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# USING EXTERNAL CAMERA AND COLOUR FILLING FLUID IN VLPP DETECTION WITH SUBSEQUENT INTROITAL ULTRASONOGRAPHY - NEW POSSIBILITIES IN DIAGNOSTICS OF FEMALE STRESS URINARY INCONTINENCE

Hypothesis / aims of study

The aim of this study was to evaluate sensitivity and efficiency of visual and video VLPP detection and compare results of video VLPP detection with morphological findings acguired by introital ultrasonography.We attempted to detect certain correlations with the classification of stress incontinence (Mc Guire)

Study design, materials and methods

Our study group involved 58 women suffering from stress urinary incontinence. The standard 8 F cystometric catheter was used and the detection was provided in 300 ml of intravesical filling fluid . The visual detection of the leakage was subsequently changed by using of an external camera connected with the urodynamic device. For better detection of the leakage fluid from the external orifice of the urethra we used colour filing fluid ( Betadine) and the leakage was detected with cineloop( 10 shots /sec).

Subsequently after ending of VLPP detection we provided real - time introital ultrasonography using 5 MHz ultrasound probe.in all group of patients with retained intravesical and intraabdominal catheters.The ultrasound device was simultaneously connected to the urodynamic device so we could assigne accurate p ves values to every picture.For quantification of position U-V junction was used right angel reference frame.We analysed correlation of Video VLPP dates with USG measurements of position U-V junction at rest and in maximal Valsalva. All data were compared with the classification of stress incontinence ( Mc Guire).

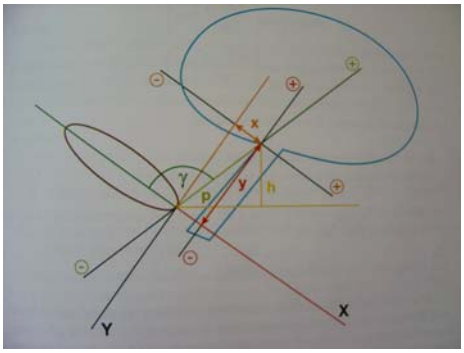


Fig.1. Measured USG parameters

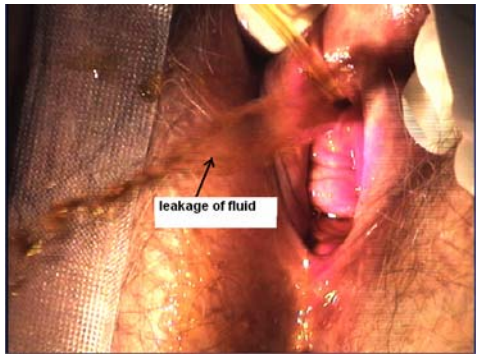


Fig.2 Video –VLPP detection

Results

1.Analysis of VLPP detection

The values of visual VLPP detection were predominantly different in comparison with video VLPP detection, but the differences were not statistically significant in correlation with Mc Guire classification of stress incontinence(T-test).Both methods are quiet comparable , however from the point of view of patients comfort and intimity seems to be more favourable detection of VLPP using of an external camera.

Paired Samples Test

| | Paired Differences | | | t | df | Sig.(2-tailed) |
|---|---|---|---|---|---|---|
| | Mean | Std.Deviation | Std Error Mean | | | |
| Video VLPP–Visual VLPP | -1,86 | 14,85 | 1,93 | -,964 | 58 | ,339 |

2.Analysis of correlation Video VLPP values and USG parameters

On the base of statistical analysis it is clear , that the morphological data ( measured by gama angel at rest and in maximal Valsalva,values x , Dx , y, Dy and distance h and Dh)don´t correlate with urodynamics paramethers VLPP.Regression analysis plot pointed to appreciable spread of points.Only in the group of patients with VLPP ≤ 60 cm H20 there were significantly lower values of parameter h.We did not demonstrate statistically significant differences in parameters length of vector movement U-V junction and angel of vector movement U-V junction in all 3 groups of women(VLPP ≤ 60 cmH20,VLPP 60-100 cm H20 and VLPP ≥ 100 cm H20) Results were confirmed using non-parametric Kruskal Wallis test.

Multiple Comparisons

| Dependent Variable | (I) VLPP | (J) VLPP | Mean Difference(I-J) | Std.Error | Sig. |
|---|---|---|---|---|---|
| H rest | < 60 | 60-100 | - 3,9629* | 1,95018 | ,048 |
| | | ≥ 100 | - 3,0478 | 2,19437 | ,171 |
| | ---------- | ---------- | ---------- | ---------- | ---------- |

| | | | |
|---|---|---|---|
| 60-100 ≥ 100 | ,9151 | 2,07396 | ,661 |

*The mean difference is significant at the .05level.

Interpretation of results

Presently there has been number of possibilities how to detect female stress urinary incontinence.VLPP test presents " gold standard" in urodynamic diagnostics,but up till now it is not clear, how do it exactly.It generally holds the consensus ,that the urodynamic test should be reliable and reproducible. Urodynamic detection gets together with introital ultrasound examination complex picture about manometrical and anathomical parameters in female pelvis,wich is very important to know especially before surgical treatment of stress incontinence.

Concluding message

For the assesment of VLPP it is possible to use either visual or video detection , but from the view of patients´ comfort is better to use videodetection of leakage.

The most of ultrasound findings do not correlate with urodynamic parameters and with Mc Guire classification of stress incontinence.Patients with ISD have demonstrably lower position of U-V junction at rest comparing to patients with urethral hypermobility.Urodynamics parameters VLPP do not correlate with ultrasound parameters , as well as resulting vector of movement U-V junction does not correlate neither it´s length nor it´s angle with separate category of stress incontinence.

References:


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