

P088 Use of nephrometry score systems in nephron sparing surgery: Applicability and reproducibility from residents perspective

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Introduction & Objectives: The aim of this study is to evaluate the applicability of four different nephrometry scores systems (NSS) and to analyse their reproducibility comparing NSS assigned by radiology and urology residents.

Materials & Methods: Between November 2017 and May 2019 we enrolled 52 patients (pts) at our center with a suspected diagnosis of renal tumor. All pts were candidate to nephron sparing surgery with a laparoscopic or open approach. All diagnostic Computed Tomography (CT) scans were retrospectively evaluated and images consulted both in axial and coronal planes. Six residents in total, three urologists and three radiologist analysed diagnostic CT scans and assigned independently their NSS for each patient. The scores included in the study were: RENAL, PADUA, C-Index and ABC. In descriptive analysis all continuous variables were summarized with median and interquartile range, while categorical variables with absolute and relative frequencies. The scores given by the "Urologists group" and the "Radiologists group" were compared using the Mann-Whitney test and graphically with the Box Plot. Intra-class correlation coefficient (ICC) was used for continuous scores reliability while for categorical scores Cohen's kappa (k) was used.

Results: ICC among all readers was higher for the RENAL and PADUA scores while was low for the C-Index and ABC score. When considering the specific professional background, all Urologist NSS were characterized by an intra-class correlation index higher than 0.8, while in the Radiologist group only the Renal and the PADUA presented similar results. On the contrary the C-Index and ABC scores had lower ICC. The differences in score assigned between the two groups of specialists resulted respectively in 1 point and 0.6 point mean for the RENAL score ($p=0.012$) and the C-Index ($p<0.001$) while no mean differences were observed in PADUA and ABC scores ($p>0.05$) (Table 1).

| | R. E. N. A. L. Median (IQR) | PADUA Median (IQR) | C-Index Median (IQR) | ABC Median (IQR) |
|--------------------------------|--------------------------------|-----------------------|-------------------------|-----------------------|
| Urologists | 8 (7 – 9) | 8 (7 – 10) | 1.8 (1.3 – 2.6) | 2 (2 – 3s) |
| Radiologists | 7 (6 – 9) | 8 (7 – 10) | 2.4 (1.8 – 3.3) | 2 (2 – 3s) |
| P-value (Mann-Withney test) | 0.012 | 0.560 | < 0.001 | 0.612 |
| | R. E. N. A. L. ICC (95% CI) | PADUA ICC (95% CI) | C-Index ICC (95% CI) | ABC Kappa (95% CI) |
| All readers | 0.80 (0.45 – 0.78) | 0.82 (0.74 – 0.90) | 0.40 (0.24 - 0.55) | 0.52 (0.42 – 0.62) |
| Urologists only | 0.91 (0.86 – 0.96) | 0.86 (0.78 – 0.93) | 0.81 (0.71 - 0.90) | 0.81 (0.71 – 0.91) |
| Radiologists only | 0.80 (0.70 – 0.90) | 0.83 (0.74 – 0.91) | 0.46 (0.26 - 0.66) | 0.32 (0.21 – 0.43) |

Table 1 – Intraclass correlation and Cohen's Kappa, Median and Interquartile Range (IQR) comparison between readers

Conclusions: Our results showed that NSS based on anatomical characteristics are more reproducible: P.A.D.U.A and R.E.N.A.L. score had the higher reproducibility among all groups. On the other hand C-Index score tends to differ significantly between urologist and radiologist, even inside the same specialty. Our results suggest that NSS based on anatomical characteristics tend to show a higher reproducibility even among residents with different professional backgrounds.