

## PREDICTOR OF SUCCESSFUL EXTRACORPOREAL ELECTROMAGNETIC STIMULATION TREATMENT FOR PATIENTS WITH URINARY INCONTINENCE

### Hypothesis / aims of study

Extracorporeal electromagnetic stimulation (EMS) of the pelvic floor, instead of conventional electrical stimulation, is a non-invasive neuromodulation utilizing magnetic flux. It had been successfully applied for the treatment of stress and urge urinary incontinence. However, the overall treatment effectiveness is suboptimal. We try to investigate predictors of successful EMS treatment for patients with urinary incontinence

### Study design, materials and methods

Between 2008 and 2016, 162 patients (88 women and 74 men) with urinary incontinence receiving EMS were enrolled in the study. The NeoControl chair (NeoTonus, Marietta, GA, USA) was used, and treatment course consisted of 2 sessions per week for 9 weeks. The treatment results were assessed by using global response assessment (GRA), and patients with  $GRA \geq 1$  can receive another course of treatment. Overactive bladder symptom score (OAB-SS) questionnaire was recorded before and after treatment in some of the enrolled patients. Logistic regression analysis was used to identify the predictors of improved outcome ( $GRA \geq 1$ ).

### Results

All patients tolerated the treatment without any adverse event. The mean age was  $66.9 \pm 13.8$ . 103 patients (63.6%) reported improved outcomes ( $GRA \geq 1$ ). The mean total OABSS score decreased significantly after treatment ( $10.4 \pm 3.1$  vs.  $6.1 \pm 3.5$ ,  $p < 0.01$ ). The sum of third and fourth question scores of OABSS also had significant decreased. Pure stress urinary incontinence (SUI) patient seemed with less improved outcome as comparing to mixed urinary incontinence (MUI) or pure urgency urinary incontinence (UUI) patients (successful rate: 53.6% vs. 57.4% vs. 69.8%,  $p=0.155$ ) (Figure 1). History of hypertension (HTN), coronary artery disease (CAD), cerebrovascular accident (CVA), or diabetes mellitus (DM) all revealed no significant differences in the EMS treatment outcome. Logistic regression analysis also indicated that for men without previous transurethral resection of prostate (TURP) history [odds ratio (OR) =3.17,  $p=0.03$ ] could serve as predictors of satisfactory outcome ( $GRA \geq 1$ ).

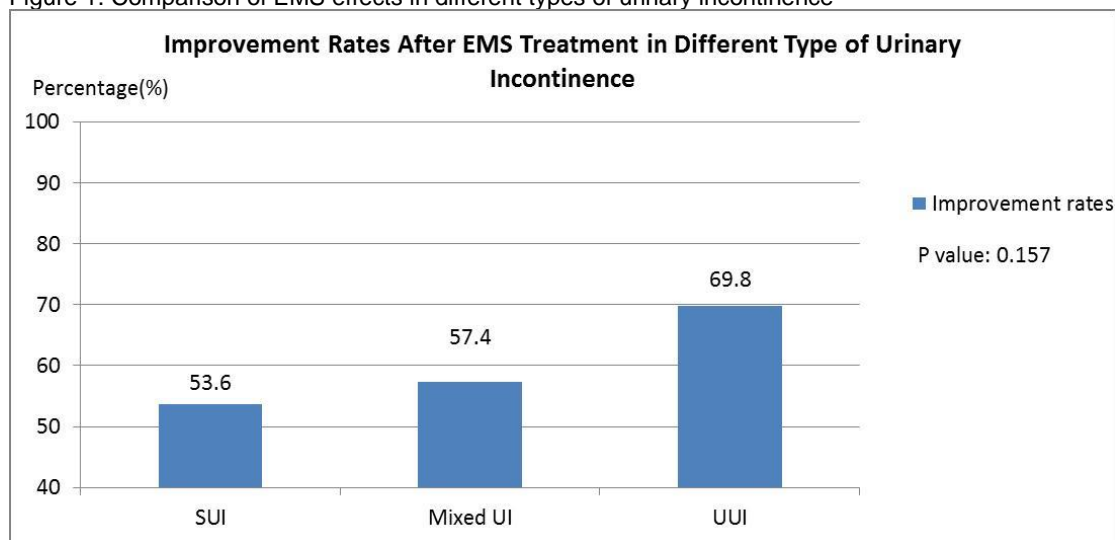
### Interpretation of results

Stress urinary incontinence seemed with less treatment effects after treating with EMS, as comparing to urgency urinary incontinence patients or mixed urinary incontinence group. Men without TURP history may expected with better outcome.

### Concluding message

According to our results, about 63.6% patients with OAB got significant improvement after extracorporeal electromagnetic stimulation of the pelvic floor treatment. It may be considered as an alternative treatment for patients with OAB. Urgency incontinence presented with better response to the EMS treatment.

Figure 1. Comparison of EMS effects in different types of urinary incontinence



### Disclosures

**Funding:** NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** Only retrospective review of charts. No ethics issues require ethics committee approval. **Helsinki:** Yes **Informed Consent:** No