

URETHRAL PRESSURE PROFILOMETRY: A VALUABLE PART OF URODYNAMICS IN WOMEN

Hypothesis / aims of study

Urethral pressure profile (UPP) is a test that can be performed as part of urodynamics. However, this test is not always done as the required setup is not available at all centres.

Maximum urethral closure pressure (MUCP) is defined by the International Continence Society (ICS) as the maximum difference between the urethral pressure and the intravesical pressure. Leak point pressure (LPP) is defined as the intravesical pressure at which urine leakage occurs due to increased abdominal pressure in the absence of a detrusor contraction. Valsalva leak point pressure (VLPP) is the term used when the leak point pressure is determined during a Valsalva manoeuvre.

The aim of this study is to review the different parameters involved in assessing urethral function in women with stress incontinence during urodynamics and determine their relationship.

Study design, materials and methods

Retrospective analysis of a urodynamics database in a tertiary referral centre between November 2012 and March 2017 was performed. All female patients who had UPPs during urodynamics were analysed with respect to age, body mass index (BMI), MUCP, VLPP and diagnosis.

Results

A total of 1591 patient notes were reviewed. Of these 395 patients had normal urodynamics, 397 had detrusor overactivity (DO), 397 had detrusor overactivity incontinence (DOI) and 449 had urodynamic stress incontinence (USI). Patients with mixed symptoms were not included in this study. In all groups, there was a negative correlation between age and MUCP ($p < 0.0001$). MUCP was highest in patients who had normal urodynamics and lowest in patients with urodynamic stress incontinence. This was more pronounced in patients under the age of 60 [figure 1].

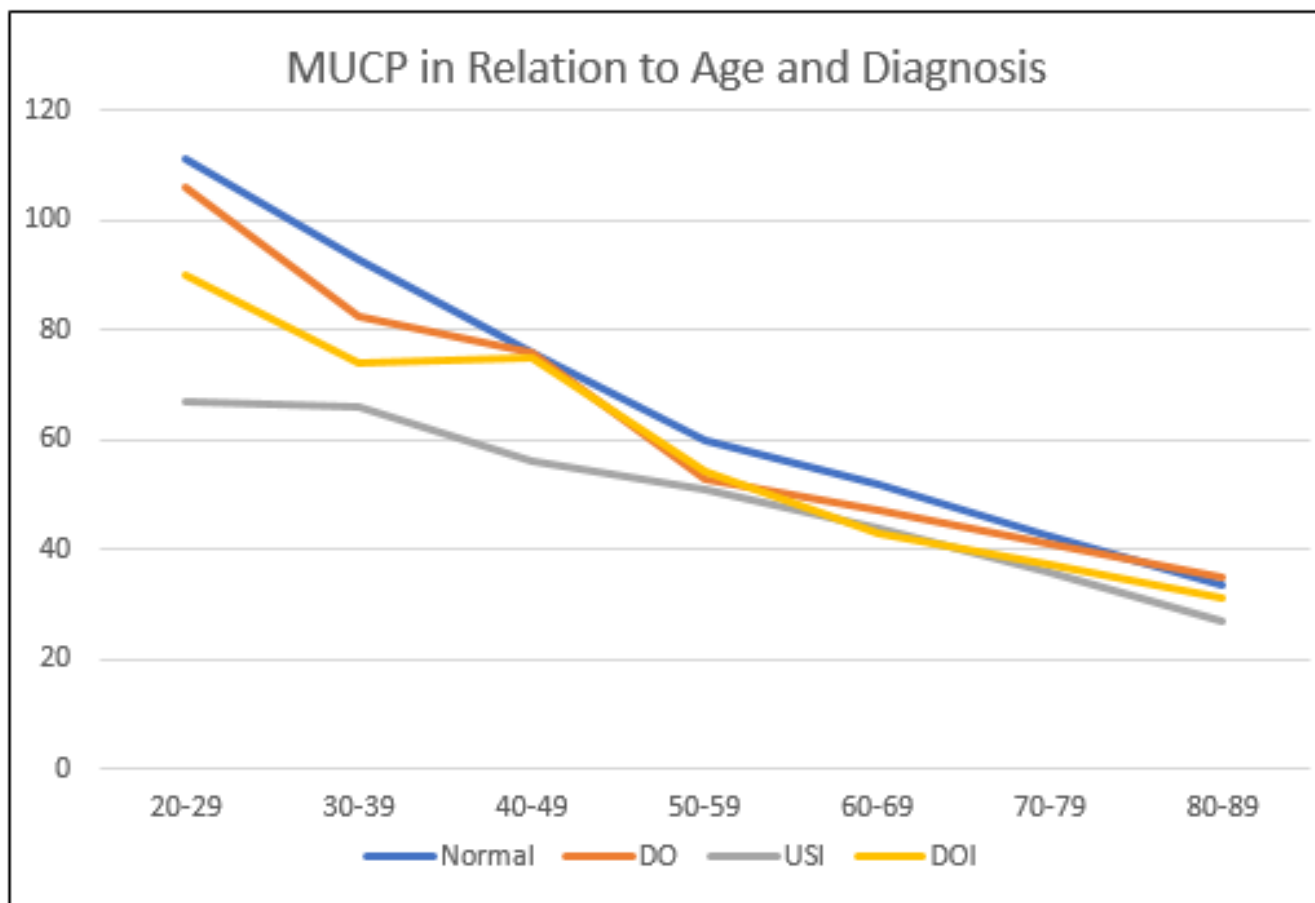


Figure 1: MUCP in different patient groups according to age

There was a statistically significant positive correlation between VLPP and MUCP in patients with urodynamic stress incontinence (USI) ($p < 0.05$) [Figure 2].

There was a positive correlation between BMI and VLPP in patients with stress incontinence [Figure 3].

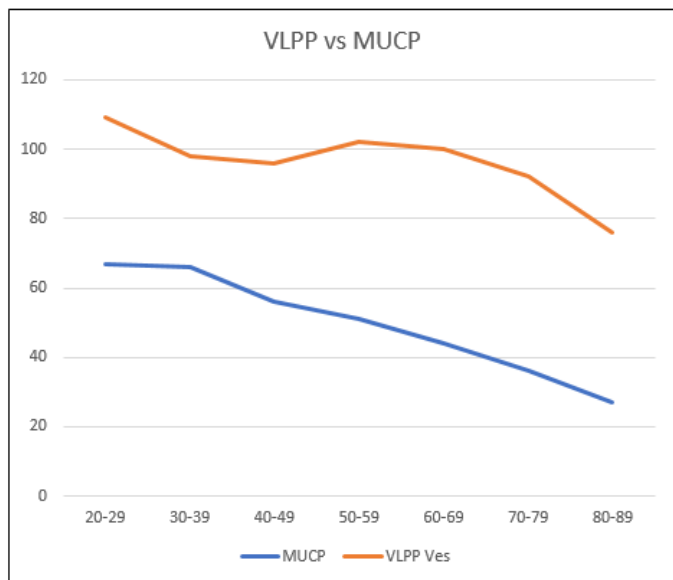


Figure 2: The relationship between MUCP, VLPP and age.

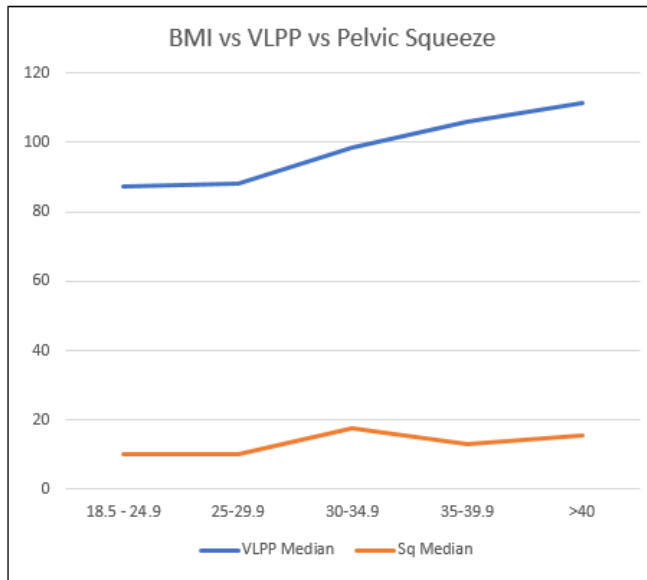


Figure 3: VLPP and pelvic squeeze in relation to BMI.

Interpretation of results

Urethral pressure profilometry and MUCP can be valuable in diagnosing and treating women suffering from USI. Our data also show MUCP is also important in other groups of women especially in patients with DO and DOI. There is an obvious difference in MUCP when comparing patients with DO and DOI but this difference disappears in the 4th decade of life.

In general, incontinent women (USI and DOI), have a lower MUCP when compared to their continent counterparts.

It is known that MUCP has a negative correlation with age, however, the difference in between all groups of patients becomes less obvious after the 6th decade of life.

Not all urodynamics centres perform urethral pressure profilometry due to the limitation of resources. We have shown that there is a significant relationship between MUCP and VLPP, thus, VLPP appears to be a viable alternative to MUCP in women with USI. There was no statistically significant relationship between MUCP and BMI.

Interestingly, VLPP appears to be positively correlated with BMI. This could potentially be influenced by patients with higher BMI's being more able to use their pelvic floor muscles (i.e. holding on) as evidenced by the increase, albeit subtle, in the amplitude of their pelvic squeeze when measured during urethral pressure profilometry.

Our data shows that urethral pressure profilometry is a valuable diagnostic tool and it appears to be more relevant in women under the age of 60 and helps in deciding on the choice of treatment for stress incontinence.

Concluding message

MUCP is lower in women with incontinence when compared to continent women. Urethral pressure profilometry is an important diagnostic test which provides valuable information in all women, not just women with USI especially in women under the age of 60. BMI has no obvious effect on MUCP but significantly affects VLPP. If urethral pressure profilometry is not available, VLPP can be used as an alternative, however, further study is required to establish a more accurate conversion.

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** It involved retrospective analysis of urodynamic studies from a database **Helsinki:** Yes **Informed Consent:** No