

Minimally invasive versus open cytoreductive nephrectomy for primary metastatic renal cancer: A multi-institutional experience from the REMARCC registry

Eur Urol Open Sci 2020;19(Suppl 2):e1274

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Introduction & Objectives: Since the publication of CARMENA trial results in the setting of primary metastatic Renal Cell Carcinoma (mRCC), the role of cytoreductive nephrectomy (CN) has been questioned but continuous to play a significant role in multi model therapeutic management plans. We examined the impact of surgical approach (open vs minimally invasive surgery-MIS) on survival outcomes of mRCC patients undergoing CN by using a multi center registry.

Materials & Methods: This was a multi center retrospective analysis of cases included in a multi center international registry (REMARCC - REgistry of MetAstatic RCC) of mRCC patients treated with CN in the period 2004-2019. The impact of surgical approach (open vs. MIS) was analyzed via Kaplan Meier (KM) and Cox regression multi variable analysis (MVA). Primary outcome was overall mortality (OM).

Results: Overall 699 patients were included in our analyses. A total of 162 (23.2%) underwent MIS. The proportions of patients classified as favorable (4.5 vs. 6.2%), intermediate (57.9 vs. 66.0%) and poor (37.6 vs. 27.8%) prognosis were similar in the open vs. MIS groups (p=0.063). Similar overall complication rates were found in the Open vs. MIS groups (14.1 vs. 11.2%, respectively; p=0.383), but Clavien-Dindo grade 4 (2.1 vs. 0.9%) and grade 5 (1.8 vs. 0.0%) were more frequently observed following the open approach (p=0.036). Open surgery was more often performed on patients with sarcomatoid features (20.6 vs. 12.9%, p=0.044). No significant differences were found in terms of pathological T-stage (p=0.053) or positive surgical margins rates (8.9 vs. 13%; p=0.176) as per chosen approach. Conversely, higher rates of pN1 were reported in the open group compared to the MIS group (24.0 vs. 8.6%, p<0.001). Open surgery was associated with longer length of stay [9.0 (IQR 7.0-12.2) days] vs. the MIS approach [6.0 (IQR 4.0-8.0) days; p<0.001]. Similarly, the MIS approach was associated with lower estimated blood loss [100.0 (IQR 50.0-212.5) mL] compared to the open approach [500.0 (IQR 250-1275.0) mL, p<0.001]. Patients who underwent open surgery showed a remarkably shorter median

survival [23.1 (95% CI: 19.7-27.0) mo 39.6 (95%CI 23.7-56.9), $p<0.001$]. However, these differences did not remain statistically significant after accounting for Heng's risk group, type of surgery, and pT and pN stage (HR: 1.23, 95% CI: 0.94-1.60, $p=0.139$).

Conclusions: Our findings suggest that a MIS approach in mRCC patients undergoing CN does not compromise patient's outcomes. Minimally invasive surgery can be offered on a selective-case basis.