

Efficacy of Preoperative Chemotherapy on Outcomes of High-risk Upper Tract Urothelial Carcinoma (UTUC)

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Aim

- To assess the rates of
 - complete pathologic response (CPR; pT0N0)
 - partial pathologic response (PPR; \leq pT1N0)
- To find predictive factors of response.

Methods

- Multicenter retrospective study (n=10)
- Study period: 2002 - 2017
- N=212 (\leq cT4, cN0-3, cM0 UTUC)
- Preoperative chemotherapy (CHT) followed by radical nephroureterectomy (RNU)

Results

Correlation of numbers of cycles and pathologic response stratified by CHT regimen

	N	CPR	PPR
MVAC (incl. ddMVAC)	82	13 (15.9)	30 (36.6)
1-2 cycles	5	1 (20.0)	2 (40.0)
3-4 cycles	72	12 (16.7)	27 (37.5)
5-6 cycles	5	0	1 (20.0)
Gem-Cis	84	6 (7.1)	22 (26.2)
1-2 cycles	19	1 (5.3)	4 (21.1)
3-4 cycles	57	4 (7.0)	15 (26.3)
5-6 cycles	8	1 (12.5)	3 (37.5)
Gem-Carbo/others	46	2 (4.3)	13 (28.2)
1-2 cycles	6	0	0
3-4 cycles	36	2 (5.6)	12 (33.3)
5-6 cycles	4	0	1 (25.0)

ddMVAC: dose-dense Methotrexate, Vinblastine, Adriamycin, Cisplatin; Gem-Cis: Gemcitabine and Cisplatin; Gem-Carbo: Gemcitabine and Carboplatin.

Clinicopathologic characteristics of 212 patients who underwent preoperative CHT followed by RNU

	N=212	N (%)
Age (median, IQR) [years]		68 (61-74)
Gender		
Female	58	(27.4)
Male	154	(72.6)
Tumor location		
Pelvi-caliceal	122	(57.6)
Ureter	59	(27.8)
Both	31	(14.6)
CHT regimen		
MVAC (incl. ddMVAC)	82	(38.7)
Gem-Cis	84	(39.6)
Gem-Carbo	15	(7.1)
Others	31	(14.6)
Number of cycles		
1-2	30	(14.2)
3-4	165	(77.8)
5-6	17	(8.0)
Tumor stage		
pT0	26	(12.3)
pT1/pTa/pTis	81	(38.2)
pT2	25	(11.8)
pT3/4	80	(37.7)
Nodal stage		
pN0	148	(69.8)
pNx	28	(13.2)
pN1-3	36	(17.0)

ddMVAC: dose-dense Methotrexate, Vinblastine, Adriamycin, Cisplatin; Gem-Cis: Gemcitabine and Cisplatin; Gem-Carbo: Gemcitabine and Carboplatin.

Multivariable logistic regression analyses predicting CPR

	OR (95% CI)	p-value
Age	0.97 (0.92 - 1.01)	0.2
Gender		
Male	1	
Female	1.9 (0.7 - 5.16)	0.2
Tumor location		
Ureter	1	
Pelvi-calyceal	0.4 (0.11 - 1.54)	0.2
NAC regimen		
MVAC	1	
Gem-Cis	0.60 (0.20 - 1.82)	0.4
Gem-Carbo/others	0.31 (0.06 - 1.51)	0.1
Applied cycles		
1-2	1	
3-4	1.25 (0.25 - 6.19)	0.8
5-6	0.81 (0.06 - 10.7)	0.9

MVAC: Methotrexate, Vinblastine, Adriamycin, Cisplatin; Gem-Cis: Gemcitabine and Cisplatin; Gem-Carbo: Gemcitabine and Carboplatin.

Multivariable logistic regression analyses predicting PPR

	OR (95% CI)	p-value
Age	0.98 (0.95 - 1.01)	0.2
Gender		
Male	1	
Female	1.45 (0.74 - 2.82)	0.3
Tumor location		
Ureter	1	
Pelvi-calyceal	0.61 (0.28 - 1.31)	0.2
NAC regimen		
MVAC	1	
Gem-Cis	0.81 (0.39 - 1.67)	0.6
Gem-Carbo/others	0.84 (0.37 - 1.93)	0.7
Applied cycles		
1-2	1	
3-4	1.60 (0.59 - 4.35)	0.4
5-6	1.26 (0.30 - 5.37)	0.8

MVAC: Methotrexate, Vinblastine, Adriamycin, Cisplatin; Gem-Cis: Gemcitabine and Cisplatin; Gem-Carbo: Gemcitabine and Carboplatin.

Conclusions

- Although the rates of CPR and PPR were higher for MVAC compared to GC and other regimens, we did not observe a significant difference in multivariable analysis.
- The number of cycles did not appear to have an influence on pathologic response.
- Predictive models that incorporate biomarkers are needed to identify optimal candidates for pre-operative chemotherapy.