332

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REPRODUCIBILITY OF DETRUSOR AFTER-CONTRACTION AND ITS CORRELATION WITH POST-VOIDING RESIDUAL

Hypothesis / aims of study

Detrusor after-contraction (DA-C) is still an unclear urodynamic observation whose clinical significance has not been clearly established, and is not defined in the ICS standardisation of terminology. While most clinicians assume that this phenomenon is merely an artifact of no relevance, in a few studies a correlation with overactive bladder and detrusor overactivity was shown. Moreover, no correlation with post-micturition dribble was found. This study was aimed to further investigate the nature of DA-C by assessing two aspects which have not been elucidated yet: its short-term reproducibility and its correlation with post-void residual (PVR).

Study design, materials and methods

In the database of our urodynamic unit we reviewed 306 subjects who underwent a urodynamic evaluation consisting of two sequential cystometric studies (CMG) performed during the same session under identical conditions (patient's position, bladder filling velocity, catheter size.etc.). The indications for performing CMG in these patients were assessment for lower urinary tract symptoms (LUTS), neurogenic voiding dysfunction or post-operative follow-up.

DA-C was defined as a sudden increase in detrusor pressure – regardless of its entity – after cessation of voiding detrusor contraction and in the absence of flow. The reproducibility of DA-C between the two consecutive CMGs was tested in each subject and the presence of DA-C was also correlated with the presence of a significant PVR left at the end of the pressure-flow study (> 50 mL).

The results were statistically evaluated with the K statistic and χ square test by using the SPSS 11.1 software. The k values were classified as poor (0), slight (0-0.20), fair (0.21-0.40), moderate (0.41-0.60), substantial (0.61-0.80), near perfect (0.81-0.99), perfect (1). $p < 0.05$ was considered statistically significant.

Results

In 306 pts who underwent two CMG studies performed under the same conditions, the prevalence of DA-C was 12.7% (39/306) in both the first and the second study. In 25/39 (64.1%) urodynamic studies DA-C was recorded in both investigations. The reproducibility of the DA-C in the two sequential studies, assessed with k statistic, was moderate (k= 0.56).

In 20.3% (13/64) of CMG studies showing DA-C there was a significant PVR. No statistical correlation was found between DA-C and PVR ($p < 0.05$).

Interpretation of results

Our findings show that DA-C reproducibility is moderate. While this result does not add anything to the significance of DA-C, it highlights the importance of repeating the CMG twice if this sign is searched.

Moreover, only in 20% of the pts with DA-C there was a significant PVR and there was no correlation between this urodynamic observation and PVR. Therefore DA-C does not seem to be due to a true "voiding" detrusor contraction.

Concluding message

Two sequential CMG tests have a higher chance of detecting Detrusor After-Contractions.