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ULTRASOUND RESIDUAL URINE VOLUME. RELIABILITY.

Hypothesis / aims of study
Clean Intermittent Catheterization (CIC) is a gold standard treatment in many voiding
dysfunction patients. Postvoid residual volume (PVR) measurement is necessary to
establish the appropriate number of CIC, which can be correctly quantified by experienced nursery before attending the urologist consult, this allows not only saving time between them but also enabling the physician to prescribe new treatments or changing any current one at that moment if necessary, specially neurological patients.
To assess wether ultrasound post-void residual volumes (PVR) are reproducible (reliability) by different observers.

Study design, materials and methods
This is a prospective double-blind study involving 441 patients attending our neurourology
department to undergo an urodynamic study because of LUTS. We included patients of
both sexes, with and without neurological disease, meeting the following conditions: (1) no
previous bladder enlargement surgery nor (2) bladder anatomical pathological conditions.
Postvoid residual volume (PRV) was blind-measured with ultrasound by two experienced
examiners (urologist and nurse). Outcomes were also established by three groups (PVR 0-100 mL, 101-200 mL, >200 mL) . Global agreement was proved using the intraclass correlation coefficient (ICC) with 95% confidence interval (CI) and in each group with Kappa index.

Results
155 (35,2%) men and 286 (64,8%) women. 146 (33,1%) of them were neurogenic patients

PVR	Kappa	p value
>100 mL	0,896	< 0,000
>150 mL	0,850	< 0,000
>200 mL	0,807	< 0,000
Global ICC	**95% CI**	**p value**
0,97	0,96-0,98	< 0,000

Fig 1. Kappa index for each subgroup and global ICC

We obtained a good correlation between both observers demonstrated by a high Kappa index (Kappa>0,8). Figure 1. Also a high global agreement, ICC: 0,97 (0,96-0,98). Moreover, Bland-Altman plot showed a good interobserver correlation, although for PVR higher than 200mL measures differ greatly. Figure 2.

Interpretation of results
Our findings showed that trained nurses are able to quantify PVR with ultrasound as well as the urologist. That could prevent spending a great amount of time between flowmetry and measurament of PVR, which results in a higher quality test. These results are similar to those described in other articles.
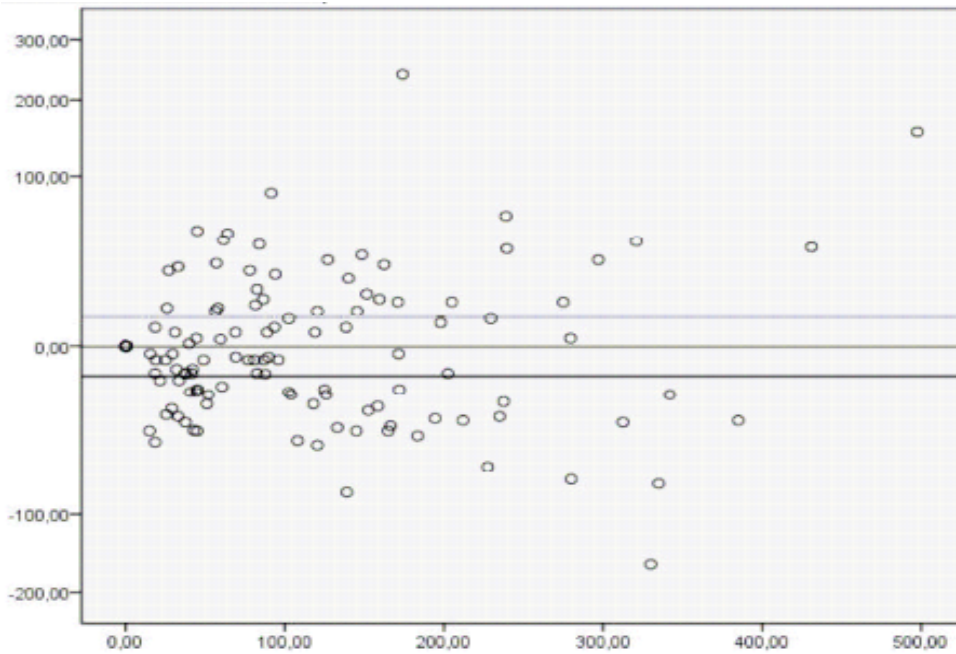
Fig 2. Bland-Altman plot, as PVR grows, so does the interobserver difference

Concluding message
Nursery ultrasound PVR measures are very similar to those obtained by urologist, so these are reliable to quantify PVR due to the high reproducibility rate and interobserver agreement.

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Disclosures