

Pelvic Physical Therapy Distance Journal Club

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Assessment of the effectiveness of the sonofeedback method in the treatment of stress urinary incontinence in women--preliminary report. Kolodynka G, Zalewski M, Mucha A, et al. J of Clin Med 2022;11(3):659.

Doi:10.3390/jcm11030659.

Introduction:

Aim/Primary Aim: To assess the effectiveness of sonofeedback (US) in reducing severity of UI in post menopausal women with UI.

Menopause leads to estrogen deficiency & results in lowering and shortening of urethra, weakening of bladder muscles. (Not sure if this is true).

Primary PT Treatment is PFMx. Biofeedback EMG has been shown to be effective for motor retraining. E-stim may be used with biofeedback. But is undesirable for many. With US, patient can see in real time the muscles as they move. PT can assess muscle function. Also can see bladder neck, urethra, anorectal angle, pubic bone to allow for measurements. (all in sagittal plane.)

Study Design/Study Format:

Methods: 60 Women, aged 45-65 with SUI confirmed by GYN. 3 groups (n=20)

Inclusion criterion: stage 2 SUI, age 45-65, post menopausal age, No health contraindications, SUI x 5 yrs, ability to perform sonofeedback training correctly after training session with PT.

Both groups has 10 treatments daily x 2 wks.

Group A: ultrasound of PFM, Patients drank 500 mL water 30 min prior to training for bladder visibility. Pt supine. Vaginal probe. Patient performed MVC of PFMs. PT and patient observed bladder base displacement on monitor. USG General electric Voluson S10 unit.

Trained 10 reps of 5:10, 30 sec rest btw sets x 30 min, 10 trainings total. (100 reps??)

Group B:

Estim, (MyoPlus unit).

*Supine. LE's on wedges to relax PFMs. Vaginal sensor. 30 min treatment.

*20 Hz, 1:1, pulse duration and pause time ratio, max current 100 mA, 10 treatments.

EMG training

* "reflected strength of ms. tension" ...EMG does not measure strength.

* 5 sec hold: 10 sec relax x 5 min. Daily treatments x 2 wks.

Group C: control group. No treatments, only measurements.

Measurements: all done at same time interval for groups A, B, C.
Tests @ before therapy, after 5th procedure, end of therapy.

Tests included: 1. Assessment of presence and severity of SUI assessed via 26 item Gaudenz questionnaire,

2. intensity of UI via modified 1 hr pad test. (Drink 500 mL water, wait 30 min. March & climbs stairs 15 min. Subsequent Exercise ppm: Sit to stand 10x, cough 10x, run in place 1 min, lift water bottle 10x, each hands under running water 1 min, Weight pad after exs).

See paper for stats.

Results:

ES and EMG (Group B) was more effective for reduction of leakage (pad test).

US (Group A) more effective in reducing SUI.

Questionnaire results:

Do you Involuntarily pass urine? ES & EMG (Group B)

How often does it happen? US (Group A) significant.

How much urine do you pass? US (group. A). signif

UI related to SUI: US (Group A) significant .

Discussion:

Leakage: ES & EMG more effective than US.

Frequency of leakage. Pre Therapy: Leakage occurrent **repeatedly** in 55% of Group A (US)

After therapy, 60% of group A US: leakage only infrequently or occasionally.

Both A and B were effective in reducing symptoms of SIU.

All patients showed a positive trend compared to start of therapy.

Strengths/weaknesses: Small subject number.

Limited homogenous group to meet inclusion criterion.

No follow up in 1 month.

Conclusion/Summary: PFM US can reduce severity of UI in post menopausal women.

US can be as effective as Estim/EMG

May be good alternate for women who cannot tolerate Estim.

Clinical Application

List discussion questions -

1. a. Which method of PFM training do you use to provide learning? Stim? EMG? US? How do you choose which to use?
2. 1b. Have you seen similar results between the US and EMG?
3. What effect do you think the exercise program had on all of the subjects? Sit to stand, running, lifting, etc? Could the program have improved their overall fitness level and played a part in the overall improvement?