

AFTERCONTRACTION OF THE BLADDER: OF NO PATHOLOGICAL SIGNIFICANCE?

Aims of Study

It has been reported that aftercontractions of the bladder may be related to pathological conditions (*1).

However others state that it is not a real elevation of the bladder pressure but an artifact (*2).

When an aftercontraction represents a real elevation in bladder pressure it is thought to be related to involuntary bladder contractions. Therefore it could be an urodynamic finding of the overactive bladder even when no bladder contractions are seen during filling cystometry. The aim of this study was to evaluate whether an aftercontraction is correlated to complaints of urgency / frequency in order to establish its clinical significance.

Methods

A retrospective study was performed of the urodynamic investigations of a group of 50 female patients suffering from complaints of urgency / frequency and who had had a pressure-flow-study in the past 18 months. This group was compared with 50 female patients suffering from genuine stress urinary incontinence without signs of urgency / frequency. All symptoms, diagnoses and urodynamic investigations were re-evaluated. The following urodynamic parameters were evaluated: presence of detrusor instability, maximal detrusor pressure of an involuntary bladder contraction, the maximal detrusor pressure during flow, maximal detrusor pressure after cessation of the flow and the bladder compliance.

Since there is no clear definition of an aftercontraction we defined an aftercontraction as an elevation in the detrusor pressure after cessation of flow to at least two times the level of the maximal detrusor pressure during the flow-phase.

We used the I.C.S.-standardisation of terms throughout this study. Filling cystometry and pressure-flow-studies were performed in a standardised setting with the same urodynamic equipment for all patients with microtip pressure catheters.

Results

The mean age was 54.7 (sd 13.6) years in the group with stress urinary incontinence and 51.2 years (sd 16.6) in the group with patients suffering from urgency / frequency. This difference was not statistically significant.

We registered a total of 12 (12%) bladder instabilities and a total of 25 (25%) aftercontractions.

Four patients who had an aftercontraction also had an involuntary bladder contraction.

All 12 patients with bladder instabilities suffered from "urgency / frequency".

In the group with urgency / frequency 12 aftercontractions were registered whereas in the patient group with stress-incontinence 13 aftercontractions were seen. There was no statistical significant difference (Chi square test: $p=0.820$). The findings are listed in table 1.

PATIENT GROUP	Number of patients with an aftercontraction	Number of patients without an aftercontraction	Total number of patients
stress urinary incontinence	13 (26%)	37 (74%)	50 (50%)
urgency / frequency	12 (24%)	38 (76%)	50 (50%)
total patient group	25 (25%)	75 (74%)	100 (100%)

Table 1. Crosstab for two patient groups with and without aftercontraction.

Conclusions

Elevations in the detrusor pressure after cessation of the flow, sometimes referred to as aftercontractions, are not related to complaints of urgency / frequency and therefore are of no clinical significance. The rise in the detrusor pressure can be partly explained by the fact that the flow-phase is changing from a predominantly isotonic bladder contraction to an isovolumetric bladder contraction. Moreover a registered increase in detrusor pressure at the end of the flow-phase can also be caused by the fact that the microtip of the pressure catheter is pressed against the wall of the contracting bladder.

References:

*1:

Vereecken,

The after-contraction: a true detrusor contraction or a late dyssynergic urethral sphincter contraction?

BJU-International; February 2000, 85 (3): 246-248

*2:

S.E. Mutchnik, S.Sukin, T.B. Boone

Case studies in voiding dysfunction

Contemporary Urology Archive; May 01, 1999