

1% having thrombus to the right atrium. We report our 20-year surgical experience, to identify and practical tips linked to successful outcome.

Materials and methods: 87 patients underwent surgery for RCC with venous thrombus between 01/1998 and 12/2018. Data have been collected retrospectively. Follow-up was possible in 75 pts (86%), with a median of $11 \pm 0,8$ yrs.

Results: Pts were 64 males and 23 females. Mean age at the diagnosis was $65 \pm 12,8$ yrs; median BMI was $26,3 \pm 3,6$ in females and $27,5 \pm 3,8$ in males. 5 pts (6%) had a solitary kidney at the time of surgery, in particular 1 patient had undergone radical nephrectomy for RCC and another for RCC with venous thrombus to the right atrium. 2 pts had a contralateral synchronous RCC. All pts had preoperative imaging examination with CT scan and preoperative evaluation of cardiovascular and pulmonary status. 63/87 pts (72%) presented with a right RCC, and 21/87 (24%) with a metastatic disease at the diagnosis. The level of tumour thrombus was classified according to the Mayo classification: 8/87 (9%) had the thrombus limited into the renal vein (level 0), in 16/87 (18%) the thrombus was within 2 cm of renal vein ostium (level 1), in 22/87 (25%) it was below hepatic veins (level 2), in 9/87 (10%) below the diaphragm (level 3), and in 32/87 (37%) above diaphragm (level 4). Complete resection of the renal tumour and thrombus was achieved in 85/87 pts (98%). 2 cases underwent only an explorative laparotomy for peritoneal carcinosis. Intra-atrial thrombus was managed with sternotomy and extracorporeal circulation with a heart-surgical team in all cases except the last 2, where the atrial thrombus was suctioned through a vacuum-device placed in the right atrium with a trans-jugular vein access. The last 5 cases were successfully managed with involvement also of a hepatic-surgical team, to access clamping of the IVC below the diaphragm. One intraoperative and 4 postoperative in-hospital deaths (6%) occurred, on the first PO day. Early perioperative complications occurred in 26/87 cases (30%), mostly fever and anemia. The 5- and 10-year overall survival rate were 63% and 57%, respectively. Thrombus level and albumin were significant factors associated with perioperative mortality (HR 4,89, IC95%:2, 24–10,67).

Discussion: Surgical management of pts with RCC and venous thrombus is safe and linked to successful outcome. Success depends on multidisciplinary team management, involving heart surgeons and hepatic surgeons. Recent data suggests that sternotomy can be avoided in selected cases with innovative approaches, such as utilization of vacuum-devices placed percutaneously through the jugular vein to the right atrium. This technique seems to simplify the procedure and surgical stress to the patient, and seems to be crucial for success in previously sternotomised pts.

SC9

Open versus minimally invasive cytoreductive nephrectomy (CN) for metastatic renal cell carcinoma (mRCC): Results from a multicenter retrospective study

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Aim of the study: Recent evidence outlined that not all patients with mRCC might benefit from CN. However, there is lack of data on perioperative morbidity after this procedure. We aimed to investigate the impact of surgical approach on perioperative outcomes and surgical complications relying on a multicenter international registry.

Materials and methods: Clinical data of 681 patients with mRCC undergoing CN at 11 centers included in the REgistry of MetAstatic RCC (REMARCC) from January 2014 to December 2017 were retrospectively collected. Patients with complete data on demographics

and comorbidity profiles were included in final analysis. Study endpoints were: a) postoperative complications, assessed and graded using the modified Clavien-Dindo scale, and b) 30th day readmission rate.

Results: Overall, 369 (54.2%) patients (247 open CN [OCN] and 122 minimally-invasive CN [MICN]) were considered. Patients treated with OCN had a significantly higher cT stage ($p=0.01$), tumor size ($p<0.0001$) and cN stage ($p=0.04$). Conversely, there was no difference in terms of gender, age, Charlson comorbidity index, body mass index, site of metastatic lesions and baseline hemoglobin level, LDH level, glomerular filtration rate and calcemia. Lymph node dissection (LND) rate and renal vein/vena cava thrombectomy were significantly higher in the OCN compared to the MICN ($p<0.0001$ and $p=0.001$, respectively). Median estimated blood loss was significantly lower in the MICN compared to the OCN group (100 vs 450 cc, $p<0.0001$). The rate of removal of adjacent organs beyond the tumor-bearing kidney was not significantly different among the two groups. Patients with MICN compared to OCN had a significantly lower intraoperative (10% vs 22.6%, $p=0.004$), overall postoperative (18% vs 38.6%, $p<0.0001$) and major postoperative (2.5 vs 8.2%, $p=0.03$) complications and lower median length of stay (5 vs 8 days, $p<0.0001$). Perioperative mortality was reported in 3 patients in the OCN group. Readmission rate was 7.1% in both groups.

Discussion: MICN was feasible and achieved acceptable perioperative morbidity in selected patients with mRCC. The main study limitation is the retrospective design with risk of selection and attrition bias.

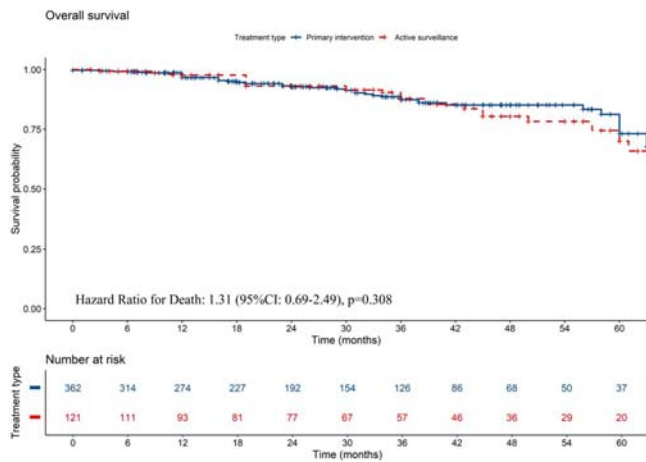
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Active Surveillance for Small Renal Masses in elderly patients do not increase overall mortality rates compared to primary intervention: A propensity score weighted analysis

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Aim of the study: We aimed to test differences in overall mortality (OM) between active surveillance (AS) vs. primary intervention (PI) in patients older than 75 years diagnosed with small renal masses.

Materials and methods: Elderly patients (75 years or older) diagnosed with small renal masses (<4 cm) treated with PI [i.e. partial nephrectomy ($n=260$) or kidney ablation ($n=102$)] or AS between 2009 and 2018, were abstracted respectively, from the RENal SURGery in the Elderly (RESURGE) and Delayed Intervention and Surveillance for Small Renal Masses Registry (DISSRM) datasets. Primary endpoint of analyses was overall mortality (OM). Differences between treatment groups in terms of gender, age, diabetes, Charlson Comorbidity Index (CCI), clinical size and hypertension were resumed as standardized mean difference (SMD), covariates were considered balanced with $SMD<0.1$. Univariable logistic regression model and Cox regression model were fitted to test covariates related to treatment choice or to the OM. To control the selection bias we relied on inverse probability of treatment weighting according to average treatment effect (IPTW-ATE). IPTW was estimated with multivariable logistic regression model accounting for covariates that were unbalanced and/or significantly correlated with the treatment choice or OM. Weighted Kaplan-Meier curves and Cox regression model were fitted to estimate OM rates in the two treatment groups. Weighted log-rank test was used to test the absolute effect of treatment on OM. A 2000 times bootstrap was used to estimate standard error of hazard ratio (HR) and thus the relative 95% confidence interval from IPTW-Cox regression model.



Results: Overall, 483 patients were included. Of all, the 25.1% underwent AS. Patients in AS were more frequently ≥ 80 years old (OR: 2.49, 95%CI: 1.64–3.79) and with CCI 0–1 (OR: 4.89, 95%CI: 3.14–7.61). Conversely, AS patients harbored less frequently renal masses > 2 cm (OR: 0.31, 95%CI: 0.20–0.48). The median follow-up was 27.0 (IQR: 12.0–45.0) months. Overall, 60 patients (12.4%) died. Only the 6.7% of all death were related to cancer. Main predictors of OM were diabetes (HR: 2.19, 95%CI: 1.30–3.70) and CCI 0–1 (HR: 0.53; 95%CI: 0.29–0.95). IPTW-Kaplan Meier curves showed that 5-year overall survival rates were 65.7 ± 3.5 and $73.2 \pm 4.8\%$ in AS and PI group, respectively. IPTW-Cox regression model did not show meaningfully higher OM rates in AS group (HR: 1.31, 95%CI: 0.69–2.49, $p = 0.308$).

Discussion: AS does not seem to provide inferior survival outcomes than PI in patients aged over 75 years diagnosed with small renal masses. The use of AS protocols may reduce the possibility of overtreatment in this group of patients.