(MP57-13) Evaluation of oncological outcomes of robotic partial nephrectomy according to the type of hilar control approach (On-clamp vs Off-clamp)

Multicentric Study of the French Network of Research on Kidney Cancer – UROCCR 58 - NCT03293563

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Introduction & objectives

The choice of the optimal renal hilar control approach remains a debated topic in daily practice. Our research aims to compare off-clamp vs. on-clamp robotic partial nephrectomy (RPN) in terms of oncological outcomes, mainly PSM rate. We assessed the interaction between the hilar control approach and surgical experience regarding oncological outcomes.

Materials and Methods:

We extracted data of a contemporary cohort of 1359 patients from the prospectively maintained database of the French national network of research on kidney cancer (UROCCR).
The primary endpoint was the positive surgical margins (PSM) rate. To evaluate the oncological outcomes regardless of the surgical experience (SE), we divided patients into three groups of SE, which was defined by the caseload of RPN per surgeon per year. For continuous variables, we used Mann-Whitney and Student tests. We used a logistic regression multivariate analysis to evaluate the independent factors of PSM. (Figure 1)

Results:

Outcomes of 224 off-clamp RPN were compared to 1135 on-clamp RPN. PSM rate was not statistically different, 5.6% in the off-clamp group, and 11% in the on-clamp group (p=0.11). Regarding oncological outcomes, overall survival (OS p=0.6), local recurrence (LR p=0.4) or metastasis-free survival (MFS p=0.4) were similar. After stratification according to SE, PSM rate was unaffected by the type of hilar control approach in the three sub-groups (p=1.00; 0.08; 0.2, respectively). On multivariate analysis, only SE and age were associated with PSMs rate (OR-p=0.67-0.02; 1, 03-0,007, respectively). Limitations include retrospective design and lack of adjustment. (Table 2)

Conclusion:

Hilar control approach seems to have no impact on oncological outcomes of RPN. This result should be confirmed by randomized controlled trials.

Figure 1

Table 1: Patients' characteristics and oncological outcomes according to hilar control approach

Variable	Off Clamp N = 224	On Clamp N = 1135	P value
Gender F, n (%)	71 (31.7)	410 (36.1)	0.2
Age, years, mean (SD)	61.04 (12.74)	60.33 (12.81)	0.4
BMI, kg/m², mean (SD)	27.56 (5.77)	26.89 (5.36)	0.09
ECOG, ⩾ 1, n (%)	25 (12.2)	47 (4.7)	<0.001*
Tumour size, cm, mean (SD)	3.61 (2.28)	3.83 (1.83)	0.13
R.E.N.A.L., score mean (SD)	7.14 (2.24)	6.67 (2.65)	0.01
EBL mean ml (SD)	198.96 (320.87)	229.53 (284.59)	0.16
Positive surgical margins, n (%)	**12 (5,6)**	**122 (11)**	**0.11**
Local recurrence, n (%)	6 (3.5)	41 (4.4)	0.7
Metastatic recurrence, n (%)	8 (4.7)	29 (3.1)	0.3
Death, n (%)	4 (2.4)	13 (1.4)	0.5
Recurrence free survival, m, mean (SD)	12.09 (9.93)	16.70 (12.28)	0.3
Metastasis free survival, m, mean (SD)	10.52 (8.96)	14.74 (13.91)	0.4
Overall survival, m, mean (SD)	16.41 (22.10)	43.56 (711.27)	0.6

*Statistically significant.

Table 2: a- Patients' characteristics and PSM rate according to surgeon's experience

Variable	Low SE < 15 cases/year N = 89			Moderate SE 15-30 cases /year N = 365			High SE >30 cases/year N = 912			P
Gender F, n (%)	31 (34.8)			144 (39.5)			310 (34.0)			0.181
Age, years, mean (SD)	60.17 (12.50)			61.88 (12.81)			59.89 (12.78)			0.041
BMI, kg/m2 , mean (SD)	26.15 (5.12)			26.92 (5.12)			27.14 (5.58)			0.292
Tumour size, cm, mean (SD)	3.27 (1.62)			3.32 (1.82)			3.99 (1.94)			<0.001*
R.E.N.A.L., score mean (SD)	5.54 (3.18)			5.44 (2.93)			7.28 (2.23)			<0.001*
	Surgical margins			**Surgical margins**			**Surgical margins**			
	PSM (+)	NSM (-)	P value	PSM (+)	NSM (-)	P value	PSM (+)	NSM (-)	P value	
n (%)	4 (5.4)	68 (76.4)		61 (17.3)	268 (72,6)		70 (8)	747 (81,9)		
Hilar control approach = On clamp, n (%)	3 (98.9)	65 (98.5)	1.00	58 (97.4)	243 (90.7)	0.085	59 (83,1)	573 (76.9)	0.297	

*Statistically significant. NSM : negative surgical margins

Table 2: b- Multivariate analysis model of surgical experience and hilar control approach impact on PSM

	Multivariate Analysis Positive Surgical Margins	
	OR (95% CI)	P
Surgical experience	**0.67 (0.47-0.96)**	**0.02***
On-clamp vs Off-clamp	1,82 (0,98-3,72)	0.07
Gender	0.75 (0.48-1.15)	0.19
Age	**1.03 (1.01-1.05)**	**0.007***
BMI	0.99 (0.95-1.03)	0.6
ECOG	0.81 (0.28-1.93)	1.9
Tumour size	1.08 (0.97-1.19)	0.16

*Statistically significant.