

VIDEOURODYNAMIC ANALYSIS OF THE RELATION OF VALSALVA AND COUGH LEAK-POINT PRESSURES IN WOMEN WITH STRESS URINARY INCONTINENCE

Aims of Study

Both Valsalva leak-point pressure (VLPP) and cough leak-point pressure (CLPP) arise from increased intra-abdominal pressure which cause urinary leakage during the assessment of urethral function in patients with stress urinary incontinence (SUI). However, the relationship of VLPP and CLPP has not been well elucidated. The relationship between the severity of SUI and VLPP or CLPP, as well as between leak-point pressure and pelvic floor relaxation during stress also remain poorly delineated. This study used videourodynamic assessment to investigate the relationship between VLPP and CLPP in women with SUI.

Methods

A total of 116 women with SUI were selected retrospectively for analysis of videourodynamic results and leak-point pressures. These women had undergone urethral pressure profilometry, leak-point pressure measurement and videourodynamic study. All women included in this study had urine leakage during both coughing and performance of the Valsalva maneuver. The grade of SUI, VLPP, CLPP, maximal urethral closure pressure, and bladder neck descent during stress test were compared among patients categorized according to 3 VLPP groups of <60, ≥60 and <90, and ≥90 cm water.

Results

SUI was grade 1 in 47 women, grade 2 in 41, and grade 3 in 28. A significant inverted correlation was found between the grade of SUI and VLPP ($r = -0.620$, $p = 0.000$) and CLPP ($r = -0.506$, $p = 0.000$). VLPP was <60 cm water in 41 women, ≥60 and <90 cm water in 36, and ≥90 cm water in 39. CLPP was higher than VLPP in 101 women (87.1%) and equaled VLPP in 15 women (12.9%). CLPP was significantly correlated with VLPP ($r = 0.721$, $p = 0.000$). Significant correlation was found between bladder neck descent at stress and leak-point pressures (VLPP: $r = 0.291$, $p = 0.002$; CLPP: $r = 0.332$, $p = 0.000$). Of the 41 women with a VLPP <60 cm water, 38 (92.6%) had a CLPP greater than VLPP and 16 (39%) had bladder neck hypermobility. This finding indicates that severe intrinsic sphincter deficiency may coexist with effective pelvic floor contractility during coughing or with pelvic floor relaxation. Of the 75 women with VLPP ≥60 cm water, 60 (80%) had bladder neck hypermobility and 63 (84%) had a greater CLPP than VLPP. Of the 15 women whose CLPP was equal to VLPP, 10 (66.7%) had a VLPP of ≥60 cm water with bladder neck hypermobility.

Conclusions

This study has demonstrated that VLPP is a more sensitive test to diagnose intrinsic sphincter deficiency than CLPP. In addition, our data show that the grade of SUI is significantly correlated with either VLPP or CLPP. In the assessment of the urethral function in incontinent women, the measurement of CLPP in addition to VLPP can provide information regarding the compressive effects on the urethra during coughing.