

URODYNAMIC ASSESSMENT OF THE PELVIC DISTURBANCE SYNDROMES IN WOMEN

Hypothesis / aims of study

Interstitial cystitis/painful bladder syndrome (IC/PBS), chronic pelvic pain syndrome (CPPS) and overactive bladder (OAB) are enigmatic pelvic disturbance conditions that frequently affect women. Although these conditions are typically considered separate entities, there are actually many similarities among them. Patients with IC/PBS and CPPS typically complain of pelvic pain, and they share with OAB the presence of lower urinary tract symptoms. Furthermore, the aetiology of these conditions remains elusive and no consistently effective treatment is available for them.

The similarity between IC/PBS and CPPS is implicitly acknowledged by the National Institutes of Health with the formation of the Urologic Pelvic Pain Collaborative Research Network to study both conditions simultaneously. Nonetheless the similarities of these conditions with OAB are less studied. By the way, although urodynamic alterations associated with OAB has been widely assessed, there is an absence of studies which relates IC/PBS and CPPS with their urodynamic findings.

Although questionnaires may be not sufficient to diagnose some of these conditions, they are a good tool to know the intensity of symptoms associated to such conditions. The aim of our study is to check whether there has any relationship between these conditions and the findings of urodynamic study.

Study design, materials and methods

In this prospective observational study, women ≥ 18 years old who were scheduled for urodynamic study as investigation for lower urinary tract dysfunction were recruited. Institutional Review Board approval was obtained prior to the study initiation. Exclusion criteria included non-Spanish-speaking women, presence of urinary infection, urinary lithiasis, genitourinary neoplasia, neurogenic bladder and those who did not consent. Recruited patients completed the following questionnaires: the pelvic pain and urgency/frequency patient symptom (PUF) for CPPS, the Bladder Pain/Interstitial Cystitis Symptom Score (BPIC-SS) for (IC/PBS) and the Overactive Bladder Symptom Score (OBSS) for overactive bladder. Afterwards patients were submitted to a urodynamic study according to ICS specifications and the Good Urodynamic Practice recommendations.

Sample size calculation: According to Brewer et al, (1) with a PUF questionnaire mean score of 21 points and a standard deviation of 6.05, to detect a mean difference of 6 points with an alpha error of 5% and a statistical power of 0.8, the minimum sample size was 34 patients. Statistical analysis, data were entered into a database (Microsoft Office Access, 2007) and analysis performed on SPSS version 11.5. Differences in means were assessed using t student's testing. Correlation was performed with Pearson coefficient. Signification level was set at two-sided 95% level

Results

Data are expressed as mean \pm standard deviation. A total of 39 women took place in the study, their age was $55 \pm 15,9$ years. The punctuation of PUF questionnaire was 17.36 ± 9.750 . The punctuation of BPIC-SS questionnaire was 12.12 ± 7.552 . The punctuation of OBSS questionnaire was 18.08 ± 6.747 .

On free uroflowmetry the voided volume was 310 ml \pm 244,9 ml, the maximum flow rate (Qmax) was 17 ml/s \pm 12,6 ml/s and the post void residual: $83 \pm 118,7$ ml. On filling cystometry the maximum cystometric capacity (MCC) was 360 ml \pm 161,9 ml), pressure at the end of filling: $5 \pm 6,4$ cm H₂O. Detrusor overactivity (DO) was demonstrated in 7 patients (18%), stress urinary incontinence (SUI) in 15 patients (39%). On Pressure Flow Studies the maximum flow rate was: 16 ml/s \pm 12,6 ml/s, the maximum detrusor pressure was $28 \pm 18,9$ cm H₂O, the detrusor pressure at maximum flow (PdQmax): 9 cm \pm 13, 9 cm H₂O, the URA: 11 cm \pm 5,4 cm H₂O and the W20W80: 6 \pm 14, 1 W/M2.

Regression coefficients of questionnaires among them and with age and parametric urodynamic showed that there was a significant positive correlation between the three questionnaires and between these questionnaires and the age of patients. Table 1

Table 1.- Correlation coefficients between age and questionnaires

	PUF	BPIC-SS	OBSS
Age	r= 0.366 p= 0.036	r= 0.546 p= 0.001	r= 0.632 p= 0.000
PUF		r= 0.776 p= 0.000	r= 0.414 p=0.015
BPIC-SS			r= 0.489 p=0.004

The PUF questionnaire was negatively correlated with Qmax on free flowmetry (r = -0.491, p= 0.015) and with MCC (r= -0.362, p=0.048). We also found that women with SUI had a significantly higher PUF punctuation (22.70) than patients without SUI (14.98) (p= 0.045). The OBSS questionnaire was negatively correlated with MCC (r= -0.492, p=0.04) and positively

Interpretation of results

Our results indicate that age increases the symptoms associated to these conditions. We also observed a relationship between the three conditions, more evident between CPPS and IC/PBS and between IC/PBS and OAB than between OAB and CPPS.

On the other hand OBSS questionnaire was associated to diminished bladder capacity but not with the urodynamic demonstration of detrusor overactivity and with a higher voiding detrusor pressure (a marker of bladder outlet obstruction). These finding may be interpreted as a possible bladder outlet obstruction in spite the parameter URA was not related with OBSS punctuation. Similarly, the CPPS was associated with a lower bladder capacity and urinary flow rate (but not with voiding detrusor pressure), in this case we may interpret these finding as an affectation of bladder contractility. We also found an association with SUI than

may be due to a pelvic floor dysfunction. Finally, we did not find any functional alteration associated with IC/PBS included a lower detrusor capacity.

Concluding message

In women, pelvic disturbance syndromes constitute a related condition of entities that in some cases are associated with functional alterations of lower urinary tract.

References

1. Brewer ME, White WM, Klein FA, Klein LM, Waters WB. Validity of Pelvic Pain, Urgency, and Frequency questionnaire in patients with interstitial cystitis/painful bladder syndrome Urology. 2007;70(4):646-9

Disclosures

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