ELECTROMAGNETIC APPROACH FOR SUPRAMAXIMAL PELVIC FLOOR MUSCLES TRAINING AFTER PELVIC RECONSTRUCTIVE SURGERY

Muryzina I[1], Baryshevska V[2], Bilodid O[3], Alekseeva V[4]

[1] PhD, MD associate professor ,DeptOb&Gyn No 1, Kharkov National Medical University, Ukraine; [2] PhD, MD, professor, the Head of DeptOb&Gyn No 1, Kharkov National Medical University, Ukraine; [3] PhD, MD, Medical College, Kharkov Medical Academy of Postgraduate education, the Head of private clinic of preventive medicine "ABC", Kharkov, Ukraine, [4] Department of Otorhinolaryngology Kharkov National Medical University, Ukraine

ABSTRACT

Female Stress Urinary Incontinence (SUI) is funneling more and more women while they are ageing and passing the way from first childbearing event to postmenopause.

A cross-sectional study involved 56 female patients aged 38-63 years who had been accrued within 2-6 months passed after PRS.

Both arms matched by the mean age (53.01±7.19and 50.32±6.95years. Compliance in the 1st group (EMSELLA) was very high (86.21%): only four women failed to complete all three consecutive courses in full measure, subjectively satisfaction met expectations in 90.8%,none of patients presented with complaints on loss of urine. The 2ndgroupof conventional postoperative management reported satisfaction with their expectations just in 22%, 25.93% patients developed SUI of different degrees.Measurements by Colpex system

Electromagnetic approach via generation ofsupramaximal PFM contraction used annually in courses can improve the long-term satisfaction with PRS strengthening pelvic floor support and preventong from SUI.

INTRODUCTION

Pelvic floor muscle (PFM) tone still matters to prevent it from sagging and anatomical disposition after surgical procedures. Majority of women appear to show low compliance withroutine PFM exercises. A breakthrough treatment (EMSELLA) utilizes electromagnetic energy to trigger supramaximal PFM contraction in a single session.

Our study aimed to evaluate course EMSELLA procedures within the first half a year after PRSto consolidate postoperative support and prevent from SUI.

METHODS AND MATERIALS

Click here to insert your Methods and Materials text. Type it in or copy and A cross-sectional study involved 56 female patients aged 38-63 years who had been accrued within 2-6 months passed after PRS. The first arm (29pts) was briefed with conventional postoperative. The second arm (27 pts) underwent 6 sessions of EMSELLA procedure (28 minutes twice per week)annually within 3 years after PRS. Assessment was conducted at the time of accrual and in 3 years after surgery

Assessment was conducted at the time of accrual and in 3 years after surgery by means of Colpex feedback system (kegel ball with laser pointer and measuring tape on the wall): distance between a point with relaxed PFM and the point at the highest exertion of PFM

Measurement uncertainty is a characteristic of inaccuracy of measurements, adopted at the international level [GUM], which is associated with the measurement result and characterizes the range of values that can reasonably be attributed to the measured value. All components of the uncertainty of the input values are divided into two categories in accordance with the method of their estimation: type A includes components evaluated by applying statistical methods (by analyzing the results of multiple measurements) and type B includes components estimated by another method (based on characteristics taken from specification for measuring instrument, calibration certificate, measurement procedure from previous experiments, etc.). Measurement uncertainty is estimated in accordance with the basic algorithm described in [1].

RESULTS

Both arms matched by the mean age (53.01±7.19and 50.32±6.95years. Compliance in the 1st group (EMSELLA) was very high (86.21%): only four women failed to complete all three consecutive courses in full measure, subjectively satisfaction met expectations in 90.8%,none of patients presented with complaints on loss of urine. The 2ndgroupof conventional postoperative management reported satisfaction with their expectations just in 22%, 25.93% patients developed SUI of different degrees.Measurements by Colpex system (in 6 months after PRS and 3-year gap then) are represented in table 1 that provides evidence of widened gap between swings of pelvic floor position in Emsella-group with even opposite trend in the 2nd group.

Groups	**1st group** (1st measurement)	**1st group** (2nd measurement)	**2nd group** (1st measurement)	**2nd group** (2nd measurement)
U_A	23,130	31,124	26,342	13,585
U_B	0,00007119	-0,00001930	0,00006145	-0,00000208
U_c	62,25	46,26	52,68	27,17

Table 1 Uncertainty's results of distance between a point with relaxed PFM and the point at the highest exertion of PFM

Note: 1st group – Emsella, 2nd group – conventional postoperative management

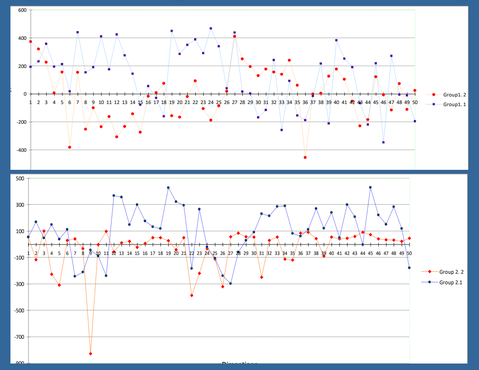

Fig. 1. Dynamic of distance between a point with relaxed PFM and the point at the highest exertion of PFM in patients with 3-year lag depending on approach of postoperative management.

DISCUSSION

Electromagnetic approach [2] for women after PRS was associated with reinforced tone of PFM considering elevation of Colpex system by tightened PFM even despite scarry postoperative tissue [3]. In the case of routine postoperative management the gap between swings of measurement was noticed to taper that might have evidenced the weakened PFM support providing no resistance to sagging of pelvic floor (fig. 1).

CONCLUSIONS

Pelvic reconstructive surgery provides anatomic reposition of pelvic structures in the case of prolapse but it is unable to restore resilience of pelvic floor tissues. Electromagnetic approach via generation ofsupramaximal PFM contraction used annually in courses can improve the long-term satisfaction with PRS strengthening pelvic floor support and preventong from SUI.

REFERENCES

1. 1. Konnert A, Berding C, Arends S. Uncertainty calculation for calibrators and controls of laboratory diagnostic assays. ClinChem Lab Med. 2006;44(10):1175-82. doi: 10.1515/CCLM.2006.222. PMID: 17032127.
2. Samuels JB, Pezzella A, Berenholz J, Alinsod R. Safety and Efficacy of a Non-Invasive High-Intensity Focused Electromagnetic Field (HIFEM) Device for Treatment of Urinary Incontinence and Enhancement of Quality of Life. Lasers Surg Med. 2019 Nov;51(9):760-766. doi: 10.1002/lsm.23106. Epub 2019 Jun 7. PMID: 31172580; PMCID: PMC6851770.
3. Wadensten, T., Nyström, E., Franzén, K., Lindam, A., Wasteson, E., & Samuelsson, E. (2021). A Mobile App for Self-management of Urgency and Mixed Urinary Incontinence in Women: Randomized Controlled Trial. *Journal of medical Internet research*, *23*(4), e19439. https://doi.org/10.2196/19439