

Trends in neoadjuvant chemotherapy use and oncological outcomes for muscle-invasive bladder cancer in Japan: a multicenter study

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Background:

Despite benefits of neoadjuvant chemotherapy (NAC), the adoption of guideline recommendations for NAC use in patients with muscle-invasive bladder cancer (MIBC) has been slow. We aimed to evaluate temporal trends in NAC use and oncological outcomes in a representative cohort of patients with MIBC.

Methods:

We included 532 patients from 4 hospitals who underwent radical cystectomy (RC) for MIBC in 1996-2017. We retrospectively evaluated temporal changes in NAC use and progression-free and overall survival. Candidates for NAC were administered with either cisplatin- or carboplatin-based regimens. The impact of NAC on oncological outcomes was examined using multivariate Cox regression analysis with inverse probability of treatment weighting (IPTW) models.

Results:

Of 532 patients, 336 underwent NAC followed by RC (NAC group) and 196 underwent RC alone (Ctrl group). NAC use significantly increased from 10% (1996-2004) to 83% (2005-2016). The number of patients administered with cisplatin- and carboplatin-based regimens was 43 and 280, respectively. There were no significant differences between PFS and OS when comparing the cisplatin- and carboplatin-based therapies. The number of pT0 and pT3-4 patients was significantly higher and lower in the NAC group than the Ctrl group, respectively. Oncological outcomes in the NAC group were significantly improved compared to those in the Ctrl group in progression-free and overall survival. Multivariable analysis with IPTW models revealed that NAC significantly improved oncological outcomes in patients with MIBC. A nomogram for 5-year overall survival predicted 16% improvement in patients undergoing NAC.

Conclusions:

NAC use for MIBC increased after 2005. Platinum-based NAC for MIBC potentially improves oncological outcomes.

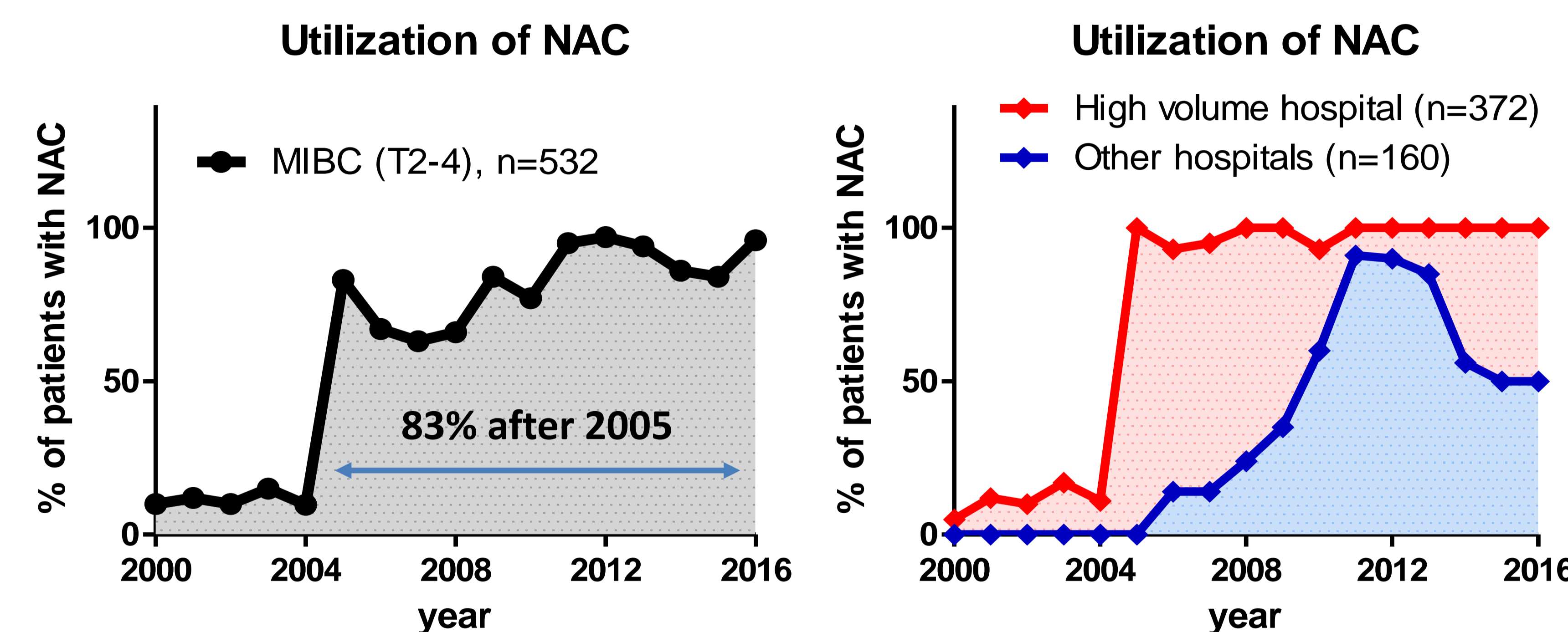
Background of patients

	Ctrl	NAC	P value
n	196	336	
Age, years	69±9.4	67±8.9	0.044
Male, n=	156 (80%)	263 (78%)	0.719
Cardiovascular disease (CVD), n=	22 (11%)	40 (12%)	0.813
Preoperative stage 3 CKD, n=	82 (42%)	113 (34%)	0.058
cT2	103 (53%)	153 (46%)	
cT3	79 (40%)	154 (46%)	
cT4	14 (7%)	29 (9%)	
cN+	11 (6%)	31 (9%)	0.114
Urinary diversion (Neobladder)	95 (48%)	193 (57%)	0.046
pT0	9 (5%)	77 (23%)	
pT1	35 (18%)	66 (20%)	
pT2	67 (34%)	98 (29%)	
pT3	55 (28%)	68 (20%)	
pT4	30 (15%)	27 (8%)	
cT – pT (mean ± standard deviation)	0.2 ± 1.0	0.9 ± 1.2	<0.001
Number of patients with downstaging	61 (31%)	198 (59%)	<0.001
LVI+	95 (48%)	96 (29%)	<0.001
pN+	36 (18%)	50 (15%)	0.418

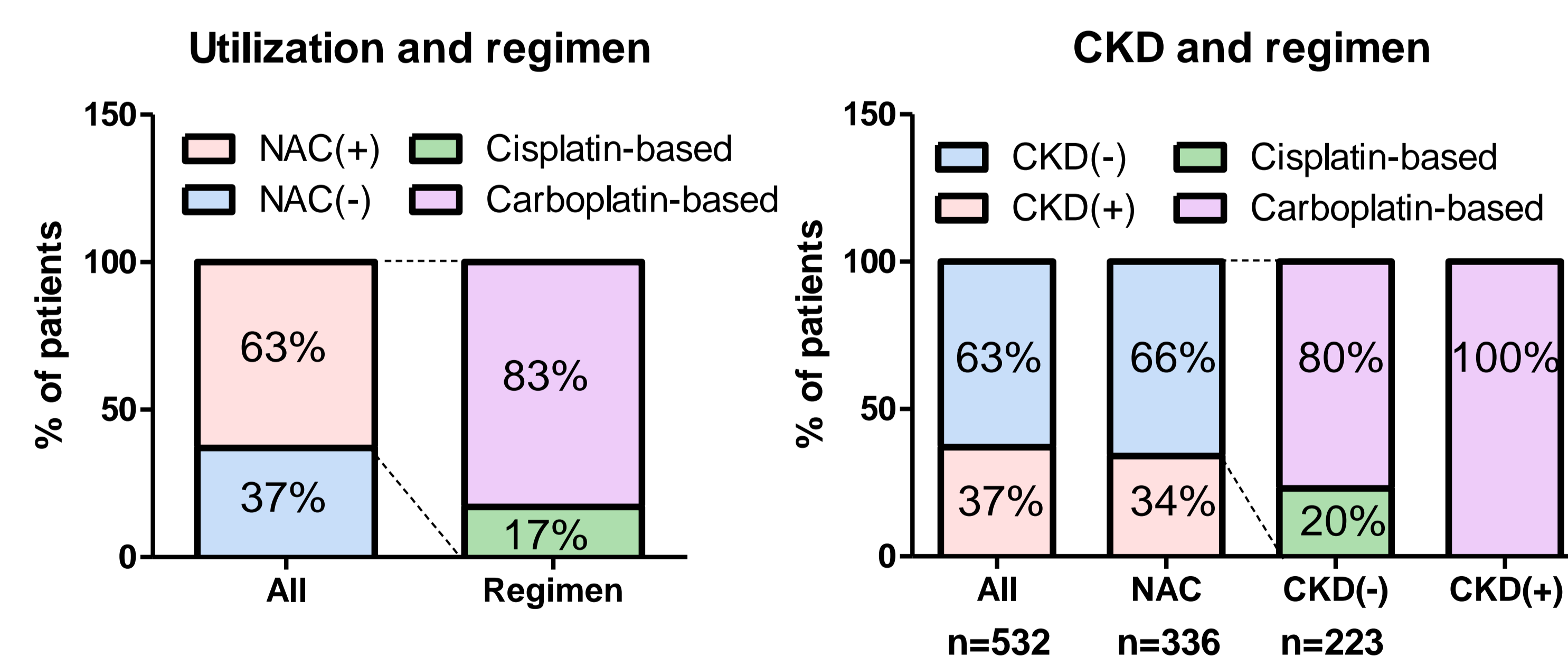
CKD stage 3: eGFR < 60 mL/min/1.73m²

COI: The authors have no financial conflicts of interest disclose concerning the study. Go Anan

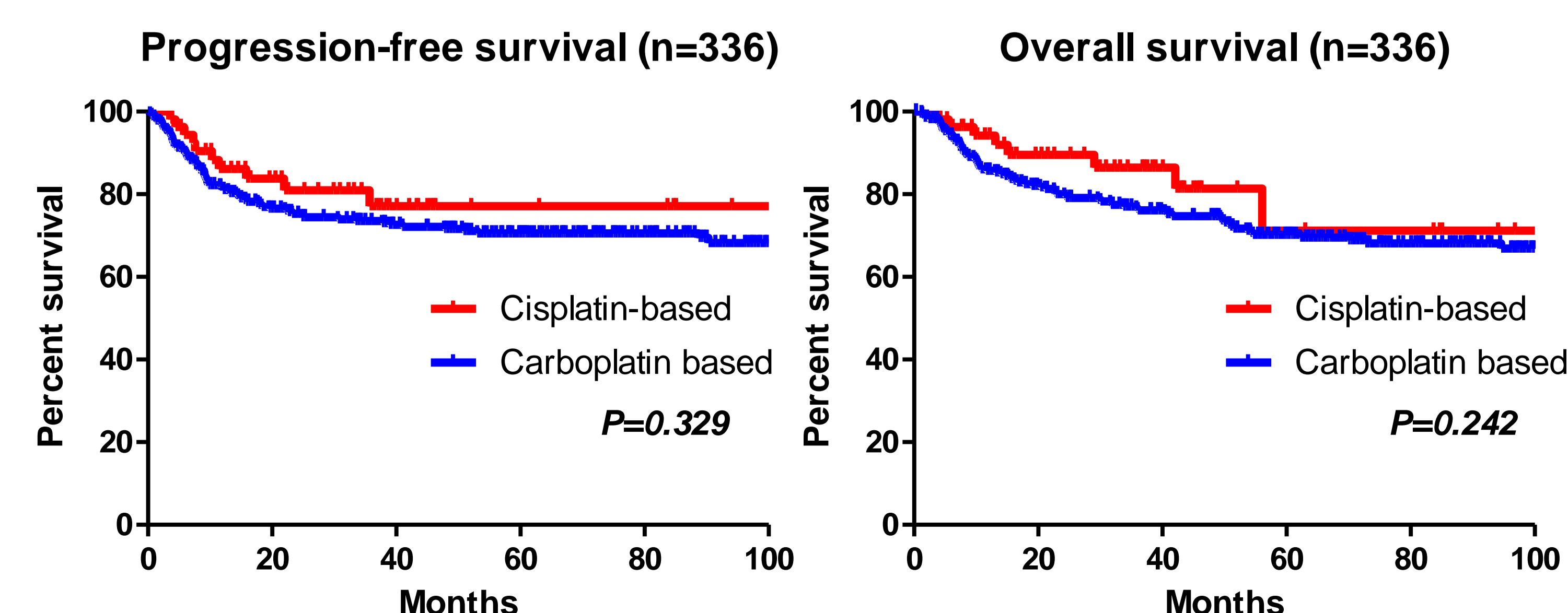
Trends in the use of neoadjuvant chemotherapy(NAC)



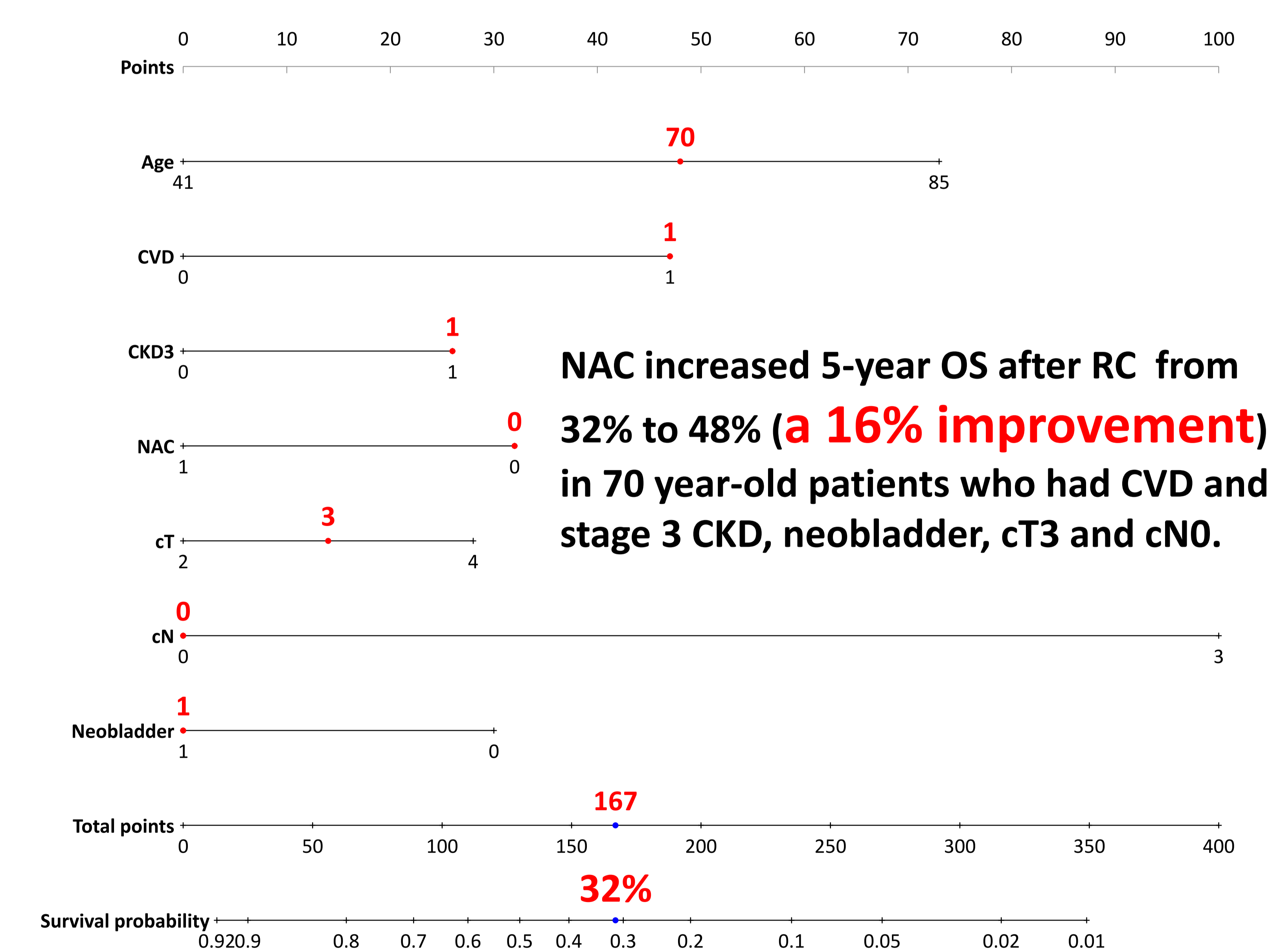
Prevalence of neoadjuvant chemotherapy(NAC) use



The impact of NAC regimens on oncological outcomes



Predictive model for 5-year OS after RC



Oncological outcomes between the groups

