

**Table S1** Demographic and clinicopathological characteristics by age at diagnosis in LN+ group

Characteristics	n (%)	Age at diagnosis, years (percent within age group)					P
		<50	50–59	60–69	70–79	≥80	
<b>Sex</b>							
Male	2,393 (74.13)	123 (72.35)	456 (74.63)	802 (76.53)	704 (73.18)	308 (70.48)	0.137
Female	835 (25.87)	47 (27.65)	155 (25.37)	246 (23.47)	258 (26.82)	129 (29.52)	
<b>Race</b>							
Caucasian	2,851 (88.32)	141 (82.94)	526 (86.09)	919 (87.69)	875 (90.96)	390 (89.24)	0.001
African	216 (6.69)	20 (11.76)	58 (9.49)	73 (6.97)	48 (4.99)	17 (3.89)	
Other	144 (4.46)	8 (4.71)	25 (4.09)	48 (4.58)	34 (3.53)	29 (6.64)	
Unknown	17 (0.53)	1 (0.59)	2 (0.33)	8 (0.76)	5 (0.52)	1 (0.23)	
<b>Marital status</b>							
Married	1,986 (61.52)	81 (47.65)	349 (57.12)	670 (63.93)	638 (66.32)	248 (56.75)	<0.001
Single	1,149 (35.59)	85 (50.00)	242 (39.61)	351 (33.49)	295 (30.67)	176 (40.27)	
Unknown	93 (2.88)	4 (2.35)	20 (3.27)	27 (2.58)	29 (3.01)	13 (2.97)	
<b>Year of diagnosis</b>							
2004–2007	1,127 (34.91)	71 (41.76)	229 (37.48)	356 (33.97)	346 (35.97)	125 (28.60)	0.053
2008–2011	1,089 (33.74)	55 (32.35)	195 (31.91)	349 (33.30)	327 (33.99)	163 (37.30)	
2012–2015	1,012 (31.35)	44 (25.88)	187 (30.61)	343 (32.73)	289 (30.04)	149 (34.10)	
<b>Grade</b>							
I	16 (0.50)	3 (1.76)	3 (0.49)	1 (0.10)	6 (0.62)	3 (0.69)	0.052
II	64 (1.98)	6 (3.53)	12 (1.96)	23 (2.19)	13 (1.35)	10 (2.29)	
III	982 (30.42)	55 (32.35)	201 (32.90)	338 (32.35)	262 (27.23)	126 (28.23)	
IV	2,048 (63.44)	102 (60.00)	376 (61.54)	651 (62.12)	637 (62.22)	282 (64.53)	
Unknown	118 (3.66)	4 (2.35)	19 (3.11)	35 (3.34)	44 (4.57)	16 (3.66)	
<b>Histology</b>							
Pure UC	3,010 (93.25)	145 (85.29)	574 (93.94)	984 (93.89)	901 (93.66)	406 (92.91)	<0.001
Variant histology (total)	218 (6.75)	25 (14.71)	37 (6.06)	64 (6.11)	61 (6.34)	31 (7.09)	
Squamous cell	75 (2.32)	9 (5.29)	17 (2.78)	18 (1.72)	18 (1.87)	13 (2.97)	
Neuroendocrine	65 (2.01)	3 (1.76)	5 (0.82)	23 (2.19)	26 (2.70)	8 (1.83)	
Adenocarcinoma	37 (1.15)	8 (4.71)	5 (0.82)	13 (1.24)	8 (0.83)	3 (0.69)	
Other VH	41 (1.27)	5 (2.94)	10 (1.64)	10 (0.95)	9 (0.94)	7 (1.60)	
<b>T stage</b>							
NMIBC (Tis + Ta + T1)	67 (2.08)	9 (5.29)	14 (2.29)	20 (1.91)	21 (2.18)	3 (0.69)	<0.001
T2	653 (20.23)	40 (23.53)	141 (23.08)	231 (22.04)	192 (19.96)	49 (11.21)	
T3	1,558 (48.27)	68 (40.00)	291 (47.63)	488 (46.56)	458 (47.61)	253 (57.89)	
T4	950 (29.43)	53 (31.18)	165 (27.00)	309 (29.48)	291 (30.25)	132 (30.21)	
LNE, median (IQR)	14 (8, 23)	16.5 (8, 29)	16 (9, 25)	15 (8, 24)	13 (8, 22)	12 (6, 20)	<0.001
<b>Chemotherapy</b>							
No/unknown	1,418 (43.93)	46 (27.06)	191 (31.26)	373 (35.59)	474 (49.27)	334 (76.43)	<0.001
Yes	1,810 (56.07)	124 (72.94)	420 (68.74)	675 (64.41)	488 (50.73)	103 (23.57)	

LN+, lymph node positivity; UC, urothelial carcinoma; VH, variant histology; NMIBC, non-muscle-invasive bladder cancer; IQR, interquartile range.

**Table S2** Association of age and survival outcomes in subgroups according to T stage in LN+ group

Age at diagnosis	Overall survival		Cancer specific survival	
	HR (95% CI)	P value	HR (95% CI)	P value
<50	0.643 (0.519–0.798)	<0.001	0.754 (0.593–0.960)	0.022
50–59	0.771 (0.668–0.890)	<0.001	0.820 (0.693–0.969)	<0.020
60–69	0.723 (0.636–0.823)	<0.001	0.731 (0.628–0.852)	<0.001
70–79	0.896 (0.790–1.917)	0.090	0.890 (0.766–1.035)	0.129
≥80	1.000 (reference)		1.000 (reference)	

LN+, lymph node positive; HR, hazard ratio; CI, confidence interval.