SC168	The role of intraoperative indocyanine green in robot-assisted partial nephrectomy: results from a large, multi-institutional series

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Introduction: In recent years, novel technologies have been implemented in order to improve the surgical outcomes of Robot-Assisted Partial Nephrectomy (RAPN). Intraoperative administration of Indocyanine Green (ICG) has been proposed to intraoperatively assess kidney perfusion. To confirm, on a large scale, the effectiveness of NIRF-ICG guided RAPN in leading the surgeon strategy and to provide hints to the use of this tool.
Materials and methods: The Transatlantic Robotic Nephronsparing Surgery (TRoNeS) study group prospectively collected data from 536 patients undergoing RAPN at three tertiary care centers. Of these, 318 (59.3%) underwent RAPN and ICG for clinically localized kidney cancer between 2010 and 2016. RAPN was performed using methods outlined in the supplementary video using either the da Vinci Si or Xi surgical system. Each patient was given an intravenous injection of 2–4 mL of 2.5 mg/mL solution of ICG during surgery. Clinical data and operative variables were collected within a prospectively maintained multi-institutional database. Optimal surgical outcomes defined according both to the MIC and to the Trifecta score were assessed.
Results: 194 (61%) were males and 124 (39%) were females. Median patient age was 61 yr and median preoperative tumor size was 30 mm. Median operative time, estimated blood loss and warm ischemia time (WIT) were respectively 162 min, 100 ml, and 17 min. Optimal surgical patients defined according to MIC and Trifecta were achieved in 228 (71.7%) and 254 (79.9%) individuals respectively. The univariate and multivariable logistic regression models showed that tumor complexity nephRomatry scores were independent predictors for both Trifecta and MIC.
Conclusions: The intraprocedural ICG administration represents a reliable method to provide a real-time visualization of the vascularization of the kidney. The use of this tool during RAPN can help surgeons to confirm the area of targeted ischemia during selective clamping, to assess the presence of accessory arteries, as well as to define a proper parenchimal vascularization after RAPN. We report the largest population of patients that underwent ICG-guided RAPN. The main limitation of the study is the lack of a control group. The intraprocedural ICG administration represents a useful tool where the vascular anatomy is challenging and it could be implemented to maximize the adoption of RAPN.

SC169	The role of preoperative cart score as predictor of renal functional decline after partial nephrectomy

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Introduction: Partial nephrectomy (PN) may be associated with a decreased risk of functional loss compared to radical nephrectomy (RN), but a significant functional decline may still occur. CART score is a novel scoring system able to predict functional decline after PN. Aim of this study was to assess the validity of CART score in an internal cohort of patients.
Materials and methods: We enrolled 67 patients with pre-operative estimated glomerular filtration rate (eGFR) >60 ml/min/1.73 m^2 by CKD-EPI who underwent PN in a single institution. Data were prospectively collected and retrospectively analyzed. For each patient

CART score was determined considering the value of pre-operative CRP, age at surgery, race and tumor size and patients were divided in 3 categories: low (4–6), intermediate (7–9) and high (>10) score. Statistical analysis were conducted using Fisher exact test, T test, and Mann-Whitney U test. Univariate and multivariate analyses were performed.
Results: Patients were assigned as follows: 46 to low-CART, 20 to intermediate-CART and 5 to high-CART score. Comparing to low CART, high CART patients were at higher risk of developing post-operative CKD stage worst than IIIb (p = 0.0045); median age and clamping time were significantly higher in this group (p = 0.008; p = 0.005). No differences were observed for ischaemia (warm vs. cold), presence of diabetis mellitus or hypertension, BMI, Charlson score and mean follow-up. ROC analysis revealed AUC of 0.9. At multivariate analysis high CART score resulted as the only independent predictor of post-operative eGFR <45 ml/min/1.73 m^2 (OR 14.01, 1.32–22.9 CI 95%; p = 0.04).

Variable	Univariate analysis			Multivariate analysis		
	OR	95% CI	p	OR	95% CI	p
Age as cont	1.13	1.01–1.31	0.05	1.07	0.95–1.26	0.28
CART score high (ref.low)	30.1	3.36–38.5	0.004	14.01	1.32–22.9	0.04
DM (ref. no)	4.93	0.55–38.02	0.12			
HT (ref. no)	1.65	0.07–4.01	0.6			
CCI						
0	ref.	ref.	ref.			
1	4.3	0.45–41.3	0.18			
≥2	2.9	0.14–37.8	0.4			
Ischaemia (ref. no)	0.8	0.09–16.9	0.85			
Ischaemia cold (ref. warm)	1.5	0.16–13.7	0.7			
Clamping time as cont	1.2	0.98–1.59	0.11			

Conclusions: CART score is a a low time-consuming and a good cost-effective tool. In our cohort of study a high CART score represented a strong predictor of post-operative CKD stage worst than IIIb. CART score may play an adjunctive role in pre-operative counselling and clinical decision making of patients eligible for PN.

SC170	Is whenever feasible-strategy for partial nephrectomy invariably justified? the impact of clinical tumour size on postoperative renal function

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Introduction: When partial nephrectomy [PN] is preferred over radical nephrectomy [RN] for large renal tumours, the functional benefit might be minimal due to small residual parenchymal volume and the long ischemia time. The aim of the study was to investigate the impact of tumour size on the functional benefit of PN relative to RN and to define a dimensional trade-off for the indication in favour of PN.
Materials and methods: An observational retrospective analysis of 722 patients diagnosed with a cT1-cT2 cM0 renal mass and elected for surgery was performed. The variable of interest was preoperative clinical size defined as the largest tumour diameter measured in millimetres at pre-operative axial imaging. The outcome of the study was the estimated glomerular filtration rate [eGFR] measured 12 months after surgery. Multivariable linear regression analyses predicting eGFR in case of PN and RN were performed. Model estimates were used to compute the adjusted eGFR for each patient. Loess regression was used to investigate the relationship between clinical size and model-adjusted eGFR.