

## Sex-Based Variation In The Occurrence Of Urinary Bladder Carcinoma

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### Abstract

**Introduction:** Bladder cancer accounts for 6.6% of all cancer cases worldwide, making it the fourth most frequent malignancy among men. It accounts for 2.4% of all cancer cases in women, making it the ninth most frequent malignancy. Unfortunately, there is currently no data on the prevalence of bladder cancer in our nation, despite the fact that it appears to be rising due to an ageing population and increased exposure to toxins.

**Aim of the study:** The aim of the study is to assess sex-based variation in the occurrence of urinary bladder carcinoma.

**Methods:** This cross sectional study on 819 patients of carcinoma of urinary bladder was done in 10 different hospitals in Dhaka city. This study was carried out from January 2007 to December 2009. All specimen of bladder tissue that was sent for histopathological examination were included in the study. All specimen of bladder tissue that was sent for histopathological examination that reveals other diagnosis than cancer were excluded from the study.

**Results:** It was observed that squamous cell carcinoma (SCC) were found 6 (60.0%) and 4(40.0%) in male and female patients respectively. Other tumor was found 609(75.3%) in male and 200 (24.70%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between squamous cell carcinoma (SCC) and other cancers. It was observed that Adenocarcinoma were found 7(53.80%) and 6(46.2%) in male and female patients respectively. Other tumor was found 608(75.4%) in male and 198(24.6%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between Adenocarcinoma and other cancers. It was observed that mixed type cancer was found in all of the male and female patients. Other tumor was found 611(75.0%) in male and 204(25.0%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between mixed type and other cancers.

**Conclusion:** High grade tumors were detected 54.8% (95% CI=51.4-56.5)cases, statistically significant difference was found in between SCC vs other cancers ( $p<0.05$ ). TCC had the highest frequency. All the subtypes cancers were of more common in the male sex group than female, there was no statistically significant difference found in between the subtypes of cancers ( $p>0.05$ ).

**Keywords:** Urinary Bladder Carcinoma

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### I. Introduction

One of the most common diseases in the world is bladder cancer, according to Stein Lieskovsky et al. (2001). 95% of primary bladder tumors (transitional, squamous, adenocarcinoma, and mixed) are found in the epithelium, whereas 5% are found in connective tissue (angioma, myoma, fibroma, and sarcoma).<sup>1</sup> Over 90% of epithelial tumors are transitional, 1% to 2% are adenocarcinomas, and 5% are squamous cells (Gh. Jeelani et al., 2005).<sup>2</sup> Bladder cancer is presently the sixth most common cancer globally, with an estimated 273000 new cases and over 108,000 deaths in 2002.<sup>3</sup> Bladder cancer is the fourth most common cancer in the United States and the fifth most common in Europe, according to Adrian Vandar Meijden et al.(1998). It is a contributing factor in 7% of new incidences of cancer in males and 2% in women.<sup>4</sup> The typical age upon diagnosis is 65. At that time, about 75% of bladder cancers were still contained within the bladder, while 25% had spread to nearby lymph nodes or

more distant locations.<sup>5</sup> With 13180 deaths (8970 men and 4210 women), bladder cancer was estimated to be the tenth most common cause of cancer-related deaths among American men in 2005. Bladder cancer accounts for 1.5% of all cancer-related fatalities in women and 3.0% in men.<sup>6</sup> Over the past 20 years, cigarette smoking has been associated with an increased risk of bladder cancer.<sup>7</sup> The overall aging of the population and exposure to various aromatic amines were among the non-occupational risk factors that affected workers across a range of industries.<sup>8,9</sup> Bladder cancer occurs frequently in our country. Unfortunately, reliable data regarding the disease's prevalence are currently lacking. Nonetheless, a study on the incidence of bladder cancer will be a breakthrough in this field. The country's urologists, researchers, and health policymakers will all gain from it. By collecting recorded data on bladder disease (histopathological diagnosis) from renowned clinics and hospitals in Dhaka, the planned study—a three-year retrospective observational study—will ascertain the frequency of bladder cancer. Bangladesh, a tiny nation of around 144000 square kilometers, is home to more than 150 million people. Both the number of older people and the exposure to carcinogens are increasing every day. Most incidences of bladder cancer occur in older persons, and the number of cases is probably increasing every day. Most of our country's population lives in the capital city of Dhaka. Urological care is one of the many modern medical facilities in Dhaka. Thus, it is reasonable to assume that a sizable portion of bladder cancer cases from all across the country are diagnosed and treated in Dhaka City. Therefore, data from prestigious public and private hospitals as well as urology centres in Dhaka city would cover the majority of bladder cancer cases in the country. This study will therefore account for a sizable portion of bladder cancer patients and help predict the disease's overall frequency in the country. The aim of the study is to assess sex-based variation in the occurrence of urinary bladder carcinoma. The aim of the study is to assess sex-based variation in the occurrence of urinary bladder carcinoma.

## II. Methods

This cross sectional study on 819 patients of carcinoma of urinary bladder was done in 10 different hospitals in Dhaka city namely BSMMU, DMCH, SSMCH, NIKDU, BIRDEM, The Laboratory, Comfort Nursing home, Barakah Kidney Hospital and Diagnostic centre. United Hospital, Lab Aid Hospital, Dhaka. This study was carried out from January 2007 to December 2009. All specimen of bladder tissue that was sent for histopathological examination were included in the study. All specimen of bladder tissue that was sent for histopathological examination that reveals other diagnosis than cancer were excluded from the study.

## III. Results

**Table 1: Age distribution of the patients by TCC vs other cancers (n=819)**

Sex	TCC (n=792)	Percentage (%)	Others (n=27)	Percentage (%)	TCC, CI(95%) (Lower- Upper)	P Value
<50	195	24.6	11	40.7	21.6-27.6	0.057 <sup>ns</sup>
≥50	597	75.4	16	59.3	72.4-76.9	

NS=Not Significant

P value reached from chi square test

Chi square value=3.6, degrees of freedom=1, p value=0.057

It was observed that transitional cell carcinoma (TCC) were found 195(24.6%) and 597(75.4%) in <50 and ≥50 years of aged patients respectively. Other tumor was found 11(40.7%) in <50 years and 16(59.3%) in ≥50 years of aged patients. Chi square test was done but significant (p>0.05) difference was not found between TCC and others.

**Table 1: Sex distribution of the patients by SCC vs other cancers (n=819)**

Sex	SCC (n=10)	Percentage (%)	Others (n=809)	Percentage (%)	SCC, CI (95%) (Lower-Upper)	P Value
Male	6	60	609	75.3	29.6-75.5	0.266 <sup>ns</sup>
Female	4	40	200	24.7	9.6-55.5	

S=Significant

P value reached from chi square test

Chi square value= 1.23, degrees of freedom= 1, p value= 0.266

It was observed that squamous cell carcinoma (SCC) were found 6(60.0%) and 4(40.0%) in male and female patients respectively. Other tumor was found 609(75.3%) in male and 200 (24.70%) in female patients. Statistically significant (p>0.05) difference was not found between squamous cell carcinoma (SCC) and other cancers.

**Table 2: Sex distribution of the patients by Adenocarcinoma vs other cancers (n=819)**

Sex	Adenocarcinoma (n=13)	Percentage (%)	Others (n=806)	Percentage (%)	Adenocarcinoma, CI (95%) (Lower-Upper)	P Value
Male	7	53.8	608	75.4	26.7-67.6	0.074 <sup>ns</sup>
Female	6	46.2	198	24.6	19.1-60.0	

NS= Not Significant

P value reached from chi square test

Chi square value= 3.19, degrees of freedom= 1, p value= 0.074

It was observed that Adenocarcinoma were found 7(53.80%) and 6(46.2%) in male and female patients respectively. Other tumor was found 608(75.4%) in male and 198(24.6%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between Adenocarcinoma and other cancers.

**Table 3: Sex distribution of the patients by Mixed type vs other cancers (n=819)**

Sex	Mixed type (n=4)	Percentage (%)	Others (n=815)	Percentage (%)	Mixed type, CI (95%) (Lower-Upper)	P Value
Male	4	100	611	75	100.0-100.0	0.248 <sup>ns</sup>
Female	0	0	204	25	0.0-0.0	

NS=Not Significant

P value reached from chi square test

Chi square value= 1.33, degrees of freedom= 1, p value= 0.248

It was observed that mixed type cancer was found in all of the male and female patients. Other tumor was found 611(75.0%) in male and 204(25.0%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between mixed type and other cancers.

#### IV. Discussion

One of the most prevalent malignancies worldwide, urinary bladder cancer is more prevalent in developed nations. The lowest median bladder cancer (ASR) for males was in Asia (5.9). Rates for females were much lower, but follows the same geographical pattern as for males. Marked variation in bladder cancer incidence occurs not only between but also within countries. Italy, which had one of the highest rates for males world wide (41.1 in Genua province), also had a rate of 27.9 in Ragusa province. Because of its high recurrence rate, the actual prevalence of active bladder cancer is estimated to be about 10 times the number of new cases.<sup>1</sup> In present series 1088 histopathological bladder tissue samples were studied in three years period in before mentioned 10 different hospitals among which 75.3%, (95% CI= 72.277.8), were carcinoma of the urinary bladder. Ohio cancer incidence surveillance system (OCISS - from 1999 to 2003) reported cancer of the urinary bladder made up 4.8 percent. In present series among the 819 cases of carcinoma of urinary bladder, 96.75% (95% CI= 95.5 97.9) were TCC, 1.22% (95% CI 0.5 2.0) were SCC, 1.58% (95% CI=0.7-2.4) adenocarcinoma and .48% (95% CI = 0.0 - 1.0) mixed type. It was observed that Adenocarcinoma were found 7(53.80%) and 6(46.2%) in male and female patients respectively. Other tumor was found 608(75.4%) in male and 198(24.6%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between Adenocarcinoma and other cancers. It was observed that squamous cell carcinoma (SCC) were found 6(60.0%) and 4(40.0%) in male and female patients respectively. Other tumor was found 609(75.3%) in male and 200 (24.70%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between squamous cell carcinoma (SCC) and other cancers. It was observed that Adenocarcinoma were found 7(53.80%) and 6(46.2%) in male and female patients respectively. Other tumor was found 608(75.4%) in male and 198(24.6%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between Adenocarcinoma and other cancers. It was observed that mixed type cancer was found in all of the male and female patients. Other tumor was found 611(75.0%) in male and 204(25.0%) in female patients. Statistically significant ( $p>0.05$ ) difference was not found between mixed type and other cancers. Carcinoma of urinary bladder is predominantly a disease of male. In present series, the frequency in male is 75.1% (95% CI= 72.1 - 78.1) and in female it is 24.9% (95% CI = 21.926.4) male to female ratio 3.08:1. All the subtypes of cancers were more common in male sex group. There was no statistically significant difference found in between the subtypes of cancers ( $p>0.05$ ). Among MECC registries and US SEER (1996 - 2001) the male to female ratio for bladder cancer was highest in Jordanians (7.4:1), the US SEER ratio was the lowest (2.9:1), which is nearly similar to present series. 60,240 new cases for urinary bladder cancer in the USA 2004, 44640 male cases and 15,600 female cases (cancer facts and figures, American cancer society 2004). In UK 6500 men and 2500 women bladder cancer detected in 2001 (National statistics, UK Government census 2001). Among males, the incidence rate for whites was more than double the rate of blacks and Asian/ Pacific islander's, while, among

females, the incidence rate for whites was about 40 percent greater than the rate for blacks and more than double the rate for Asian/pacific islanders (SEER 2006). In Malawi, men work along side women in plantations and the sex ration for bladder cancers is 1.22:1.<sup>10</sup> The gender difference in the urinary bladder cancer incidence rates may be due to a greater prevalence of certain risk factors, such as smoking, which is more common among males than females. The 1999 -2003 ohio data, reveal 84% of urinary bladder cancers among males were diagnosed at in situ or localized (early) stages, which is slightly greater than the 82% of females diagnosed at earlier stages, 8% of males and 9% of females, were diagnosed at later (regional and distant) stages. The percentage of urinary bladder cancer cases reported unstaged unknown stage was less than 10 percent for both genders, (Ohio cancer incidence surveillance system, 2006) In present series at in situ or localized stages(NMIBC) were 34.2% (95%CI-31.0-37.4) both male and females, 42.45% (39.0- 44.1)both males and females were diagnosed at later stages(MIBC), there was no statistically significant difference found in between the subtypes of cancers (p<0.05). The percentage of urinary bladder cancer reported unknown stage was 23.43% (95% CI=20.5-24.9) for both genders. This dissimilarity is due to negligence in health awareness and investigation facilities.

#### *Limitations of The Study*

The study was conducted in a single hospital with a small sample size with limited access in the hospital. So, the results may not represent the whole community.

### **V. Conclusion**

Bladder cancer is one of the most prevalent cancers in Bangladesh, where the median age group of 50–60 years is younger than in the West. The highest frequency was TCC. The late-stage manifestation is most likely the result of patients' and doctors' ignorance of health issues.

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the Institutional Ethics Committee

### **VI. Recommendation**

To determine the true prevalence of the disease in the nation, a comprehensive prospective study encompassing all of the hospitals should be conducted. It is necessary to increase efforts to reduce smoking, protect the rights of nonsmokers, and prevent exposure to carcinogens. Consult your physician if you are experiencing symptoms related to your bladder. The opening of a national cancer registry would guarantee nationwide reporting.

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