Prognostic Utility of PD-L1 in Squamous Cell Carcinoma of the Bladder

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I. INTRODUCTION

There is growing interest in immunotherapy utilizing checkpoint inhibitors for the treatment of bladder cancer.

There have been no reports on the expression of programmed death ligand 1 (PD-L1) in squamous cell carcinoma (SCC) of the bladder.

We assessed the relationship between PD-L1 expression, clinicopathological features, and oncologic outcomes in SCC of the bladder.

II. METHODS

Immunohistochemistry of PD-L1 was performed on 151 radical cystectomy specimens with pure SCC treated in Mansoura, Egypt from 1997 to 2003.

The relationship between PD-L1, clinicopathological features, and oncological outcomes was analyzed.

IV. CONCLUSIONS

Negative expression of PD-L1 is associated with higher tumor stage, higher grade, and worse oncologic outcomes after radical cystectomy for SCC.

Further studies are needed to elucidate if PD-L1 can be a predictor of response to immunotherapy for SCC.

III. RESULTS

Association of PD-L1 expression with clinicopathological characteristics

- ✓ Total of 151 patients with 98 males and a median age of 52 years
- ✓ Schistosomiasis was present in 81% of specimens
- ✓ 93% of specimens had muscle-invasive disease on pathologic staging
- ✓ Negative expression of PD-L1 was associated with higher grade lesions (p = 0.01) and higher pathologic tumor stage (p = 0.04)

Table 1. Demographic, clinical, and pathological characteristics

		PD-L1 expression		
	Total No. (%)	No. Positive (%)	No. Negative (%)	p value
Overall	151 (100.0)	101 (66.9)	50 (33.1)	
Age (in years)				
Mean (± SD)	51.8 (± 7.9)	51.7 (± 8.0)	52.1 (± 7.7)	0.800
Median (range)	51 (36 - 74)	51 (36 - 74)	52 (38 - 66)	
Sex				0.356
Male	98 (64.9)	63 (64.3)	35 (35.7)	
Female	53 (35.1)	38 (71.7)	15 (28.3)	
Pathologic tumor stage				0.039
pT1	10 (6.6)	5 (50.0)	5 (50.0)	
pT2	75 (49.7)	58 (77.3)	17 (22.7)	
pT3	57 (37.7)	34 (59.6)	23 (40.4)	
pT4	9 (6.0)	4 (44.4)	5 (55.6)	
Lymph node involvement				0.073
Present	46 (30.5)	26 (56.5)	20 (43.5)	
Absent	105 (69.5)	75 (71.4)	30 (28.6)	
Grade				0.009
Low	80 (53.0)	61 (76.2)	19 (23.8)	
High	71 (47.0)	40 (56.3)	31 (43.7)	
Associated carcinoma in situ				0.988
Present	9 (6.0)	6 (66.7)	3 (33.3)	
Absent	142 (94.0)	95 (66.9)	47 (33.1)	
Lymphovascular invasion				0.004
Present	24 (15.9)	10 (41.7)	14 (58.3)	
Absent	127 (84.1)	91 (71.7)	36 (28.3)	
Schistosomiasis				0.862
Present	122 (80.8)	82 (67.2)	40 (32.8)	
Absent	29 (19.2)	19 (65.5)	10 (34.5)	

Association of PD-L1 expression with oncological outcomes

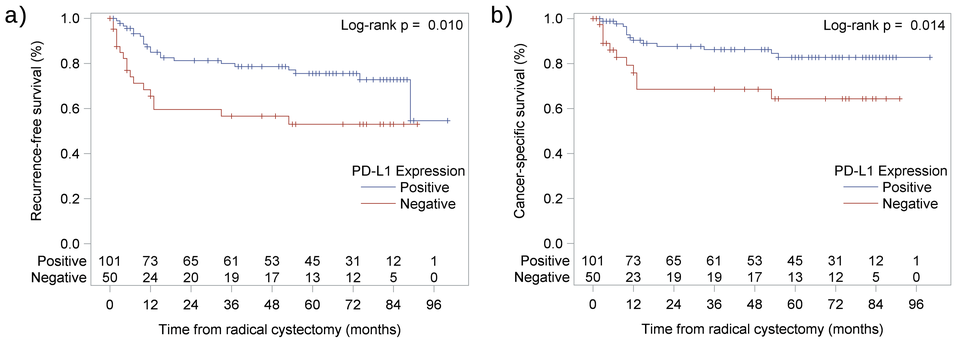
Median length of follow-up after radical cystectomy was 63 months (range: 1 - 100 months).

Kaplan-Meier analyses (see Figure 1) showed negative expression of PD-L1 was associated with worse recurrence-free (p = 0.01) and worse cancer-specific survival (p = 0.01).

After adjusting for pathologic tumor stage, grade, lymph node involvement, and lymphovascular invasion, multivariable Cox regression analyses showed negative expression of PD-L1 was an independent predictor of:

- ✓ Disease recurrence (HR 2.05, 95% CI 1.06 - 3.96, p = 0.03)
- ✓ Bladder cancer-specific mortality (HR 2.89, 95% CI 1.22 - 6.82, p = 0.02)

Figure 1. Recurrence-free (a) and cancer-specific (b) survival probability stratified by PD-L1 expression in patients who underwent radical cystectomy for SCC



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