

RESEARCH COMMUNICATION

A Descriptive Retrospective Study of Bladder Cancer at a Hospital in Iran (1973-2003)

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Abstract

Background: Bladder cancer is the ninth most common cancer worldwide, and it is the fourth most common cancer in males in Iran. The objective of this study was to collect, analyze, and discuss epidemiologic features of bladder cancer using data from our University hospital. **Methods:** A review of medical records of 603 patients with histologically confirmed primary malignant bladder tumors who were then referred and treated at the Radiation-Oncology Department during a time period 1973-2003 was performed. The topography and the histology of cases were coded and classified according to the International Classification of Diseases for Oncology (ICD -O) and a frequency distribution of bladder tumors by age at diagnosis, gender, histology types, was calculated. For age and cancer, mean, standard deviation, and 95% confidence intervals were presented. T test and Chi-squared test with $p < 0.05$ were used depending on the variable analyzed, using the SPSS statistical package. **Results:** Of the total, 85.2% were males and 15.0% were females ($P < 0.0001$). The mean age of diagnosis was not significantly different between the sexes and the frequency of bladder cancer increased with age in both cases. Overall, two thirds of cases were between 50-74 years of age. For those aged 49 years and below the male to female ratio were 3.6 while after this age the ratio rose to 6.1. The most common histological diagnosis in both sexes among patients was transitional cell carcinoma. **Conclusion:** The frequency distribution and histologic types of tumors were comparable with reported from other studies.

Key Words: Bladder cancer - histopathology - clinical epidemiology

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Introduction

Bladder cancer accounts for approximately two-thirds of all urinary cancers. Bladder cancer is the ninth most common cancer worldwide, although the rates in different parts of the world vary (Parkin et al., 2005). In the United States, for example, bladder cancer is the fourth most frequent tumor among men, and is also the fourth most common cancer in males in Iran (Sadjadi et al., 2005; Mohagheghi et al., 2006).

Globally, approximately 336,000 new cases of bladder cancer occurred in 2000, two-thirds of which were in developed countries. Bladder cancer is almost three to four times more common in men than in women in most populations (Parkin et al., 2005). This reflects the more frequent exposure of men to tobacco smoking and to occupations that imply contact with certain chemicals, such as aromatic amines, which are the two major recognized risk factors for bladder cancer (Negri et al., 2001). About 65% of bladder cancer in men and 30% of female cases in some developed countries are attributed to smoking. In Egypt and some Asian regions, chronic

cystitis caused by *Schistosoma haematobium* infection is a major risk factor (World cancer report, 2003). Internationally, incidence rates of bladder cancer among men vary more than fifteen-fold (Parkin et al., 2005). The highest rates among men are observed throughout Southern, Western and Northern Europe, North America, and Oceania; relatively low rates are found in Eastern Europe, Central America, South America, and several areas of Asia.

About 132,000 people each year die from bladder cancer world wide and the mortality rate is 10 per 100,000 for males and 2.4 per 100,000 for females. These rates nearly double for developed countries. Five-year survival rates ranging from 40% to 80% depending on whether noninvasive lesions are included in the computation. Incidence rates of bladder cancer have been rising in many areas of the world, although rates may have stabilized or decreased in the last decade in some countries (Schottenfeld et al., 2006). Incidence and mortality rise sharply with age and about two-thirds of cases occur among persons age 65 years and older (World Cancer Report, WHO, 2003). The observed increases in incidence

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Table 1. Frequency Distribution of Bladder Cancer Cases by Age Groups and Gender

Age(Years)	Men		Women		Total	
<50	55	10.7	15	16.9	70	11.6
50-69	301	58.6	42	47.2	343	56.9
>69	158	30.7	32	35.9	190	31.5
Total	514	85.2	89	15.0	603	100

may be partly explained by changes in diagnostic practice.

More than 90% of bladder cancers diagnosed are transitional cell carcinomas. Much less common are adenocarcinomas (6%), squamous cell carcinoma (2%) and small cell carcinoma (less than 1%). Transitional cell carcinomas (TCC) are by far the most frequent histological type, although the distribution of histological types varies in different populations. In American white populations, 93% of all bladder cancers were TCC, while they comprised 85% in American Black populations and even less in Egypt (La Vecchia et al., 1999).

This study aims to provide baseline data on the frequency, types and characteristics of cancers for the purposes of research, records and planning.

Materials and Methods

Medical records were reviewed for 603 patients with histologically confirmed primary malignant bladder tumors who were then referred and treated at the Radiation-Oncology Department, at Shohada Hospital, Shahid Beheshti University of Medical Sciences in Tehran during 1973-2003. Patients were referred from private and public hospitals. The data were extracted from patient's files available in department, and entered into a computer database. The topography and the histology of cases were coded and classified according to the International Classification of Diseases for Oncology third edition (ICD -O) (Fritz et al., 2000). The frequency distribution of bladder tumors by age at diagnosis, gender, histology types, was calculated. For age and cancer, mean, standard deviation, and 95% confidence intervals were presented. T test and Chi-squared test with $p < 0.05$ were used depending on the variable to be analyzed, using the SPSS statistical package. Demographic and histopathological

Table 2. Frequency of Different Morphologies Among Bladder Cancer Patients

ICD	Morphology	Females		Males	
8120	Transitional cell carc, NOS	45	50.6	315	61.3
8130	Papillary trans. cell carc.	28	31.5	123	23.9
8070	Squamous cell carc, NOS	5	5.6	19	3.7
8010	Epithelial tumor, malignant	2	2.2	12	2.3
8050	Papillary carc, NOS	2	2.2	-	-
8041	Small cell carcinoma, NOS	1	1.1	-	-
8140	Adenocarcinoma, NOS	1	1.1	5	1.0
8260	Papillary adenocarc, NOS	1	1.1	11	2.1
8310	Clear cell adenocarc, NOS	1	1.1	-	-
8312	Renal cell carcinoma	1	1.1	2	0.4
8021	Carc, anaplastic, NOS	-	-	3	0.6
8910	Rhabdomyosarcoma	-	-	3	0.6
	Other	2	2.2	8	1.9
Total		89	100	514	100

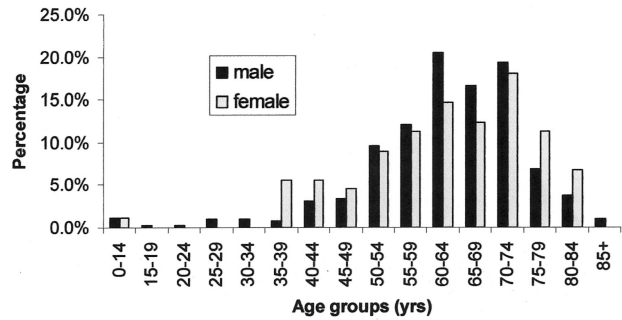


Figure 1. Age Distribution of Bladder Cancer Cases by Gender

data of bladder tumors of all patients were compared with other studies in Iran and other countries and interpretation of data were emphasized.

Results

During the 30 year period (1973-2003), the total number of patients was 603. Table 1 and Figure 1 provide details of the gender and age distributions. The male-female ratio was 5.8 and the mean age at diagnosis was 61.9 years (63 for males and 61.4 for females, non-significant). Table 2 shows the distribution of cases by histology.

Discussion

A series of 603 malignant bladder tumors of all the patients were analyzed for relative frequency, histopathology, as well as the distribution of age and sex and the results were compared with findings reported from other studies.

Male to female ratios generally range between three and five. The male-female ratio in different parts of world is varied. It was less than three in India, Thailand and US black. The ratios exceeded six in several areas of Southern Europe, such as Spain, where the prevalence of cigarette smoking is higher in men than in women (Parkin et al., 2005; Schottenfeld et al., 2006). An analysis of our total series has revealed a predominance of males over females (85% to 15%), which is comparable to previous research (Mortazavi et al., 1999; Yavari et al., 2004; Parkin et al., 2005, Mohagheghi et al., 2006; Schottenfeld et al., 2006).

It is estimated that bladder cancer is the eighth most common cancer among men in developing countries (Parkin et al., 2001). Our results showed that, bladder cancer is the fourth most common cancer in males among patients. This is comparable by a study in Iran (Sadjadi et al., 2005), and it is lower compared to other reports in Iran by the Cancer Institute Cancer Research Center, and National cancer Registration (Mohagheghi et al., 2006; Mosavi et al., 2007).

The frequency distribution of bladder cancer in children less than 15 years old observed in this study has similar results to previous research results of childhood bladder tumors in Iran (Mohagheghi et al., 2006; Mosavi et al., 2007).

In this study, when the data was examined for age differences, the frequency rates for bladder cancer in patients younger than 50 and above 50 years were 11.6% and 88% respectively. This relative frequency is comparable to other reports in Iran (Mohagheghi et al., 2006). According to this study, 47% of cases occurred in patients older than 65 years of age. Also, this relative frequency is lower compared to the previously reported by westernized countries. Westernized countries suggest more than two-thirds of cases occurred among patients aged 65 years and older (Schottenfeld et al., 2006).

The results showed that the most common histological diagnosis was transitional cell carcinoma (NOS & Papillary), accounted for more than two thirds (85%) of all admitted cases with bladder tumors. With respect to this distribution of tumors, our result is similar to those reported by authors from Iran and westernized countries (Negri et al., 2001; Mohagheghi et al.; 2006; Schottenfeld et al., 2006; Mosavi et al., 2007). Squamous cell carcinoma represents 2% of bladder cancer (Schottenfeld et al., 2006). In this study, squamous cell carcinoma account for 3.9% of all primary bladder tumors, and it was the second most common bladder tumor among patients. The relative frequency is somehow different than those previously reported (Mohagheghi et al., 2006; Schottenfeld et al., 2006; Mosavi et al., 2007) In this study, adenocarcinoma (NOS & Papillary) represents 1% of bladder tumors. This is similar to those previously reported (Mohagheghi et al., 2006; Schottenfeld et al., 2006). Discrepancies were found in percentage of tumor types in various studies related to methods of collecting data which differ from one country to another. In conclusion, patient's mean age was 61.9 years, with 85.2% men and 15.0% women. Overall, 75% of cases were between 50-74 years of age. Most bladder cancers are transitional cell carcinomas. The frequency distribution and histological features of bladder tumor were somewhat comparable with those reported by other studies.

There are a number of limitations to the study. One important limitation of the study is that our lack of recorded information regarding factors that may be associated with bladder cancer and no related factor analysis was calculated. Also, another limitation was the lack of detailed clinical information in the cancer registries, such as staging and treatment information. It is worth putting time and effort into wide development, establishment a good hospital based cancer registry in Iran for complete and accurate uniform oncological information for data collection. Therefore, hospital cancer registry data can be used for clinical research, such as survival analysis of various patient groups, estimation of efficiency of various types of treatment. It also can provide information for cancer program planning, administrative planning, and allocation of hospital resources.

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