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PREDICTIVE FACTORS OF RESECTION TECHNIQUES DURING PARTIAL NEPHRECTOMY IN A COHORT OF “ENUCLEATIVE” CENTERS: INSIGHTS FROM THE SURFACE-INTERMEDIATE-BASE (SIB) MARGIN SCORE INTERNATIONAL CONSORTIUM

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Introduction/Aim: Detailed reporting of resection strategies (RS) and resection techniques (RT) for tumor excision during partial nephrectomy (PN) is lacking in the current literature. The aim of the study was to evaluate (i) possible correlations between patients' and/or tumors' characteristics and RT performed and (ii) whether the type of RT does influence perioperative outcomes after PN, harnessing the newly proposed Surface-Intermediate-Base (SIB) margin score as a standardized reporting system. *Materials and Methods:* After Institutional Review Board's approval, data were prospectively collected from a cohort of 507 patients undergoing nephron-sparing surgery (NSS) at 16 high-volume Centers across the U.S. and Europe over a 6-month enrollment period. RT was classified according to the SIB score. RS was classified as “enucleative”, “enucleoresective” or “resective” according to the most prevalent RT performed in each centre's cohort. Descriptive and comparative analyses were performed in the nine enucleative RS centres (EC). *Results:* Overall, 507 patients were finally enrolled in the study. The RT was classified as pure or hybrid enucleation (E, SIB 0-2), pure or hybrid enucleoresection (ER, SIB 3-4) and resection (R, SIB 5) in 266 (52.5%), 150 (29.6%) and 91 (17.9%) patients, respectively, in the overall cohort, while in 207 (74.7%), 56 (20.2%) and 14 (5.1%) patients in the EC cohort. Demographic data, comorbidity scores, surgical indication and approach did not significantly differ between the E, ER and R groups in the EC. Median PADUA score was 8 (interquartile range (IQR)=7-9), 9 (7-10) and 9 (8-10) ($p=0.03$); a PADUA score ≥ 10 was recorded in 19.3%, 37.5% and 28.6% ($p=0.02$) in the E, ER and R groups, respectively. A clampless strategy was used in 79/204 (38.7%), 6/55 (10.9%) and 5/14 (35.7%) patients in the E, ER and R groups ($p<0.001$). Median warm ischemia time (WIT) was 17 (12-23), 18 (14-22) and 18 (16-20) minutes ($p>0.05$). Surgical post-operative complications were recorded in 6.8%, 12.5% and 14.2% of patients ($p>0.05$). Positive surgical margin rate was recorded in 2.4%, 7.1% and 0% of patients, respectively ($p>0.05$). Trifecta outcome was achieved in 74.8%, 65.0% and 80.0% of patients for the E, ER and R groups ($p>0.05$). *Discussion and Conclusion:* This is the first study evaluating pre-operative predictive factors of RTs performed during PN and whether the type of RT significantly impacts on NSS outcomes using a standardized instrument of reporting. Overall, in EC, E represents nearly 75% of all procedures and is associated with a significantly higher rate of clampless procedures compared to ER. However, ER and R are preferred in highly complex cases. Concerning surgical outcomes, E was associated with a lower rate of post-operative surgical complications compared to ER and R and lower positive margin rates and higher Trifecta achievement compared to ER, although these differences were not statistically significant.