional Cell Carcinoma	347	95.6%
Squamous Cell Carcinoma	10	2.8%
Others (Small Cell Carcinoma, Sarcomatous Carcinoma, Mucinous Adenocarcinoma, Undifferentiated	06	1.7%

**DISCUSSION:**

In this study, total 363 patients having Histopathological proven urinary bladder tumor were included who fulfilled the inclusion criteria. Out of 363 patients, 244 (67.2%) were male and 119 (32.8%) were female, worldwide urinary bladder tumor is dominant in males.[83,84,85] [14-16]. Urinary bladder tumor is a disease of old age and majority of cases is reported after the age of 50. In this study 56.06±12.50 years was the mean age of presentation that is similar to other studies conducted in Pakistan.[17] This study result is also compare with studies conducted in Kurdistan, Tehran and Iran in which mean age was 62.5±13.0 years and 61.0 ±12.7 years respectively. In our study 347 (95.6%) patients had Transitional cell carcinoma. Among 268 out of 363 were muscle invasive (73.8%) and 95 (26.2%) cases were non-muscle invasive. The worldwide presentation up to 70% cases presents as non-muscle invasive and 25% are muscle invasive at the time of initial diagnosis.[18] Other study conducted in Pakistan and reported that transitional

cell carcinoma were present in up to 100% of cases, among them 75% had muscle invasive disease while non-muscle invasive were 25%.[19] Another study was conducted in Pakistan and observed that 97% of patient had muscle invasive disease.[20] One more study reported that transitional cell carcinoma was 90.4%, Squamous cell carcinoma and adenocarcinoma was 6.4% and 6.0% respectively.[21] In our study the Squamous-cell carcinoma and other types were 10 (2.8%) and 06 (1.7%) cases respectively. Our study represents 74.1% high grade and 25.9% low grade urinary bladder tumors. Study conducted at Aga Khan University Hospital that shows, high grade was found in 29.5% cases,[22] Another Pakistani study reported that high grade was 37.9% followed by intermediate grade in 25.2% and low grade in 9.7% respectively.[23] According to studies conducted in United States, England, and Canada, between 30% and 47% of bladder tumors accounted from cigarette smoking [ 24-27] that shows Tobacco smoking was the major preliminary factor of the urinary bladder

cancer as compared to the other factors, among 363 cases, 183 (50.4%) had smoking history, among them 129 cases are from older than 50 years while 54 cases were younger than 50 years and most of muscle invasive cases were also found in greater than 50 years of patients as compare to younger patient, followed by naas 37 (10.2%), Naswar, Mempuri and betal nuts were 29 (8.0%), 07 (1.9%) and 04 (1.1%) respectively. Almost 103 (28.4%) cases have no any risk factors. One more study shows that both sexes have increased risk of urinary bladder tumor with starting to smoke at early age compare with older age [ 27,28.] Almost 167 males and 16 females had history of smoking in our study and most of male patient had muscle invasive disease as compare with females. Other studies have found that male smokers has more chances of having urinary bladder cancer as compare to females [29-32]. In present study most of the urinary bladder cancer patient were presented from Badin district 57 (15.7%) cases followed by matiari 50 (13.8%). Sanghar and Dadu have same number of cases presentation 41 (11.3%) each. Others are Mirpurkhas 37 (10.2%), Mithi 30 (30%), Tando Allah Yar 20 (5.5%), Tando Muhammad Khan 18 (5.0%) etc.

### CONCLUSION:

In this study smoking is the main risk factor of urinary bladder tumor and frequency of muscle invasive tumor at presentation is high. Painless hematuria and histological sub-type transitional-cell carcinoma was dominant.

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