



Radical Nephroureterectomy Pentafecta: External Prognostic Validation with Contemporary Multinational Multi-institutional Data

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Introduction

- Radical nephroureterectomy (RNU) remains the standard of care in localised upper tract urothelial carcinoma (UTUC)
- RNU: technically demanding procedure = quality of procedure will affect short term perioperative and long term oncological outcomes
- "Fecta": measures to gauge surgical quality -> characterizes quality of care
- Proven in prostatectomy, partial nephrectomy and cystectomy
- In UTUC: currently insufficient evidences to prove/externally validate existing standardized methods

Aim of current study

To propose and validate the ability of a pentafecta of RNU for UTUC in its prognosticating ability with a contemporary prospective multinational multi-institutional registry

Methods

Data acquisition

- Clinical Research Office of the Endourology Society Urothelial Carcinomas of the Upper Tract (CROES-UTUC) registry - a prospective, multinational and multicentre database

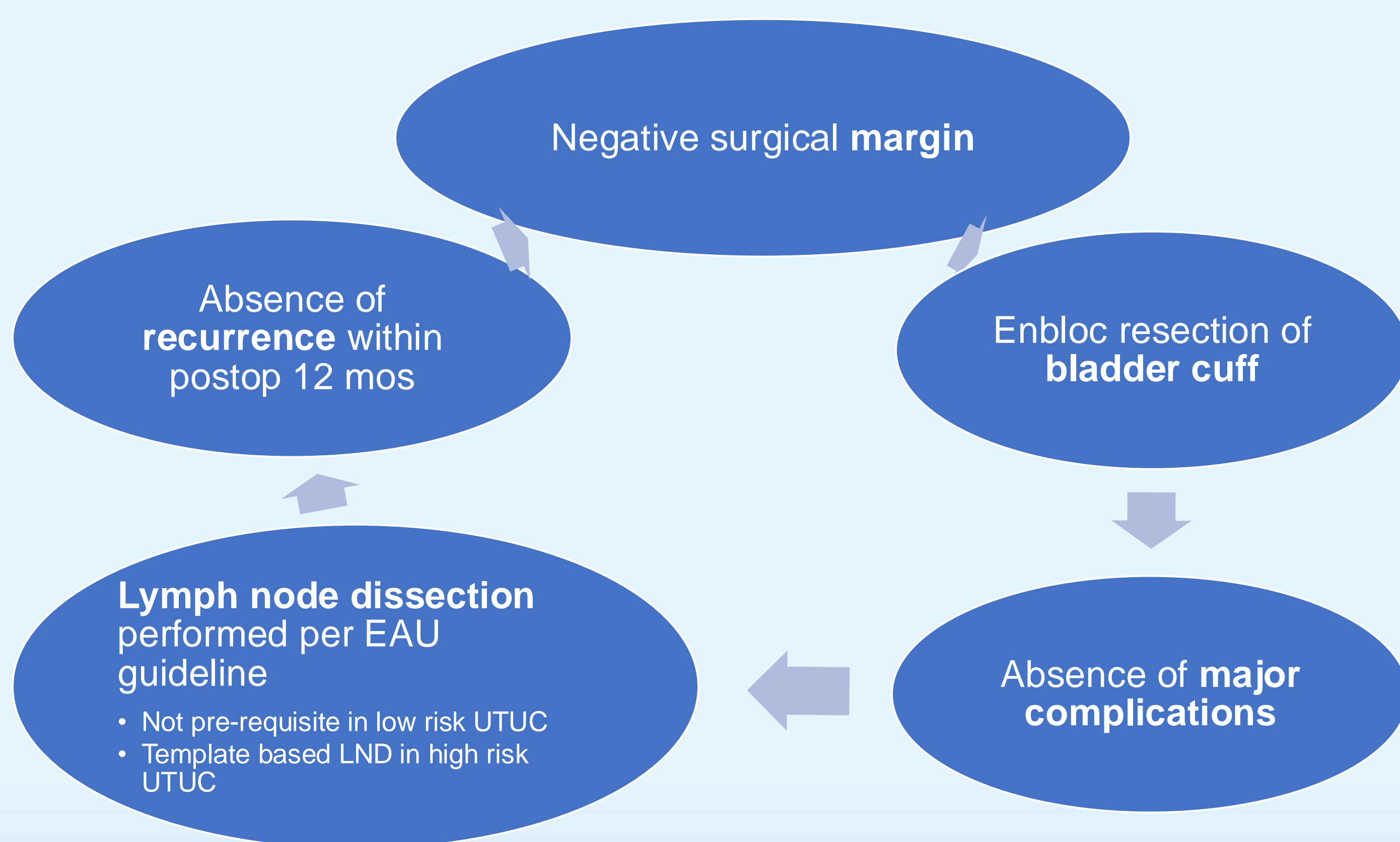
Inclusion

- Non-metastatic UTUC with RNU performed

Exclusion

- Insufficient baseline or follow-up data

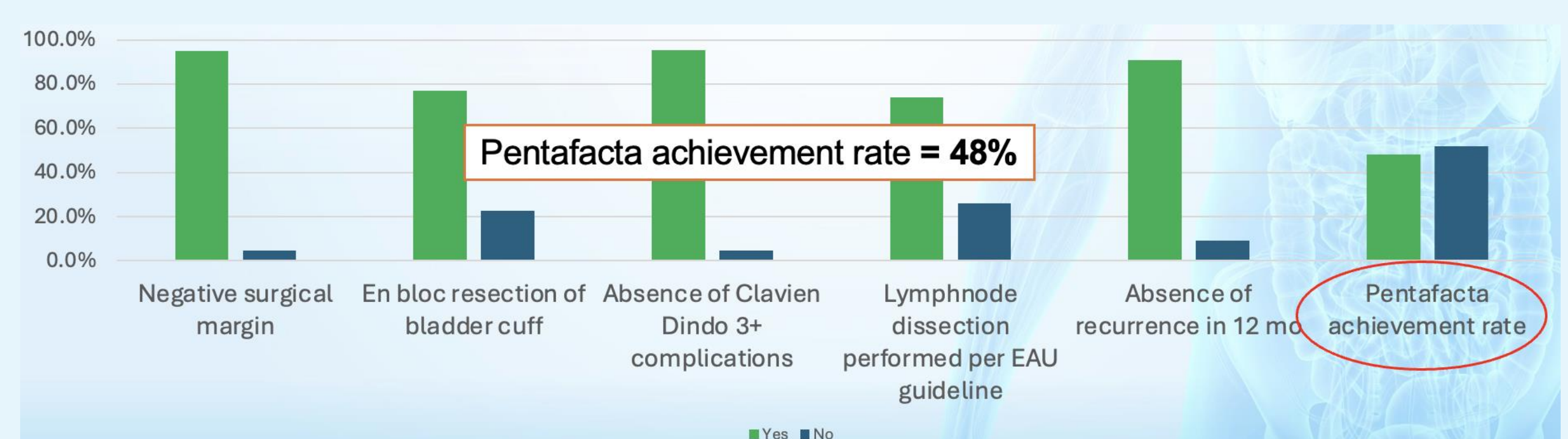
Pentafecta defined



Results

- 1049 patients from 101 centres and 37 countries included for analysis

Pentafecta achievement



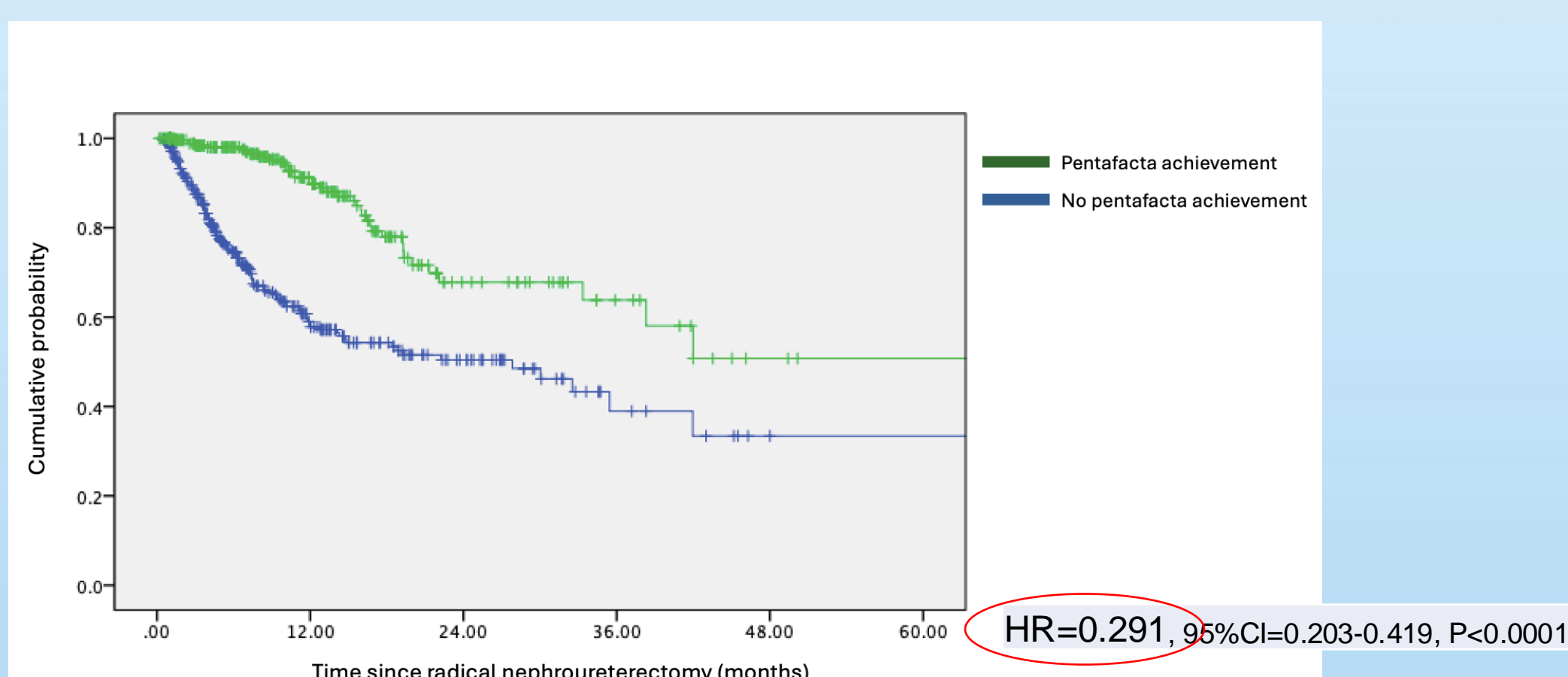
Baseline characteristics

	Pentafecta achievement		P value	Surgical approach, %			
	Yes N	No N		Open	Laparoscopic	Robot assisted laparoscopic	Missing
Number of patients, %	504 48.0%	545 52.0%		157 31.2%	222 40.7%	141 27.7%	84 16.4%
Median follow up duration (mo)	12.4	11.1	0.102	287 56.9%	277 52.7%	46 8.4%	50 9.2%
Median age, IQR	71 70.2%,29.8	71 69.7%,30.3		141 25.9%	172 31.6%	50 9.2%	50 9.2%
Gender (Male:Female), %	354:150 70.2%:29.8	380:165 69.7%:30.3	0.841	284:220 56.0%	278:267 51.0%	46 8.4%	50 9.2%
Median BMI (m2/kg), IQR	25.2 25.2,25.4	25.4 25.4,25.8	0.138	110 21.8%	150 27.5%	256 46.6%	254 46.6%
Surgery duration (mins), SD	193.5	180.4	0.069	57 11.3%	50 9.2%	57 11.3%	50 9.2%
Post operative instillation, %	66	66	0.998	79 15.7%	91 16.7%	86 17.1%	144 28.6%
Length of hospital stay (days), IQR	6	6	0.001	86 17.1%	144 28.6%	86 17.1%	144 28.6%
Complications				33 6.5%	35 6.4%	33 6.5%	35 6.4%
All grade complications	80 15.9%	79 14.5%		117 23.2%	117 21.5%	327 64.9%	362 66.4%
Clavien Dindo grade 3 or above	0 0%	39 7.2%		27 5.4%	31 5.7%	27 5.4%	31 5.7%
Mean preoperative eGFR (mL/min/1.73 m2), SD	63.4	63.3	0.916	9 1.8%	10 1.8%	130 25.8%	145 26.6%
Significant cardiovascular disease, %	61 13.3%	86 15.8%	0.323	2 4.0%	3 5.7%	130 25.8%	145 26.6%
History of smoking, %	279 55.3%	323 59.3%	0.128	198 39.3%	227 50.8%	198 39.3%	227 50.8%
ASA, %			<0.001	4 6.7%	29 5.3%	4 6.7%	29 5.3%
	1 or 2 3+	331 173	66.8% 33.2%	308 237	56.5% 43.5%		

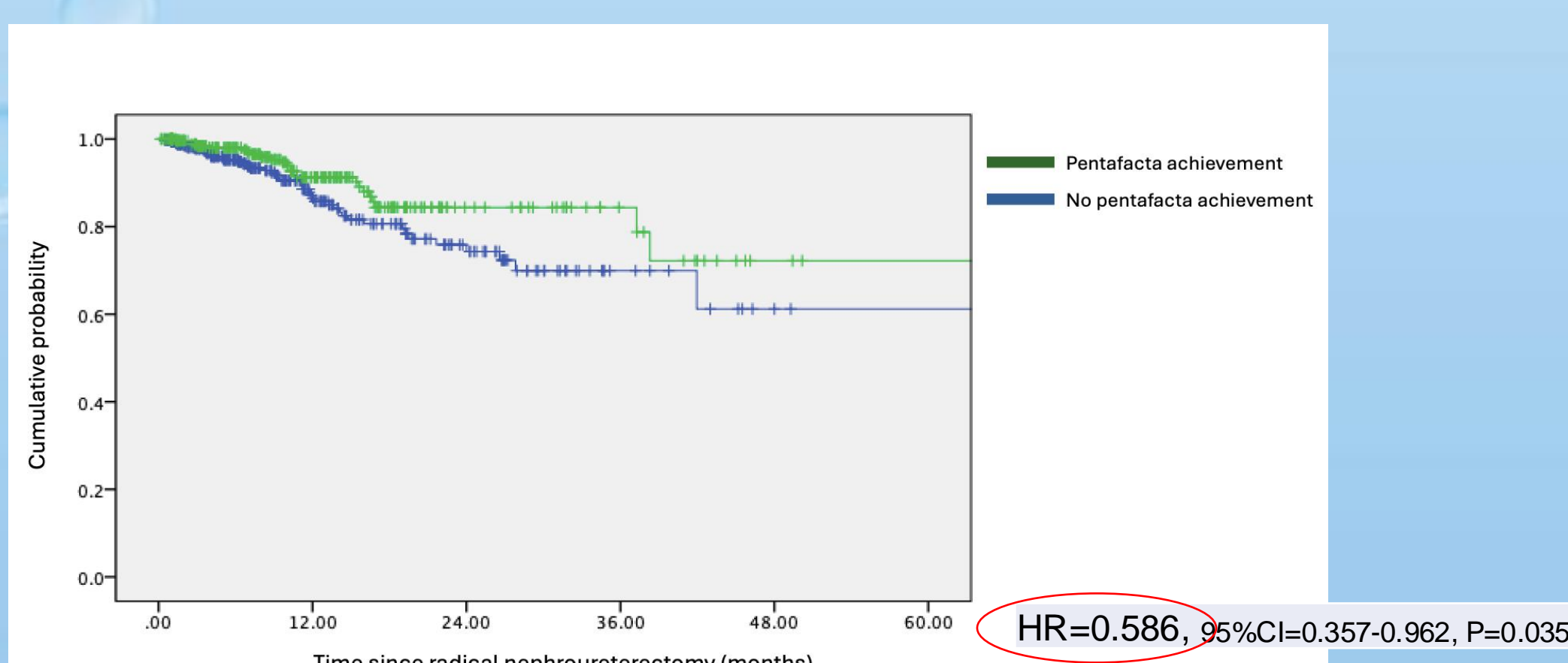
The group that did not achieve pentafecta contains more open RNU, and multifocal tumour

Pentafecta achievement is associated with better RFS and OS

Recurrence free survival



Overall survival



Multivariate regression analysis for OS

	Univariate analysis			Multivariate analysis		
	P value	Effect size	95% CI	P value	Effect size	95% CI
Pentafecta achievement	0.035	0.586	0.357-0.962	0.034	0.549	0.315-0.956
Smoking history	0.343	1.268	0.776-2.073	/	/	/
Age	0.188	1.015	0.993-1.038	/	/	/
Gender (male as reference)	0.203	1.428	0.825-2.473	/	/	/
Existing chronic kidney disease	0.267	1.311	0.813-2.116	/	/	/
Past history of bladder cancer	0.514	1.196	0.699-2.048	/	/	/
Multifocality	0.072	1.682	0.954-2.963	0.418	1.285	0.7-2.36
Surgical approach (open as reference)						
Robot as						
pT stage (Ta/is as reference)						
T2	0.113	2.02	0.847-4.821	0.486	1.397	0.545-3.582
T3	0.001	3.59	1.682-7.659	0.06	2.287	0.964-5.421
T4	0.001	6.179	2.136-17.875	0.026	3.853	1.173-12.657
Tumour grade (Grade 1 and 2 as reference)						
0.004	2.838	1.404-5.737	0.147	1.751	0.821-3.737	
Adjuvant chemotherapy	0.001	2.656	1.471-4.796	0.073	1.853	0.945-3.636
Adjuvant bladder instillation	0.709	0.869	0.415-1.818	/	/	/

Pentafecta achievement (together with lower T stage) predicts better OS and RFS in multivariate regression analysis

Conclusion

- ~50% of RNU performed achieve a pentafecta which predicts OS (HR=0.586) and RFS (HR=0.291)
- Quality of care metrics should be promoted to ensure RNU outcomes