

Mari A., Minervini A., Sessa F., Campi R., Bonifazi M., Chini T., Salvi M., Siena G., Tuccio A., Masieri L., Vignolini G., Gacci M., Serni S., Carini M.

Careggi University Hospital, Dept. of Urology, Florence, Italy

**INTRODUCTION & OBJECTIVES:** The potential negative impact of ischemia on renal function (RF) led to an increasing interest to avoid renal clamping. The aim of the study was to compare the perioperative and functional outcomes of patients who underwent clamped and clampless ERASE in a high-volume centre.

**MATERIAL & METHODS:** A matched-pair comparison of 120 clamp vs. 120 clampless over 350 patients treated with ERASE was performed matching for side, polar tumor location, clinical size score, urinary collecting system and renal sinus dislocation. Perioperative and functional outcomes were compared between groups. Renal function was calculated using biochemical markers (Sr Creatinine, eGFR using MDRD and chronic kidney disease (CKD) stage according to eGFR).

**RESULTS:** The groups were comparable for demographic, clinical and nephrometry tumor features. Clinical T1a tumors were 107 (89.2%) and 108 (90%), median PADUA score was 7.0 (6.0-7.5) and 7.0 (6.0-8.0) in the clamp and clampless group, respectively. Preoperative CKD stage 1, 2, 3A, 3B and 4 were identified in 50.0%, 39.2%, 5.0%, 3.3%, 2.5% of clamp ERASE vs. in 46.7%, 44.2%, 5.0%, 2.5, 1.7% of clampless ERASE. Warm ischemia time was > 20 and >25 minutes in 11.6% and 5.0% of clamp cases. Median intraoperative time was significantly higher in clamp cases (150 vs. 120;  $p<0.0001$ ). No intraoperative complications were registered in both groups. Overall, Clavien 2 and 3 surgical complications were 2.5%, 0.8% and 1.7% vs. 3.3%, 2.5% and 0.8% clamp and clampless ERASEs. Surgical margins were registered in 1.7% of each group. Median delta preoperative- 1<sup>st</sup> postoperative day (POD) and preoperative - 30<sup>th</sup> POD eGFR was 5.5 (0-15.6) and 8.9 (2.5-19.7) in clamp ERASE vs 1.1 (0-8.5) and 3.2 (0-8.2) clampless ERASE ( $p=0.01$  and  $p<0.0001$ , respectively). Preoperative- 30<sup>th</sup> POD Delta CKD stage was 0 in 82.5% and 91.7%, +1 in 15.0% and 8.3%, +2 2.5% and 0% of clamp and clampless ERASEs, respectively ( $p=0.01$ ).

**CONCLUSIONS:** In our experience, clampless ERASE is a feasible and safe surgical technique with comparable postoperative outcomes and providing a significantly lower rate of early CKD development compared to clamp procedures.