



Oncological Outcomes Following Radical Cystectomy for Urothelial Carcinoma of the Bladder with Positive Lymph Nodes

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Disclosures

- None

Introduction

- Lymph node-positive (pN+) urothelial carcinoma of the bladder is associated with poor overall survival (OS) ¹.
- Studies have reported 5-year cancer specific survival ranging from 20% to 60% ².
- pN+ patients who receive perioperative chemotherapy and surgery have improved survival compared to those receive only radical cystectomy (RC) or only chemotherapy ³.

¹Al-Alao et al., *Urol Oncol*, 2019

²Abufaraj et al., *Euro Urol*, 2018

³Galsky et al., *J Clin Oncol*, 2016

Study Objectives

- To determine oncological outcomes among patients who underwent RC for urothelial carcinoma of the bladder with positive lymph nodes.
- To identify significant predictors of survival.
- To assess role of perioperative chemotherapy in these patients.

Methods

- IRB approved, prospectively maintained bladder cancer database
- 3593 patients underwent RC for urothelial carcinoma of the bladder from January 1971 to December 2017
- Patients with pN+ at final pathology stratified into 3 groups:
 - 1 LN+
 - 2-9 LN+
 - ≥ 10 LN+

Methods

- Multivariate analysis was performed to identify predictors of overall survival (OS) and recurrence-free survival (RFS)
- Kaplan-Meier curve was used to estimate OS and RFS.
- Subgroup analysis:
 - Oncological outcomes in pts who did not receive any chemotherapy (adjuvant or neoadjuvant).

Patient Cohort

- 712- pts (20%) with pN+ disease:
 - 1 LN+ : 217
 - 2-9 LN+: 352
 - ≥ 10 LN+: 143
- Median age: 68 years old
- 105/712 (15%) pts had clinical evidence of LN involvement on pre-operative imaging.

Patient Characteristics

# of Positive LN		Total	1	2-9	10+-	<i>p</i> value
# of patients		712	217	352	143	
Sex	Male (%)	539 (76)	111 (78)	268 (76)	160 (74)	0.68
	Female (%)	173 (24)	32 (22)	84 (24)	57 (26)	
ASA index	1-2	119 (25)	42 (29)	55 (23)	22 (23)	0.35
	3-4	364 (75)	103 (71)	188 (77)	73 (77)	
CCMI	0	335 (50)	112 (56)	152 (46)	71 (53)	0.19
	1	136 (20)	37 (19)	75 (23)	24 (18)	
	≥2	196 (29)	51 (26)	106 (32)	39 (29)	
Diversion Type	Continent	480 (67)	148 (68)	237 (67)	95 (66)	0.4
	Incontinent	232 (33)	69 (32)	115 (33)	48 (34)	
Robotic Cystectomy		77 (11)	21 (10)	46 (13)	10 (7)	0.12

# of Positive LN		1	2-9	10+/-	p value
n		217	352	143	
cT staging	Organ confined (<=T2)	183 (84)	253 (72)	81 (57)	<.0001
	Extra Vesical (>=T3)	16 (7)	51 (14)	23 (16)	
	Node positive (cN+)	18 (8)	48 (14)	39 (27)	
pT staging	pT0	4 (2)	4 (1)	3 (2)	0.004
	pTis	5 (2)	5 (1)	4 (3)	
	pT1	15 (7)	13 (4)	3 (2)	
	pT2a	20 (9)	19 (5)	5 (4)	
	pT2b	31 (14)	48 (14)	6 (4)	
	pT3a	47 (22)	62 (18)	29 (20)	
	pT3b	61 (28)	103 (29)	49 (34)	
	pT4a	32 (15)	94 (27)	42 (29)	
pT4 b	2 (1)	4 (1)	2 (1)		
Concomitant CIS		128 (59)	200 (57)	86 (60)	0.76
LVI		126 (58)	253 (72)	103 (72)	0.001

Perioperative Chemotherapy

# of Positive LN	Total	1	2-9	10+-	<i>p</i> value
n	712	217	352	143	
Neoadjuvant Chemotherapy	108 (15%)	27 (12%)	51 (15%)	30 (21%)	0.07
Adjuvant Chemotherapy	341 (48%)	103 (47%)	169 (48%)	69 (48%)	0.16

Survival

	1 LN+	2-9 LN+	≥10 LN+	<i>p</i> value
5-y RFS (%)	39	36	16	<i>p</i> <0.001
5-y OS (%)	45	33	14	<i>p</i> <0.001

Multivariate Analysis

- **≥10 positive LNs** (HR: 2.2; 95%CI 1.7-2.9), **path stage >pT2** (HR: 1.9; 95%CI 1.5-2.4), and **neoadjuvant chemotherapy** (HR: 1.7; 95%CI 1.3-2.2) were associated with increased risk of recurrence and worse OS.
- **Adjuvant chemotherapy** (HR: 0.5; 95%CI 0.4-0.6) was associated with decreased risk of recurrence and better OS.

Subgroup Analysis

In patients without peri-operative chemotherapy:

	1 LN+	2-9 LN+	≥10 LN+	<i>p</i> value
5-y RFS (%)	25	32	5	<i>p</i> <0.001
5-y OS (%)	31	20	4	<i>p</i> <0.001

Discussion

- Higher number of metastatic LNs are associated with worse OS ¹.
- Each positive LN: 17% increased risk of mortality through four positive nodes
 - whereas each successive positive node beyond this increases relative mortality by 1% ¹.
- Use of adjuvant chemotherapy after surgery increases survival in patients with pathological node disease ².

¹ Patel et al., *Eur Urol Oncol*, 2019

² Moschini et al., *World J Urol*, 2018

Strengths

- Large sample size
- Long-term follow up
- Patient recruitment based on pathological and not clinical nodal involvement.
- Subgroup analysis of patients received no perioperative chemotherapy

Limitations

- Not capturing chemotherapy regimen and number of cycles
- Retrospective design
- Single institution study
- Follow-ups based on clinical and radiographic LN involvement

Conclusions

- Only 15% of patients with positive LNs have clinical evidence of LN involvement prior to cystectomy.
- Oncological outcomes after radical cystectomy are associated with the number of involved LNs.
- Surgery alone can be curative in 20-30% of patients with < 10 positive LNs.

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