

CARCINOMA OF THE URINARY BLADDER: AGE DIFFERENCES.

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Abstracts

Bladder carcinoma is one of the most common cancers of the genitourinary tract. It can affect any age and it has been debated whether young patients have a better prognosis than their counter part.

One hundred and six patients diagnosed as carcinoma of the bladder within two years period were classified according to age to 3 groups, below 50, 50-65 and above 65 years old. Comparison was made between the 3 groups in terms of the type, size, stage, grade, and the type of treatments used.

The average age of the patients was 58 years. Female patients increased with advancing age. 89.5% of the tumors were transitional cell type and there were no differences between the three groups regarding the histopathological type. There was highly significant differences between the 3 groups regarding the stage, the grade and the size of the tumors with low stages and grades and small tumors sizes detected in younger patients. The majority of younger patients treated with transurethral resections (TUR) plus intravesical therapy, while the majority of the older patients treated with TUR plus radiotherapy.

Carcinoma of the bladder is not uncommon in young age group, and a higher percentage of tumors affecting young age patients in comparison with other populations. Tumors affecting younger age patients are of lower stage, grade and tumor size at time of presentation.

Introduction

Bladder carcinoma is the second most common cancer of the genitourinary tract. Globally it account for 7% of new cancer cases in men and 2% of new cancer cases in women¹.

Although bladder cancer can occur at any age even in children, however, it is generally a disease of middle-age and elderly people, with the median age at diagnosis for urothelial carcinoma being 69 year in males and 71 year in females. The mortality from bladder cancer is greater in the elderly population, but data are lacking to explain these facts².

Age has been found to be an independent risk factor for the development of Bladder cancer. Various demographic studies have shown that individuals age 65 and older have an 11 fold increase in the incidence of cancer in general and a 15

fold increase in cancer mortality when compared with individuals less than age 65³.

The natural history and prognosis of bladder cancer in young patients is not well defined⁴. It has been debated whether younger patients have a better prognosis than their older counterparts.

Several studies have shown that the natural history of bladder cancer at a younger age resembles that of bladder cancer in older patients.

Other studies have demonstrated that younger patients tend to have lower disease recurrence and progression rates, as well as better survival, compared with older patients. It is also unclear whether a better prognosis in younger patients is a result of a lower stage and grade at presentation, or whether it is a result of

the indolent nature of the tumors in younger patients⁵.

The current study evaluated patients who presented with bladder carcinoma and compared these patients according to the age at presentation.

Patients and methods

The newly diagnosed patients with carcinoma of the urinary bladder from January 2007 till December 2009 were analyzed and followed up. The total number of these patients with bladder carcinoma was 106 patients. All these patients represent an experience of one urologist only in both private and governmental hospitals. All patients presented from areas within the south of Iraq.

The patients with age below 50 years were classified as (group 1); patients 50-65 years old were classified as (group 2) while those with age above 65 were classified as group 3.

A comparison of these groups was done in terms of, sex of the patient, type, size, stage, grade of the tumor and type of the treatment. Chi square test was used to detect the presence of significant differences between the three groups.

Results

The total number of patients diagnosed with bladder cancer during this period was 106 patients. Eighty males (75.4%) and 26 females (24.6%). The average age was 58 year.

Table I shows the sex variation between the three groups. There was significant difference between the three groups in regard to the sex of the patients. The proportion of females increased with the advancing age. ($p < 0.05$).

Of the total 106 patients, the majority of the cases were transitional cell carcinoma type (89.5%) while only 2 patients were diagnosed as adenocarcinoma (2%) and 5 patients diagnosed as squamous cell carcinoma type (7.5%).

There were no significant differences between the three groups in regarding the histopathologic type of the tumours (Table II).

Regarding the histopathologic grades of the tumors; group 1 patient under 50 years old (52%) was categorized as grade 1, (40%) as grade 2 and (8%) as grade 3. Those patients in group 2 (patient 50-65 years old): only (6%) categorized as grade 1, (37%) as grade 2 and (47%) as grade 3. While the patients in group 3 (patients above 65 years old): (9%) of patients categorized as grade 1, (21%) as grade 2, and (70%) as grade 3. There was highly significant difference between the three groups in regarding the histopathologic grading ($p < 0.001$) Table III.

Table IV, shows the differences between the three age groups in regarding the histopathologic staging of the disease.

Group 1 (patients younger than 50 years old): reveals superficial tumors, Ta and T1 (non muscle invasive) in (76%) of patients, while only (24%) of patient in this group reveals muscle invasion T2 and T3.

Group 2 (50-65 years): reveals Ta and T1 stage in (42%) of patients; While stage T2 and T3 in (58%) of patients.

Group 3 (65 years and older) reveals stage Ta and T1 in (23%) while the invasive T2 and T3 in (77%) of patients. ($P < 0.01$).

The size of the tumors has been classified as those tumors which complete transurethral resection is possible with no apparent residual tumor after resection and those with large size and wide base or multiple tumors that cannot be completely resected.

The result revealed in Table V: group 1 (patient below 50 years old) 92% completely resected, while group 2 and group 3 only 68.4% and 46.5% completely resected respectively. There was a highly significant difference between the three groups. ($p < 0.001$).

Table VI, shows a comparison between the treatment options selected for patients with bladder carcinoma. There was a highly significant difference between the three groups ($p < 0.001$). The majority of patients in group 1 treated with

transurethral resection plus intravesical chemo- or radiotherapy (88%), while it is used in (47%) and (19%) in group 2 and group 3 respectively. The majority of patients in group 3 (81%) treated with radiotherapy.

Table I: Distribution of patients by age and sex.

| | group 1 | group2 | group3 | Total |
|--------|----------|-----------|----------|------------|
| male | 22 (88%) | 31(81.5%) | 27(63%) | 80(75.4%) |
| female | 3(12%) | 7(18.5%) | 16(37%) | 26(24.6%) |
| Total | 25(100%) | 38(100%) | 43(100%) | 106 (100%) |

$$X^2=6.59 \quad df=2 \quad p < 0.05$$

Table II: Distribution of patient's age and the type of cancer.

| | group 1 | group 2 | group3 | total |
|---------|----------|------------|----------|-----------|
| TCC | 24 (96%) | 34 (89.5%) | 37(86%) | 95(89.5%) |
| Adenoca | 1 (4%) | 1(2.5%) | - | 2 (2%) |
| SCC | - | 3(8%) | 5(11.5%) | 8(7.5%) |
| Others | - | | 1 (2.5%) | 1 |
| Total | 25(100%) | 38(100%) | 43(100%) | 106(100%) |

$$X^2= 2.72 \quad df =6 \quad p > 0.05$$

Table III: Distribution of patients by age and the grade of the tumors.

| | group1 | group 2 | group3 | total |
|--------|----------|----------|----------|-----------|
| grade1 | 13(52%) | 6 (16%) | 4 (9%) | 23(21.6%) |
| grade2 | 10 (40%) | 14 (37%) | 9 (21%) | 33(31.1%) |
| grade3 | 2 (8%) | 18 (47%) | 30 (70%) | 50(47.1%) |
| Total | 25(100%) | 38(100%) | 43(100%) | 106(100%) |

$$X^2=30.22 \quad df=4 \quad p < 0.001$$

Table IV: Histopathologic staging

| | group1 | group2 | group3 | total |
|-------|----------|----------|----------|-----------|
| Ta | 4 (16%) | 3 (8%) | 1 (2%) | 8(7.45%) |
| T1 | 15 (60%) | 13 (34%) | 9 (21%) | 37(34.9%) |
| T2 | 5 (20%) | 19 (50%) | 22 (51%) | 46(43.4%) |
| T3 | 1 (4%) | 3 (8%) | 11 (26%) | 15(14.1%) |
| Total | 25(100%) | 38(100%) | 43(100%) | 106(100%) |

$$X^2=21.80 \quad df= 6 \quad p < 0.01 =16.81$$

Table V: Distribution of cases by age and the size of the tumour.

| | group1 | group2 | group3 | total |
|---------------------|----------|------------|------------|-----------|
| completely resected | 23(92%) | 26(68.4%) | 20(46.5%) | 70(66%) |
| unresectable | 2(8%) | 12(31.6%) | 23(53.5%) | 36(34%) |
| Total | 25(100%) | 38(100%) | 43(100%) | 106(100%) |

$$X^2=14.85 \quad df=2 \quad p < 0.001$$

Table VI: Distribution of the cases by age and the mode of the treatment.

| | group1 | group2 | group3 | total |
|--------------------------|----------|----------|----------|-----------|
| TUR+intravesical therapy | 22(88%) | 18 (47%) | 8 (19%) | 48 (45%) |
| cystectomy | 2(8%) | 6(6%) | ----- | 8(7.5%) |
| radiotherapy | 1(4%) | 14(37%) | 35(81%) | 50 (47%) |
| Total | 25(100%) | 38(100%) | 43(100%) | 106(100%) |

 $\chi^2=41.66$

df=4

p < 0.001

Discussion

Bladder cancer is one of the most common urological malignancies. Bladder cancer is the fourth most common malignancy among men in the Western world, following prostate, lung, and colon cancers. In Europe and the United States, bladder cancer accounts for 5% to 10% of all malignancies among men. The risk of developing bladder cancer at <75 years of age is 2% to 4% for men and 0.5% to 1% for women, compared with the risk of lung cancer, for example, which is 8% for men and 2% for women⁶.

As per the Indian cancer registry data in men, it is the ninth most common cancer accounting for 3.9% of all cancer cases. The median age at diagnosis was 69 years old for males and 71 years old for females. It is three times more common in men than in women⁷.

Cancer of the urinary bladder is the top cancer in males in Basrah during the years 2005- 2008. It accounts for 13.7% of all cancer cases among males and it is the fifth most common malignancy (4.1%) in females⁸.

The median age at diagnosis of carcinoma is 65 to 70 years..(6) The median age at presentation was 60 years old (range: 18- 90 years old) and the average age was 60.2 ± 4.4 years⁷.

Transitional cell carcinoma of the bladder in young patients is rare with less than 1% of such tumors presenting in the first 4 decades of life⁹.

California Cancer Registry data illustrate a peak in the incidence of bladder cancer in individuals 85 years or older¹⁰.

In this study, the median age of patients with carcinoma of bladder was 58 years

and we can notice that 25 patients (23.5%) are below 50 years old at finding which suggest a lower age affected with carcinoma of the bladder in Basrah.

The numbers of female affected in this study increased with increasing age of the patients with a significant differences between the three age groups (Table I). This finding goes with other previous studies^{3,11,12}.

Transitional cell carcinoma (TCC) is the most common variant accounting for 90% of bladder cancer in the world literature^{7,9}.

In this study about 89.5% of the malignancies studied are transitional cell type and there was no difference between the three age groups regarding the histopathologic type of the tumors (Table II). This result reveals no difference from the above study even our area was known to be endemic with Bilharziasis. Actually this finding suggests a shift toward (TCC).

Urothelial carcinoma of the bladder can present as a muscle invasive or nonmuscle invasive lesion. Approximately 75% of patients present with nonmuscle invasive tumors limited to the mucosa or lamina propria⁵. A total of 40 to 45% of newly diagnosed bladder cancers are high-grade lesions, more than half of which are muscle invasive at the time of diagnosis⁷.

This study reveals that only 42.3% of patients presented as nonmuscle invasive tumours. The majority of the invasive lesions presented in the higher age group with highly significant differences between the three age groups regarding the pathologic stage at the time of presentation (table IV). This results may

be due to an aggressive nature of the tumor or a late presentation of our patients.

These differences can be noticed between the three age groups regarding the size of the tumours at time of presentation (table V) and the mode of treatment for these tumours (table VI). The majority of patients in group 1 presented with tumors that complete resection was possible so it was combined with intravesical therapy while the higher age groups larger number presented with unresectable tumors so radiotherapy was the definitive treatment for higher number of patients and highly significant differences between the three age groups can be noticed. (tables V and VI).

Younger patients appear to have a more favorable prognosis than older patients, and tumors in younger patients tend to be smaller, less multiple, less invasive, and more favorable in tumor grade at initial

presentation¹¹⁻¹⁵.

Bladder transitional cell carcinoma in young adults has a clinical stage distribution and natural history similar to that in older patients¹³.

In this study bladder cancer in younger age adults presented with lower stages and grades and tumor size at time of presentation and so less aggressive clinical course.

Conclusion

Carcinoma of the bladder is not uncommon in young age group, and we have higher percentage of tumors affecting young age patients in comparison with other populations.

Tumors affecting younger age patients are of lower stage, grade and tumor size at time of presentation. As carcinoma of the bladder is fairly common in Basrah, it worth considering further study including the risk factor and the survival of the patients

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