The Egyptian Journal of Hospital Medicine (July 2023) Vol. 92, Page 6754- 6763

Outcome of Treating Urinary Bladder Cancer in Sohag University Hospital

Ali Mohamed Ali, Asmaa Hussein Fathy, Samah Refaat Ahmed*
Department of Oncology, faculty of Medicine, Sohag University, Egypt.
Corresponding Author: Samah Refaat Ahmed**, Email:** smahrft@gmail.com**, Tel.:**01015484627

ABSTRACT

Background: One of the most common cancers among Egyptian men is the cancer of bladder, representing about 16 % and accounting for more than 7900 deaths per year. This rate is far higher than that observed across the majority of worldwide.

Aim and objective: This study aimed to examine the outcome of patients with urinary bladder cancer treated in the Oncology Department, Sohag University Hospital.

Patients and Methods: This is a retrospective study conducted on patients with pathologically proven urinary bladder cancer treated in Oncology Department, Sohag University Hospital, from January 2016 to December 2020.

Results: The six months, one-, two-, three- and five-years overall survival (OS) of all cohort of patients are 76.2%, 57.7%, 23.3%, 18.4% and 16.6% respectively. We found that there was an important relationship among OS and presence of pelvic pain, associated infiltration, receiving radiotherapy and radiotherapy toxicity, hydronephrosis, tumor size, (N & M) status, radiotherapy type, (P-value<0.05).

Conclusion: The use of adjuvant radiation in the treatment of bladder cancer showed significant enhancements in both OS and disease-free survival (DFS). It is important to enhance community health awareness via the implementation of cultural programs and initiatives. These efforts aimed to disseminate knowledge about urinary bladder cancer, with the ultimate goal of facilitating early-stage detection and minimizing instances of late-stage diagnosis, which are often linked to hydronephrosis.

Keywords: Cancer bladder, Radiotherapy, Hydronephrosis, Tumor size.

INTRODUCTION

One of the most common cancers among Egyptian men is the cancer of bladder, representing about 16 % and accounting for more than 7900 deaths per year. This rate is far higher than that observed across the majority of worldwide [(1)].

Urinary bladder cancer has been reported to be the seventh most prevalent cancer among males, while it ranks seventeenth among women. In Egypt, the mortality rate for cancer is the second highest, surpassing that of the United States and Europe. This elevated mortality rate may be related to the prevalence of tobacco smoking and schistosomiasis inside the country [(2)].

The subtypes of urinary bladder cancer include urothelial carcinoma, squamous cell carcinoma (SCC), adenocarcinoma, anaplastic carcinoma, and several more infrequent phenotypes. Urothelial carcinoma, which represents around 90% of cases in industrialized nations. SCC constitutes around 5% of the total global bladder cancer occurrences. Its prevalence is notably higher in regions characterized by endemic Schistosoma haematobium infestation, such as Egypt, where it is claimed to account for over 30% of the cases [(3)].

PATIENTS AND METHODS

Patients with pathologically diagnosed urinary bladder cancer who were treated in the oncology department at Sohag University Hospital between January 2016 and December 2020 were included in this retrospective study.

inclusion criteria: individuals aged 18 to 80 years of both genders, with any stage and grade of urinary bladder cancer, as well as any histological forms of urinary bladder cancer.

Exclusion criteria:

Patients under the age of 18 or over the age of 80, as well as the presence of other tumors.

The present retrospective analysis included manually searching through patient files and records to identify individuals who met the specified eligibility criteria. The individuals had a standard laboratory investigation, computed tomography of the pelvis and abdomen, and clinical assessment. The patients underwent staging procedures in accordance with the 2010 American Joint Committee on Cancer Clinical Staging System.

Received: 16/03/2023
Accepted: 15/05/2023

Assessment and follow up: Periodic evaluations occurred at three-month intervals after the treatment regimen, including clinical examination, standard laboratory tests, and radiographic assessments as necessary. The purpose of these evaluations was to determine the occurrence of recurrence (local, nodal, or distant) and to monitor any potential harm resulting from chemotherapy or radiation.

Assessment of results of treatment was done by means of the following points:

OS: The defined period covers the time span from the first diagnosis and either the death of the patient or the most recent date of follow-up.

DFS: The defined period covers the time from the achievement of remission to the occurrence of the first relapse (whether it be local, nodal, or distant) or the last date of follow-up.

Statistical analysis

Statistical package for social sciences (SPSS) version 24, used to determine statistical analysis and data management. Qualitative data were described using number and percent. Quantitative data were described using median (minimum and maximum) for non-normally distributed data and mean ± Standard deviation for normally distributed data after testing normality using Kolmogorov-Smirnov test. Significance of the obtained results was judged at the ≤ 0.05 level. Chi Square test, Fischer exact test, Monte Carlo test were used to compare qualitative data between groups as appropriate. Student t test was used to compare 2 independent groups for normally distributed data.

Ethical consent:

The Ethical Committee of Sohag University Faculty of Medicine, Department of Oncology approved the study. The study's quality was ensured by the Research Ethics Committee that reviewed and approved it.

All participants received a thorough and understandable explanation of the study, and Approval consent was taken from every participant for sharing in this research. All procedures involving human participants in this study were conducted in accordance with the World Medical Association's Declaration of Helsinki involving human participants.

RESULTS

Table (1): The features of patient

		Count	%
Age (yrs.)	Mean ±SD	61.1±9.7	
	Range	36-80 years	
Sex	Male	135	80.4
	Female	33	19.6
Risk variables	Smoking	76	45.2
	Bilharziasis	34	20.2
Comorbidity	HTN	28	16.7
	DM	20	11.9

Table (2): The disease features of the patients under investigation

		Count	%
Hydronephrosis	No	86	51.2
	Yes	82	48.8
Hydronephrosis grade (n=82)	Marked	8	9.8
	Mild	37	45.1
	Mod	37	45.1
Tumor size (mm)	Average ±SD	42.9 ±19.1	
	Range	5-120	
Pathological sort	Adenocarcinoma	2	1.2
	Sarcomatoid	1	0.6
	SCC	36	21.4
	TCC	129	76.8
Pathological grade	High	155	92.2
	Low	7	4.2
	Moderate	6	3.6
T stage	T1	5	3
	T2	71	42.3
	T3	76	45.2
	T4	16	9.5
N Status	N0	117	69.6
	N1	32	19
	N2	17	10.2
	N3	2	1.2
M Status	M0	148	88
	M1	20	12
Diversion	No	89	53
	Yes	79	47
Associated infiltration	No	154	91.7
	Yes	14	8.3
Infiltration site (n=14)	Prostate	10	71.4
	Ureter	2	14.4
	Seminal vesicle	1	7.1
	Surrounding	1	7.1

Table (3): The treatment features of the individuals under investigation and their associated side effects are examined

		Count	%
Surgery	Yes	121	72
	No	47	28
surgery type (n=121)	Radical cystectomy	75	62
	TURT	37	30.5
	Ant. Pelvic Exenteration	6	5
	Partial cystectomy	3	2.5
Surgery side effect (n=121)	Fistula	2	1.7
	No	119	98.3
RTH	No	65	38.7
	Yes	103	61.3
RTH Type (n=103)	Palliative	10	9.7
	Adjuvant	93	90.3
RTH Toxicity (n=103)	No	77	74.8
	Yes	26	25.2
CTH	No	54	32.1
	Yes	114	67.9
CTH type (n=114)	Gemzar	5	4.4
	Cisplatin	7	6.1
	Carboplatin	4	3.5
	Gemzar carboplatin	77	67.5
	Gemzar 5 fluorouracil	2	1.8
	Gemzar cisplatin	12	10.5
	M-VAC	1	0.9
	Docetaxol	1	0.9
	5fluorouracil	1	0.9
	CMV	4	3.5
CTH. Toxicity (n=114)	No	83	72.8
	Yes	31	27.2
CTH Toxicity manifestation (n=31)	Thrombocytopenia	4	12.9
	Pancytopenia	11	35.5
	Anemia	11	35.5
	Leukopenia	4	12.9
	Neuropathy	1	3.2

Table (4): The occurrence of tumor recurrence among the patients under investigation

		Count	%
Local recurrence	No	154	91.7
	Yes	14	8.3
Nodal recurrence	No	161	95.8
	Yes	7	4.2
Distal recurrence	No	156	92.9
	Yes	12	7.1

Table (5): The effects of several variables on OS (Multivariate analysis) Cox regression

Factors	N	OS % 6 m.	1 yr.	2 yrs.	3 yrs.	5 yrs.	Median/Months (95% CI)	p value
All	168	76.2	57.7	23.3	18.4	16.6	12.0(10.3-13.7)	NA
Age								
≤60	83	77.1	53.0	28.2	22.1	22.1	13.3(10.5-16.1)	0.180
>60	85	75.3	47.1	18.5	14.5	10.9	12.0(10.3-13.7)	
Gender								
Male	135	77.8	48.1	21.5	16.7	16.7	12.0(10.6-13.4)	0.300
Female	33	69.7	57.6	30.3	26.0	17.3	15.6(10.2-21.0)	
Smoking								
No	92	76.1	55.4	27.4	23.9	19.9	13.3(10.7-15.9)	0.102
Yes	76	76.3	43.4	18.4	11.9	11.9	12.0(10.6-13.4)	
Bilharzias								
No	134	73.9	49.3	24.3	19.5	19.5	12.0(10.5-13.5)	0.842
Yes	34	85.3	52.9	18.9	15.8	11.8	14.4(9.1-19.7)	
HTN								
No	140	75.0	50.7	23.2	18.3	18.3	13.2(11.6-14.8)	0.979
Yes	28	82.1	46.4	23.8	19.0	NA	12.0(8.5-15.5)	
DM								
No	148	77.0	50.7	23.0	17.7	16.0	13.2(11.5-14.9)	0.711
Yes	20	70.0	45.0	25.0	25.0	NA	12.0(9.8-14.2)	
Hematuria								
No	73	79.5	46.6	20.2	20.2	20.2	12.0(9.9-14.1)	0.661
Yes	95	73.7	52.6	25.6	17.2	14.3	13.2(10.5-15.9)	
Dysuria								
No	79	70.9	46.8	21.0	17.9	14.9	12.0(9.9-14.1)	0.282
Yes	89	80.9	52.8	25.4	19.1	19.1	13.3(10.8-15.8)	
Pelvic pain								
No	158	78.5	51.9	24.1	19.1	17.2	13.2(11.5-14.9)	**0.019**
Yes	10	40.0	20.0	10.0	NA	NA	5.0(3.9-6.0)	
Hydronephrosis								
No	69	89.9	63.8	32.0	24.2	24.2	16.8(12.6-20.9)	**<0.001**
Yes	82	63.4	35.4	14.6	11.7	NA	10.0(7.8-12.2)	
Size *								
≤40 mm	86	80.2	57.0	29.5	22.8	22.8	15.6(12.7-18.6)	**0.020**
>40 mm	75	72.0	45.3	16.9	13.6	10.9	12.0(9.9-14.1)	
Pathology [a]								
TCC	129	76.0	51.2	24.4	19.6	16.8	13.2(11.1-15.3)	0.783
SCC	36	77.8	44.4	21.2	15.9	15.9	12.0(10.5-13.5)	
T stage *								
T1-T2	76	75.0	56.6	29.6	23.6	19.7	13.3(10.5-16.1)	0.114
T3-T4	91	76.9	44.0	17.1	13.4	13.4	12.0(10.5-13.5)	
N status*								
N0	116	81.0	55.2	27.6	21.6	21.6	14.4(11.5-17.3)	**0.001**
N1,2,3	51	64.7	37.3	11.8	9.4	4.7	10.0(7.0-12.9)	

Factors	N	OS % 6 m.	1 yr.	2 yrs.	3 yrs.	5 yrs.	Median/Months (95% CI)	p value
M status *								
M0	147	78.2	51.7	25.2	19.8	19.8	13.2(11.4-14.9)	**0.006**
M1	20	60.0	35.0	5.0	5.0	NA	9.0(2.4-15.6)	
Surgery								
Ant. Pelvic exenteration	6	83.3	83.3	66.7	50.0	50.0	36.0	0.223
Partial/ Radical Cyst	78	79.5	48.7	25.2	22.0	18.9	12.0(9.9-14.1)	
TURT	37	73.0	62.2	26.8	19.5	19.5	14.4(12.4-16.4)	
Diversion								
No	89	74.2	50.6	21.8	17.6	17.6	13.2(11.1-15.3)	0.780
Yes	79	78.5	49.4	24.9	19.8	16.8	12.0(9.7-14.2)	
Ass infiltration								
No	153	75.2	52.3	24.9	19.7	17.7	13.2(11.2-15.2)	**0.032**
Yes	14	85.7	21.4	NA	NA	NA	11.0(9.2-12.8)	
RTH								
No	65	60.0	33.8	13.8	13.8	13.8	8.0(4.8-11.2)	**0.001**
Yes	103	86.4	60.2	29.2	21.3	17.8	15.6(12.7-18.5)	
RTH Type								
Palliative	10	90.0	40.0	0	NA	NA	11.0(9.9-12.1)	**0.015**
adjuvant	68	88.2	66.2	36.0	26.2	21.8	18.0(14.8-21.2)	
RTH toxicity								
No	77	85.7	64.9	35.2	24.5	19.6	18.0(15.0-20.9)	**0.019**
Yes	26	88.5	46.2	11.5	11.5	NA	12.0(10.2-13.8)	
CTH(n=168)								
No	54	74.1	46.3	19.8	15.8	10.5	12.0(8.6-15.4)	0.248
Yes	114	77.2	51.8	24.9	19.4	19.4	13.2(11.1-15.3)	
CTH toxicity(n=114)								
No	83	79.5	51.8	25.9	22.8	22.8	13.2(10.8-15.6)	0.491
Yes	31	71.0	51.6	22.6	10.8	10.8	13.2(10.1-16.3)	

P<0.05 is statistically significant, NA" not applicable, CI: Confidence Interval**.**

Table (6): A multivariate examination of statistically significant determinants on OS was performed

Significant variables	B	SE	p value	HR	95.0% CI for HR Lower	Upper
Hydronephrosis(Y/N)	0.485	0.192	0.012	1.6	1.1	2.4
Pelvic Pain (yes/no)	0.693	0.359	0.053	2.0	1.0	4.0
N Stage1(N1,2,3/N0)	0.551	0.202	0.006	1.7	1.2	2.6
RTH (no/yes)	0.479	0.190	0.012	1.6	1.1	2.3

B=Regression coefficients, SE = Standard error of the coefficient, HR=Hazard Ratio, 95% CI for HR = 95% confidence interval for the hazard ratio. P-value ≤ 0.05 is considered significant.

Table (7): Effects of several variables on disease-free survival Cox regression (Multivariate analysis)

			DFS %				Median/Months	
	Variables	**N**	**6 m.**	**1 yr.**	**2 yrs.**	**3 yrs.**	**5 yrs.**	**(95% CI)**	**p value**
	All	168	52.4	32.5	17.6	17.6	15.4	7.0(5.0-8.9)	NA
Age	≤60	83	55.4	39.6	20.9	20.9	20.9	8.0(4.5-11.6)	0.113
	>60	85	49.4	25.9	14.4	14.4	10.8	6.0(3.6-8.4)	
Gender	Male	135	51.9	30.8	15.8	15.8	15.8	7.0(4.8-9.2)	0.364
	Female	33	54.5	39.4	24.2	24.2	16.2	8.0(3.9-12.0)	
Smoking	No	92	54.3	38.9	23.7	23.7	18.9	9.0(6.3-11.7)	0.071
	Yes	76	50.0	24.8	10.3	10.3	10.3	6.0(3.9-8.1)	
Bilharziasis	No	134	53.0	32.6	17.9	17.9	17.9	7.0(4.7-9.3)	0.995
	Yes	34	50.0	32.4	16.2	16.2	8.1	6.0(3.1-8.9)	
HTN	No	140	51.4	33.4	17.9	17.9	17.9	7.0(4.8-9.2)	0.913
	Yes	28	57.1	28.6	16.3	16.3	NA	8.0(3.9-12.1)	
DM	No	148	52.7	32.2	17.2	17.2	15.1	7.0(4.9-9.1)	0.886
	Yes	20	50.0	35.0	20.0	NA	NA	6.0(3.1-8.9)	
Hematuria	No	73	49.3	31.5	20.0	20.0	20.0	6.0(3.5-8.5)	0.904
	Yes	95	54.7	33.3	15.5	15.5	12.4	8.0(5.6-10.4)	
Dysuria	No	79	45.6	27.4	15.3	15.3	12.3	6.0(3.9-8.0)	0.149
	Yes	89	58.4	37.1	19.1	19.1	19.1	10.0(7.2-12.8)	
Pelvic pain	No	158	61.4	34.6	18.7	18.7	16.4	8.0(6.1-9.8)	**<0.001**
	Yes	10	20.0	0	NA	NA	NA	6.5(1-12)	
Hydronephrosis	No	69	65.2	44.6	23.2	23.2	23.2	10.0(6.8-13.2)	**0.001**
	Yes	82	40.2	20.7	11.7	11.7	NA	5.0(3.5-6.5)	
Size *	≤40 mm	86	59.3	40.5	21.6	21.6	21.6	9.0(5.7-12.2)	0.066
	>40 mm	75	46.7	25.3	13.6	13.6	10.4	6.0(3.4-8.6)	
Pathology	TCC	129	52.7	36.2	17.8	17.8	15.2	8.0(5.2-10.8)	0.795
	SCC	36	52.8	22.2	15.9	15.9	15.9	7.0(5.3-8.7)	
T stage *	T1-T2	76	55.3	35.3	22.2	22.2	17.8	8.0(5.2-10.8)	0.430
	T3-T4	91	49.5	29.7	13.4	13.4	13.4	6.0(3.1-8.9)	
N status*	N0	116	56.9	36.0	20.9	20.9	20.9	8.0(5.0-11.0)	**0.025**
	N1,2,3	51	41.2	23.5	9.8	4.9	NA	6.0(4.7-7.3)	
M status *	M0	147	52.4	32.5	19.2	19.2	19.2	7.0(4.8-9.2)	0.187
	M1	20	50.0	30.0	5.0	5.0	NA	6.0(3.1-8.9)	
Surgical type	Ant. Pelvic Exenteration	6	66.7	66.7	50.0	50.0	50.0	14.4	0.305
	Partial/ Radical Cyst	78	48.7	34.5	20.8	20.8	16.2	6.0(4.1-7.9)	
	TURT	37	56.8	43.2	17.4	17.4	NA	8.0(3.2-12.8)	
Diversion	No	89	56.2	31.1	16.8	16.8	16.8	8.0(5.6-10.4)	0.845
	Yes	79	48.1	34.1	18.6	18.6	14.9	6.0(4.1-7.9)	
Ass infiltration	No	153	52.9	34.5	19.0	19.0	16.7	7.0(5.1-8.9)	0.068
	Yes	14	42.9	7.1	NA	NA	NA	5.0(3.2-6.8)	
RTH	No	65	50.8	29.2	10.8	10.8	10.8	7.0(5.0-8.9)	0.337
	Yes	103	53.4	34.7	21.3	21.3	16.8	8.0(5.1-10.9)	
RTH Type	Palliative	10	30.0	10.0	NA	NA	NA	7.5(1-14)	**0.010**
	adjuvant	68	55.9	44.1	26.2	26.2	NA	9.0(2.9-15.0)	
RTH toxicity	No	77	57.1	41.2	24.9	24.5	NA	10.0(6.6-13.4)	**0.071**
	Yes	26	42.3	15.4	11.5	11.5	NA	5.0(2.0-7.9)	
CTH(n=168)	No	54	50.0	31.5	15.8	15.8	8.9	6.0(1.5-10.5)	0.441
	Yes	114	53.5	33.0	17.4	17.4	17.4	7.0(4.9-9.1)	
CTH toxicity(n=114)	No	83	50.6	33.4	19.6	19.6	19.6	7.0(4.6-9.4)	0.914
	Yes	31	61.3	12.9	10.8	10.8	10.8	9.0(5.4-12.6)	

P<0.05 is statistically significant, NA" not applicable, CI: Confidence Interval

Table (8): Statistical analysis of the effects of risk variables on disease-free survival

for DFS (outcome = progression)	B	SE	p value	HR	95.0% CI for HR	
					Lower	Upper
Hydronephrosis(Y/N)	0.440	0.192	0.022	1.6	1.1	2.3
Pelvic Pain (yes/no)	1.049	0.346	0.002	2.9	1.5	5.6
N Stage1(N1,2,3/N0)	0.411	0.198	0.038	1.6	1.1	2.2

DISCUSSION

Bladder cancer ranks as the sixth most prevalent kind of cancer in the United States. It is seldom diagnosed in those below the age of 40 since the typical age at which diagnosis occurs is 73 years [(4)]. Urinary bladder cancer has shown a high prevalence in Egypt over the course of the last five decades. The investigation of 9843 patients at the department of pathology, NCI, Cairo University from 1970 to 2007 demonstrated a notable decrease in the relative occurrence of bladder cancer, with the frequency declining from 27.6% to 11.7% over the course of 37 years [(5)].

The current study examined the clinical results of patients with urinary bladder cancer who received treatment at the Clinical Oncology Department at Sohag University Hospital during January 2016 and December 2020. The present study has included one hundred and sixty-eight individuals. The median age at diagnosis was 61.1 years, which is less than the median age at diagnosis in developed nations, which is 73 years [(4)]. The findings of a multicenter retrospective research done on Egyptian patients treated at NCI, Cairo University, and Zagazig University revealed a consistent median age at diagnosis of 62 years [(6)].

Our results showed that bladder cancer was more common in males with percentage of 80.4 %, which is consistent with data from cancer statistics, 2019 [(4)]. Our study showed that 20.2 % of patients had a history of bilharziasis with no significant association between bilharziasis and developing bladder cancer. Multiple studies have indicated that smoking is a significant risk factor for developing bladder cancer [(7)].

In our research, 45.2% of individuals were smokers with no important relationship between developing bladder cancer and smoking. Among the tissues subjected to biopsy, transitional cell carcinoma was identified as the prevailing histological subtype in one hundred and twenty-nine patients (76.8%). SCC was seen in thirty-six patients (21.4%), while adenocarcinoma was detected in two patients (1.2%). A solitary patient (0.6%) exhibited sarcomatoid carcinoma.

A total of one hundred and twenty-one patients (72%) participated in the study, with seventy-five patients (62%) undergoing radical cystectomy, thirty-seven patients (30.5%) underwent transurethral resection of the tumor (TURT), six patients (5%) underwent anterior pelvic exenteration, and just three patients (2.5%) underwent partial cystectomy. A surgical complication of radical cystectomy manifested as a fistula in only two cases. One hundred fourteen patients (67.9%) treated by chemotherapy where gemzar & carboplatin were used in seventy seven patients (67.5%), gemzar & cisplatin in twelve patients (10.5%), cisplatin alone in seven patients (6.2%), gemzar alone in five patients (4.3%), carboplatin alone in four patients (3.5%), cisplatin & methotrexate & vinblastine (CMV) in four patients (3.5%), gemzar & 5 fluorouracil in two patients (1.8%), methotrexate, vinblastine, adriamycin, cisplatin (M-VAC) in one patient (0.9%), docetaxeol in one patient (0.9%) and 5 fluorouracil in one patient (0.9%). Comparing radical cystectomy alone to radical cystectomy preceded by three cycles of neoadjuvant methotrexate, vinblastine, adriamycin, and cisplatin (MVAC) was the focus of a randomized experiment including three hundred and seven patients with muscle-invasive illness. The administration of neoadjuvant chemotherapy resulted in a significant improvement in median survival, extending it to seventy-seven months compared to forty-six months. Additionally, the use of neoadjuvant chemotherapy was associated with a decreased incidence of residual disease, with rates of 15% compared to 38% in the non-neoadjuvant chemotherapy group. Notably, there was no observable increase in treatment-related morbidity or death [(8)].

The combined chemotherapy regimen of Gemzar and carboplatin was administered to the majority (67.5%) of patients in our study. However, no statistically significant correlation was found between the specific kind of chemotherapy regimen used and OS or DFS. One hundred and three of our patients (61.3%) got radiation, which was palliative in ten (9.7%) and adjuvant in ninety-three (90.3%). Patients with bladder cancer who received radiation treatment

after surgery had significant improvements in their disease-free survival [9].

Our study demonstrating that (OS) for all patients was 76.2 % at six months, 57.7 % at one year, 23.3 % at two years, 18.4 % at three years and 16.6 % at five years. In a retrospective research conducted by **Rezaianzadeh *et al.*** [9] to assess the survival rates of patients diagnosed with bladder cancer.

The study revealed that the OS rates at 1, 3, 5, and 10 years were 89%, 71%, 57%, and 24% respectively**.** The absence of survival statistics in our research may be ascribed to the fact that our patients appeared at later stages and that many of them were lost to follow-up. **Amiri *et al*.** [10] demonstrated that patients with bladder cancer survival rate versus age at diagnosis showed that the five-year survival in participants ≥ 65 year is lower than the others [11]. While **Babiker A *et al.*** [11] demonstrated no important relation between OS and the patients age at the diagnosis time.

Our research demonstrating that the impact of the patients age on the OS has no statistically analysis potentially where the five-year OS for patients ≤ 60 was 22.1 % versus 10.9% for patients > 60 (P value 0.18). The impact of patient's gender on survival is debatable. Males have 11% higher chance of surviving than females, as shown by **Tracy *et al*** [12].

Patients' smoking histories were shown to have no impact on their probability of survival, according to research by **Amiri *et a*l.** [10]**.** In our study there was no significant association between smoking and the OS where the five years OS in the smoker group was 11.9% versus 19.9% in the non-smoker group (p value 0.102). The meta-analysis included eight studies that aimed to predict the overall OS rate after radical cystectomy, considering the presence of preoperative hydronephrosis. The study sample consisted of a total of three thousand and seven hundred fifty six patients, of whom nine hundred three (24.0%) exhibited preoperative hydronephrosis, while two thousand eight hundred fifty three (76.0%) did not. All the included researchers demonstrated a positive relationship between OS preoperative and hydronephrosis as shown below.

In the present study, a total of eighty-two patients (54.3%) were found to have hydronephrosis. Among these patients, the severity of hydronephrosis was classified as severe in eight patients (9.8%), moderate in thirty-seven patients (45.1%), and mild in thirty-seven patients (45.1%). The study observed a notable association between the occurrence of OS and hydronephrosis , with a statistically significant p-value of less than 0.001. Specifically, patients with hydronephrosis exhibited a median OS of 10 months, while those without hydronephrosis had a median OS of 16.8 months. Our research demonstrated that the pelvic pain presence at diagnosis time has an important effect on OS (P value 0.019) where patients who had pelvic pain had a mean OS of five months compared to 13.2 months in patient who did not have. **In Nasr and colleagues** [13] study, the five years OS was 63% and 40% for SCC and TCC respectively, while the 5 years DFS was 64% and 42% this show a significantly better DFS and OS for SCC cases. This finding may be attributed to higher percentage of LN involvement within TCC group (32%) compared to (20%) in the SCC group, Moreover, 50% of TCC cancers were high level versus only 18 % in SCC cancers [14]**.** In our research there was no important variations in OS or DFS between SCC and TCC where five years, and 5 years, DFS for TCC was 8% versus 7% for SCC with (P-value 0.795) and OS for TCC was 13.2% versus 12% for SCC with (P-value 0.783). The poor performance of large primary tumors has been reported by **Babiker A *et al*.** [11] who found that the presentation size of the primary tumor was the single most significant prognostic factor. The mortality rates for small, moderate and large tumors were mean, in the ratios 1:1.5:2 respectively [11]**.**

Our research demonstrated a statistically significant association between tumor size at the time of presentation and OS (P value 0.02). Specifically, patients with tumor size more than 40 mm exhibited a median OS of 12 months, while those with tumor size less than or equal to 40 mm had a median OS of 15.6 months**.** In relation to the progression of stages, it was seen that bladder cancer patients who had radical cystectomy showed a notable decrease in survival rates. Specifically, the 5-year DFS rates were found to be 73% for T1 tumors, 65% for T2 tumors, 43% for T3a tumors, 31% for T3b tumors, and 9% for T4 tumors [14]**.**

In the present investigation, we observed that the T stage did not have a significant influence on the 5-year DFS rates. Specifically, the DFS rate was found to be 13.3% in patients with T1 and T2 tumors, compared to 12% in patients with T3 and T4 tumors (p-value = 0.114). The presence of metastasis in the regional lymph nodes is widely acknowledged as a significant predictor of unfavorable prognosis. **Smith and Whitmore** [15] documented a 5-year survival rate of just 7% among a cohort of one hundred thirty-four patients who had positive lymph nodes. **Heney *et al*.** [16] showed 3% five-year survival in twenty-three node

positive patients compared to 41% in fifty-nine node-negative patients. While, **Bloom *et al*. [(17)]** showed 18% five-year survival in node positive patients compared to 53% in node-negative patients.

Our study showed that metastasis of nodal and distal important affected the OS (P value 0.001 and 0.006 respectively)**.** There was no important relation between the OS and chemotherapy where five years OS in the patients treated by chemotherapy was 19.4% versus 10.5% in patients who were not treated by it (p value 0.248). Several Egyptian studies have been undertaken to evaluate the efficacy of adjuvant radiation and its impact on survival. Well-designed retrospective randomized series have consistently indicated that postoperative radiotherapy leads to better (DFS) across various stages and grades [(14)].

CONCLUSION

The use of adjuvant radiation in the treatment of bladder cancer has been shown to be connected with significant enhancements in both (OS) and (DFS). It is important to enhance community health awareness via the implementation of cultural programs and initiatives. These efforts aim to disseminate knowledge about urinary bladder cancer, with the ultimate goal of facilitating early-stage detection and minimizing instances of late-stage diagnosis, which are often linked to hydronephrosis.

DECLARATIONS

- **Consent for Publication:** All authors accepted submission of the manuscript.
- **Availability of data and material:** Available.
- **Competing interests:** None.
- **Funding:** No fund.
- **Conflicts of interest:** The authors declared no conflicts of interest regarding the publication of this paper.

REFERENCES

1. **Khaled H (2005):** Systemic management of bladder cancer in Egypt: revisited. J Egypt Natl Canc Inst., 17 (3): 127-31.
2. **Ferlay J, Colombet M, Soerjomataram I *et al.* (2019):** Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and methods. Int J Cancer,144 (8): 1941-1953. doi: 10.1002/ijc.31937.
3. **Zheng Y, Amr S, Saleh D *et al.* (2012):** Urinary bladder cancer risk factors in Egypt: a multicenter case-control study. Cancer Epidemiol Biomarkers Prev., 21 (3): 537-46. doi: 10.1158/1055-9965.EPI-11-0589.
4. **Siegel R, Miller K, Jemal A (2019):** Cancer statistics 2019. Cancer J Clin., 69 (1): 7-34. doi: 10.3322/caac.21551.
5. **Gouda I, Mokhtar N, Bilal D *et al.* (2007):** Bilharziasis and bladder cancer: a time trend analysis of 9843 patients. J Egypt Natl Canc Inst., 19 (2): 158-62.
6. **Haggag R, Farag K, Abu-Taleb F *et al.* (2014):** Low-dose versus standard-dose gemcitabine infusion and cisplatin for patients with advanced bladder cancer: a randomized phase II trial-an update. Med Oncol., 31 (1): 811. doi: 10.1007/s12032-013-0811-5.
7. **Rink M, Crivelli J, Shariat S *et al.* (2015):** Smoking and Bladder Cancer: A Systematic Review of Risk and Outcomes. Eur Urol Focus, 1 (1): 17-27. doi: 10.1016/j.euf.2014.11.001
8. **Grossman H, Natale R, Tangen C *et al.* (2003):** Neoadjuvant chemotherapy plus cystectomy compared with cystectomy alone for locally advanced bladder cancer. N Engl J Med., 349 (9): 859-66. doi: 10.1056/NEJMoa022148.
9. **Rezaianzadeh A, Mohammadbeigi A, Mobaleghi J *et al.* (2012):** Survival analysis of patients with bladder cancer, life table approach. J Midlife Health, 3 (2): 88-92. doi: 10.4103/0976 -7800.104468.
10. **Amiri M, Heshmatollah S, Esmaeilnasab N *et al.* (2020):** Survival rate of patients with bladder cancer and its related factors in Kurdistan Province (2013-2018): a population-based study. BMC Urol., 20 (1): 195. doi: 10.1186/s12894-020-00769-1.
11. **Babiker A, Shearer R, Chilvers C (1989):** Prognostic factors in a T3 bladder cancer trial. Co-operative Urological Cancer Group. Br J Cancer, 59 (3): 441-4. doi: 10.1038/bjc.1989.90.
12. **Tracey E, Roder D, Luke C, Bishop J (2009):** Bladder cancer survivals in New South Wales, Australia: why do women have poorer survival than men? BJU Int., 104 (4): 498-504. doi: 10.1111/j.1464-410X.2009.08527. x.
13. **Azza N, Magda M, Mamdouh H *et al.* (2015):** Postoperative Radiotherapy in Bladder Cancer Patients: 5-Year Institutional Experience of National Cancer Institute, Cairo University. Journal of Cancer Therapy, 06: 579-593. Doi: 10.4236/jct.2015.67063.
14. **Herr H, Bajorin D, Scher H (1998):** Neoadjuvant chemotherapy and bladder-sparing surgery for invasive bladder cancer: ten-year outcome. J Clin Oncol., 16 (4): 1298-301. doi: 10.1200/JCO.1998.16.4.1298.
15. **Smith J, Whitmore W (1981):** Regional lymph node metastasis from bladder cancer. J Urol., 126 (5): 591-3. doi: 10.1016/s0022-5347(17)54638-8.
16. **Heney N, Proppe K, Prout G et al. (1983):** Invasive bladder cancer: tumor configuration, lymphatic invasion and survival. J Urol., 130 (5): 895-7. doi: 10.1016/s0022-5347(17)51558-x.
17. **Bloom H, Hendry W, Wallace D, Skeet R (1982):** Treatment of T3 bladder cancer: controlled trial of pre-operative radiotherapy and radical cystectomy versus radical radiotherapy. Br J Urol., 54 (2): 136-51. doi: 10.1111/j.1464-410x.1982.tb13537. x.