ORIGINAL ARTICLE

Epidemiological and Clinicopathological Features of Bladder Cancer: A Report from Kermanshah Province, Iran

Mazaher Ramezani[1], Nima Naderi[1], Afshin Almasi[2], Masoud Sadeghi[3*]

1. Department of *Pathology*, Imam Reza Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran
2. Department of Biostatistics and Epidemiology, Kermanshah University of Medical Sciences, Kermanshah, Iran
3. Cancer Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran

ARTICLE INFO

Corresponding author:
Masoud Sadeghi,
Address: Cancer Research Center,
Kermanshah University of Medical
Sciences, Kermanshah, Iran
Email: Sadeghi_mbrc@yahoo.com

ABSTRACT

Background: Bladder cancer accounts for about 7% of all cancers among adults in Iran. We aimed to evaluate epidemiological and clinicopathological features of bladder cancer in Kermanshah province, west Iran.
Methods: In a descriptive retrospective study, records of patients with bladder cancer referring to Imam Reza Hospital, Kermanshah city, Iran during 2011-2013 were analyzed. Sex, age, smoking habits, patients' symptoms, *histo*pathology and staging of the tumor *were extracted from the records.* The grading of the tumor was performed according to the Ash grading system.
Results: 220 patients were registered. 179 (81.4%) were patients men. The mean±SD age for patients at diagnosis was 62.5±15.1 years (range: 14-90 years). 71 (43%) patients were smokers. 165 (75%) patients were from rural areas. Hematuria, dysuria, *and frequent or* painful urination were reported *in* 74.5%, 5.5%, and 41.8%, respectively. Transitional cell carcinoma was the most common pathology in 93.2% of the patients. Grade I, II, III and IV tumors were observed in 0.5%, 41.5%, 37% and 21% of the patients, respectively.
Conclusion: Bladder cancer occurs most commonly in the elderly. Bladder cancer in Asia is more common in men compared with Europe and Africa. Since hematuria was the main presenting manifestation of the patients with bladder cancer, elderly patients with hematuria should be referred at the earliest convenience for investigation.

Introduction

Bladder cancer accounts for 7% of all new cases of cancer in men.[1] Transitional cell carcinoma (TCC) is the most common histological subtype, accounting for approximately 85% of patients.[1] In Iran, bladder cancer accounts for 7.04% of all cancers.[2] Sex, race, and age at diagnosis have a significant impact on mortality from bladder cancer. Tumor grading, staging and histology at presentation also affect the outcome.[3] This cancer is usually discovered in older patients; median age at the time of diagnosis is 69 years for men and 71 years for women according to published data.[2] While men are at a higher risk for developing bladder cancer (80%

were male and 20% female),[4] women present with more advanced disease.[5]

A number of etiological factors are associated with the development of bladder cancer. In industrialized countries, cigarette smoking has been recognized as the most important etiological factor.[6] About 94% of bladder carcinomas are composed of transitional cells. Its distinct symptoms are microscopic or macroscopic hematuria and less frequent symptoms include difficulty urinating, frequent urination and therapy-resistant urinary tract infections.[7]

We aimed to evaluate epidemiological and clinicopathological features of bladder cancer in

Kermanshah province, west Iran.

Materials and Methods

In a descriptive retrospective study from 2011 to 2013, records of patients with bladder cancer referred to Emam Reza Hospital, Kermanshah city, Iran were analyzed. Demographic data including age, sex, smoking habits, history of hematuria/painful or difficulty in urination, type of pathology, staging and grading of tumor *were studied for all patients.* Grading of tumors were defined according to the Ash grading system.[8] SPSS software, version 19 was used for data and analysis and figures were plotted in Excel software.

Results

Overall, 220 patients were registered. 179 (81.4%) patients were men. Mean±SD age at diagnosis was 62.5±15.1 years (range: 14-90 years, table 1). The patients were divided into five age groups (table 1). Most patients (60.9%) were >60 years old. 71 (43%) out of 165 patients had a positive history of smoking. 165 (75%) patients were from rural and 55 (25%) patients from urban areas. The most common pathology was TCC with a frequency of 93.2%. Squamous cell carcinoma (SCC) and adenocarcinoma with equal frequency comprised the other pathological subtypes. Of the 205 patients with TCC, one (0.5%) patient, and 85 (41.5%), 76 (37%) and 43 (21%) patients had grade I, II, III and IV tumors, respectively. Frequency of hematuria, dysuria *and frequent or* difficulty in urination *was* 74.5%, 5.5% and 41.8%, respectively. Figure 1 shows the prevalence of patients with grade and sex in bladder cancer. Grade II had the most frequency and Grade I had the lowest in both sex.

Discussion

Bladder cancer is a common malignancy often diagnosed in older adults.[1] The median age at diagnosis in a study was reported to be 69 years for men and 71 years for women.[9] Another research showed 58.4% of the

Table 1: The baseline variables in patients with bladder cancer (n=220)

Variables	n (%)
Age, year	
<30	10 (4.5)
30-40	11 (5)
41-50	20 (9.1)
51-60	45 (20.5)
>60	134 (60.9)
Sex	
Male	179 (81.4)
Female	41 (18.6)
Smoking, n=165	
Yes	71 (43)
No	94 (57)
NA	55
Habitation	
Rural(Village)	165 (75)
Urban(city)	55 (25)
Type of pathology	
TCC	205 (93.2)
SCC	5 (2.3)
Adenocarcinoma	6 (2.7)
Others	4 (1.8)
Grade in TCC patients, n=205	
I	1 (0.5)
II	85 (41.5)
III	76 (37)
IV	43 (21)
Hematuria	
Yes	164 (74.5)
No	56 (25.5)
Dysuria	
Yes	12 (5.5)
No	208 (94.5)
Frequent urination or Difficulty urinating	
Yes	92 (41.8)
No	128 (58.2)

NA: Not available; SCC: Squamous cell carcinoma; TCC: Transitional cell carcinoma
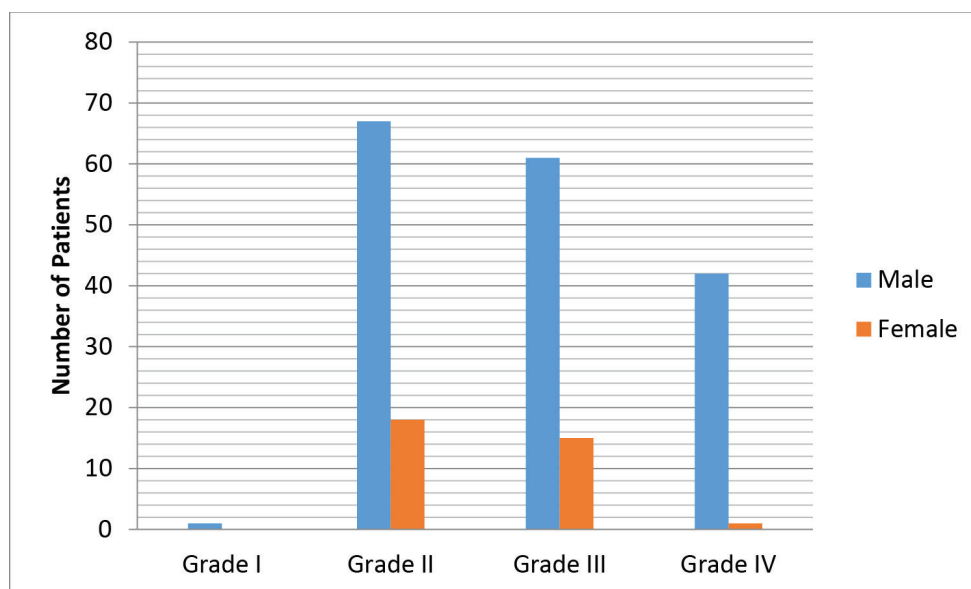

Figure 1: The prevalence of patients based on tumor grading and sex in bladder cancer

patients with bladder cancer were older than 50 years of age.[10] Another study showed that 94.4% of the patients presented with bladder cancer were older than 40 years.[11] The largest proportion of patients (39.8%) with bladder cancer in a study were older than 70 years.[12] In our study 90.5% of patients had age>40 years and 81.4% were older than 50 years. The mean age in our study and other studies, except in two studies, was older than 60 years (table 2). Therefore, the results confirmed that bladder cancer occurs most commonly in the elderly. According to the literature, bladder cancer is more common in men except in a report from Tanzania which was almost equal in both sexes. Therefore, the prevalence of bladder cancer in men in Asia is reported to be higher than Europe and Africa.

Cigarette smoking has been known as an environmental risk factor for bladder cancer.[18] 30%- 50% of patients with bladder cancer had a positive history of cigarette smoking.[19] It accounts for about half of bladder cancers diagnosed among men and about one third of that among women.[20] A study from Iran showed that tobacco and opium use were found in 109 (65.3%) and 44 (34.1%) of the patients, respectively.[12] In our study, 43% of patients were smokers.

We found that 25% of patients with bladder cancer were from urban and 75% from rural areas. In a study, 95.5% of patients with bladder cancer came from urban areas. TCC was the most common variant accounting for 90% of bladder cancer reported in the literature.[21] SCC accounts for only 1% of bladder cancers in England, 3%-7% in the United States and as much as 75% in Egypt.[9] In a study, 97.7% of the patients with bladder cancer had TCC, whereas SCC and adenocarcinoma accounted for 1.04% and 1.25% of the patients, respectively.[11] Frequency of different bladder cancers in a study from Iran was reported with TCC as the most common (95.7%), followed by adenocarcinoma (1.1%) and SCC (0.5%).[12] In our study, frequency of TCC, SCC and adenocarcinoma was 93.2%, 2.3% and 2.7%, respectively. In a study, 44% cases with bladder cancer were Grade II and 29.5% Grade III.[8] Out of 148 patients with noninvasive papillary carcinoma of bladder, 84.5% were high grade (grade III or IV) and 15.5% were low grade (grade I or II).[22] In our study, 58% of the patients was high grade that grade III was 37% and 42 % were low grade that grade II was 41.5%.

Hematuria and dysuria independently are associated with bladder cancer.[23] Bladder cancer is reported to be associated with painless hematuria in 80–85% of the patients.[11] In our study, hematuria, dysuria and *frequent or* difficulty urination were the most common complaints in patients with frequency of 74.5%, 5.5% and 41.8%, respectively. Another study in Iran,[15] reported hematuria, dysuria and difficulty in urination in 49.1%, 12.5% and 9.8%, respectively. Therefore, hematuria is the presenting manifestation of bladder cancer in most patients.[24]

Conclusion

The results confirmed that bladder cancer occurs most commonly in the elderly with male predominance. Hematuria was the most common complaint of patients with bladder cancer; as a result physicians should be alert to refer patients with this symptom for further evaluation particularly in elderly.

Conflict of Interest: None declared.

References

1. Lara J, Brunson A, Keegan TH, Malogolowkin M, Pan CX, Yap S, et al. Determinants of survival in adolescents and young adults with urothelial bladder cancer: results from the California Cancer Registry. J Urol. 2016 pii: S0022-5347(16)30454-2. doi: 10.1016/j. juro.2016.05.082. PubMed PMID: 27208515.

2. Shakhssalim N, Hosseini SY, Basiri A, Eshrati B, Mazaheri M, Soleimanirahbar A. Prominent bladder cancer risk factors in Iran. Asian Pac J Cancer Prev. 2010; 11(3):601-6. PubMed PMID: 21039023.

3. Scosyrev E, Noyes K, Feng C, Messing E. Sex and racial differences in bladder cancer presentation and mortality in the US. Cancer. 2009; 115(1):68-74. doi: 10.1002/cncr.23986. PubMed PMID: 19072984.

4. Mungan NA, Kiemeney LA, van Dijck JA, van der Poel HG, Witjes JA. Gender differences in stage distribution of bladder cancer. Urology. 2000; 55(3):368-71. doi: 10.1016/S0090-4295(99)00481-1. PubMed PMID: 10699612.

5. Shariat SF, Sfakianos JP, Droller MJ, Karakiewicz PI, Meryn S, Bochner BH. The effect of age and gender on bladder cancer: a critical review of the literature. BJU Int. 2010; 105(3):300-8. doi: 10.1111/j.1464-410X.2009.09076.x. PubMed PMID: 19912200.

6. Johansson SL, Cohen SM. Epidemiology and

Table 2: Age and sex distribution in bladder cancer patients

Reference	Year	Number of patients	Country	Mean age	Range	Male to female ratio
8	1997-2000	495	Pakistan	59	30-87	4:1
10	2000-2010	185	Tanzania	54.3	23-98	0.95:1
11	2001-2008	561	India	60.2	18-90	8.6:1
12	2007-2009	216	South Iran	65.1	-	4.84:1
13	2000-2011	2160	Poland	69.1	11-100	2.96:1
14	1997-2011	31266	Sweden	72	-	2.85:1
15	2010-2011	112	North Iran	68	-	7:1
The present study	2011-2013	220	West Iran	62.5	14-90	4.37:1
16	1973-2003	603	Center Iran	61.9	-	5.8:1
17	1985-2012	190	North Eastern Iran	66.9	-	6.57:1

etiology of bladder cancer. Semin Surg Oncol. 1997; 13(5):291-8. doi: 10.1002/(SICI)1098-2388(199709/10)13:5<291::AID-SSU2>3.0.CO;2-8. PubMed PMID: 9259084.

7. Ke Z, Lai Y, Ma X, Lil S, Huang W. Diagnosis of bladder cancer from the voided urine specimens using multi-target fluorescence in situ hybridization. Oncol Lett. 2014; 7(2):325-330. doi: 10.3892/ol.2013.1744. PubMed Central PMCID: PMC3881196.

8. Ahmed Z, Muzaffer S, Khan M, Kayani N, Pervez S, Husseini AS, et al. Transitional cell carcinomas of the urinary bladder. A histopathological study. J Pak Med Assoc. 2002; 52(9):396-8. PubMed PMID: 12532572.

9. Lynch CF, Cohen MB. Urinary system. Cancer. 1995; 75(1 Suppl):316-29. PubMed PMID: 8001003.

10. Rambau PF, Chalya PL, Jackson K. Schistosomiasis and urinary bladder cancer in North Western Tanzania: a retrospective review of 185 patients. Infect Agent Cancer. 2013; 24; 8(1):19. doi: 10.1186/1750-9378-8-19. PubMed PMID: 23705833.

11. Gupta P, Jain M, Kapoor R, Muruganandham K, Srivastava A, Mandhani A. Impact of age and gender on the clinicopathological characteristics of bladder cancer. Indian J Urol. 2009; 25(2):207-10. doi: 10.4103/0970-1591.52916. PubMed PMID: 19672348.

12. Salehi A, Khezri AA, Malekmakan L, Aminsharifi A. Epidemiologic status of bladder cancer in Shiraz, southern Iran. Asian Pac J Cancer Prev. 2011; 12(5):1323-7. PubMed PMID: 21875290.

13. Poletajew S, Walędziak M, Fus Ł, Pomada P, Ciechańska J, Wasiutyński A. Urothelial bladder carcinoma in young patients is characterized by a relatively good prognosis. Ups J Med Sci. 2012; 117(1):47-51. doi: 10.3109/03009734.2011.650797. PubMed Central PMCID: PMC3282242.

14. Jahnson S, Hosseini Aliabad A, Holmäng S, Jancke G, Liedberg F, et al. Swedish National Registry of Urinary Bladder Cancer: No difference in relative survival over time despite more aggressive treatment. Scand J Urol. 2016; 50(1):14-20. doi: 10.3109/21681805.2015.1085089. PubMed PMID: 26382667.

15. Ahmadi M, Ranjbaran H, Amiri MM, Nozari J, Mirzajani MR, Azadbakht M, et al. Epideiologic

and socioeconomic status of bladder cancer in Mazandaran Province, northern Iran. Asian Pac J Cancer Prev. 2012; 13(10):5053-6. doi:10.7314/APJCP.2012.13.10.5053. PubMed PMID: 23244109.

16. Yavari P, Sadrolhefazi B, Mohagheghi MA, Mehrazin R. A descriptive retrospective study of bladder cancer at a hospital in Iran (1973-2003). Asian Pac J Cancer Prev. 2009; 10(4):681-4. PubMed PMID: 19827894.

17. Nikfarjam Z, Massoudi T, Salehi M, Salehi M, Khoshroo F. Demographic survey of four thousand patients with 10 common cancers in North Eastern Iran over the past three decades. Asian Pac J Cancer Prev. 2014; 15(23):10193-8. PubMed PMID: 25556447.

18. Pashos CL, Botteman MF, Laskin BL, Redaelli A. Bladder cancer: epidemiology, diagnosis, and management. Cancer Pract. 2002; 10(6):311-22. doi: 10.1046/j.1523-5394.2002.106011.x. PubMed PMID: 12406054.

19. Kirkali Z, Chan T, Manoharan M, Algaba F, Busch C, Cheng L, et al. Bladder cancer: epidemiology, staging and grading, and diagnosis. Urology. 2005; 66(6 Suppl 1):4-34. doi:10.1016/j.urology.2005.07.062. PubMed PMID: 16399414.

20. Silverman DT, Hartge P, Morrison AS, Devesa SS. Epidemiology of bladder cancer. Hematol Oncol Clin North Am. 1992; 6(1):1-30. PubMed PMID: 1556044.

21. Rabbani F, Cordon-Cardo C. Mutation of cell cycle regulators and their impact on superficial bladder cancer. Urol Clin North Am. 2000; 27(1):83–102. doi: 10.1016/S0094-0143(05)70237-8. PubMed PMID: 10696248.

22. Herr HW. Tumor progression and survival of patients with high grade, noninvasive papillary (TaG3) bladder tumors: 15-year outcome. J Urol. 2000; 163(1): 60-1; discussion 61-2. doi: 10.1016/S0022-5347(05)67972-4. PubMed PMID: 10604314.23. Shephard EA, Stapley S, Neal RD, Rose P, Walter FM, Hamilton WT. Clinical features of bladder cancer in primary care. Br J Gen Pract. 2012; 62(602):e598-604. doi: 10.3399/bjgp12X654560. PubMed PMID: 22947580.

23. Madeb R, Golijanin D, Knopf J, Davis M, Feng C, Fender A, et al. Long-term outcome of patients with a negative work-up for asymptomatic microhematuria. Urology. 2010; 75(1):20–25. doi: 10.1016/j.urology.2009.06.107. PubMed PMID: 19913883.