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ULTRASOUND IN A CLINICAL SETTING FOR SPECIFIC DYSFUNCTION EVALUATION AND AS A VISUAL BIOFEEDBACK TOOL

Hypothesis / aims of study

In some incontinent women it is difficult to teach a correct pelvic floor muscle contraction (PFMC) that results in bladder neck elevation during pelvic floor physiotherapy. In this case presentation, the patient with mixed urinary and minor faecal and prolapse symptoms used superficial abdominal muscle contraction and stopped breathing when asked to contract the pelvic floor.
Ultrasound as an evaluation tool to measure the amount of descent during straining before prolapse surgery and also to assess bladder neck elevation during PFMC is performed in this study. Furthermore because of its use during the performance of a PFMC it is a good source for the patient when it is used for visual biofeedback.
In this study, abdominal muscle and perineal ultrasound are used to show co-contractions of different abdominal muscles and how they affect bladder neck position.

Study design, materials and methods

The subject of our single case study was a 57 year old woman (160cm/ 55kg/ one vaginal delivery-2800g) with stress urinary incontinence 2-3 times weekly, overactive bladder daily and urge incontinence 2-3 times weekly. Weekly faecal and prolapse symptoms and recurrent lower back pain were reported by the woman.
Inspection of the abdominal muscles contractions and breathing pattern during PFMC was followed by abdominal ultrasound to evaluate the co-contraction of the lower transverse abdominal muscle without internal oblique muscle contraction and by perineal ultrasound to assess bladder neck movement.
For abdominal and perineal ultrasound, a 2D ultrasound with a curved transducer was used. Muscle contractions of the specific muscles were checked by abdominal and vaginal palpation.

Results

At the beginning of this single treatment session, the patient was only able to contract the PFM with internal oblique abdominal muscle co-contraction which resulted in a downward movement of the bladder neck instead of a desired elevation. Coordination and maintenance of the contraction with an elevated bladder neck position was not possible. The PFMC was lost subsequently, especially when breathing in.
PF rehabilitation consisted of teaching the elimination of the internal oblique muscle contraction and coordination of a transverse abdominal muscle co-contraction. As the patient had better awareness of the abdominal rather than PFM, this approach resulted in sustained bladder neck elevation which the patient was able to hold during breathing.

Interpretation of results

Transverse abdominal muscle contraction can be used to increase the coordination between PFMC, bladder neck position and breathing. This is essential also during other daily life activities that increase the intra-abdominal pressure even more than breathing.

Concluding message

Ultrasound is the perfect evaluation and biofeedback tool in such sophisticated physiotherapy.

References

1. Int Urogynecol J. 2010 Jan;21(1):69-77

Disclosures

Funding: Grant from the German Research Foundation **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Institutional Ethics Committee Charité University Berlin, Germany **Helsinki:** Yes **Informed Consent:** Yes