

IS THERE A ROLE FOR TRAINING OF THE TRANSVERSUS ABDOMINIS MUSCLES IN THE PHYSIOTHERAPY SCHEMES APPLIED IN THE TREATMENT OF FEMALE URINARY INCONTINENCE?

Hypothesis / aims of study

Pelvic floor muscle training (PFMT) is an efficacious, low risk intervention and is being proposed as first line treatment for every type of incontinence. Recently, it has been proposed that the transversus abdominis (TrA) muscle training may also be beneficial in the treatment of female UI as there is increasing clinical and electromyographic evidence to suggest a role for the TrA in the support of the pelvic floor (PF), while co-activation and synchronous contraction of the pelvic floor muscles (PFMs) and the TrA is becoming increasingly recognised. However, there exists no data on the role of the TrA in the pathophysiology of incontinence and sparse evidence on its role in the restoration of continence has not been studied.

In an exploratory study we investigated whether training of the TrA has an additional effect to the well recognised beneficial effect of the PFMT monotherapy on the clinical features of female urinary incontinence. We also examined possible changes in the levator ani (LA) and the TrA muscles in women suffering from incontinence in comparison with healthy controls, as well as the changes in the LA and TrA muscles following TrA+PFM training versus PFMT monotherapy.

Study design, materials and methods

In this exploratory study approved by the Hospital's Scientific Committee and the local University's Bioethics Committee, adult women with a clinical diagnosis of stress UI (SUI) or mixed UI (MUI) with a predominant stress component were recruited from a Female Urology Outpatient clinic. Participants had to have at least 7 episodes of incontinence recorded in a weekly bladder diary, positive cough and/or Valsalva test, and a 3-4 score in the Oxford scale upon physiotherapist assessment to enter the study. Continent volunteers were used as controls.

Following written informed consent, women were randomised to 2 arms of physiotherapy, combined TrA and PFM (Group A) training versus PFMT monotherapy (Group B), for a period of 3 months. The primary efficacy outcome was the change in the King's Health Questionnaire score at 3 months compared to baseline, while secondary outcomes included the changes in the IPSS quality of life question score, as well as the number of incontinence episodes and pads used per 24 hours as recorded in weekly bladder diaries.

The unpaired t test was used for baseline between-groups statistical comparisons. The paired t test was used for baseline versus post-treatment comparisons.

Results

Forty-six women with SUI (n=32) or MUI (n=14) completed the study to-date (Group A: n=21 women, Group B: n=25 women). The 2 groups were comparable for baseline KHQ and IPSS QOL scores, incontinence episodes, number of pads used, age, weight and parity (p<0.05).

Clinical outcomes. Both patient groups showed highly significant improvements in KHQ and AUA QOL scores, incontinence episodes and number of pads (Group A: 327.1±38.4 v 193.1±24.7 - p=0.0003, 4.25±0.21 v 2.44±0.18 - p<0.0001, 3.4±0.4 v 1.2±0.2 - p<0.0001, and 2.7±0.4 v 1.2±0.2 - p<0.0001, respectively / Group B: 342.9±28.2 v 198.3±18.4, 4.36±0.24 v 2.27±0.19, 4.36±0.6 v 1.8±0.3, and 2.9±0.4 v 1.3±0.2 - p<0.0001 for all parameters evaluated). Mean improvements in the primary outcome were no different between the 2 Groups (34.6±8.6% v 37.6±5.5%, p=0.76). However, a higher percentage of Group A patients achieved complete continence compared to the Group B patients (35% versus 25%).

Type of incontinence (SUI v MUI) did not seem to have an effect on the efficacy of the treatment either (mean KHQ score improvement 40.4±7.1% v 38.6±6.6%, p=0.87), although women with MUI tended to have worse KHQ scores before treatment (306.3±26.1 v 402.9±42.7, p=0.052).

Interpretation of results

Due to the exploratory nature of the study, there was no requirement for a certain number of patients to formally test a hypothesis and an empirical sample size had been proposed (30 patients in each treatment arm). Despite the small-to-medium size of the patient sample, combined TrA+PFM training as well as PFMT monotherapy produced clinically significant improvements in patients' quality of life and incontinence characteristics. However, no physiotherapy scheme was superior to the other in clinical outcomes examined.

Concluding message

Interim analysis of this exploratory study's data demonstrates that physiotherapy via either combined TrA+PFM training or PFMT monotherapy was equally efficacious in the management of stress or mixed incontinence with a predominant stress component, thus suggesting no additional benefit with TrA muscle training in the treatment of female UI.

Disclosures

Funding: None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** 1. Bioethics Committee, Aristotle University of Thessaloniki, Greece 2. Scientific Committee, Papageorgiou Hospital, Thessaloniki, Greece **Helsinki:** Yes **Informed Consent:** Yes