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TREATMENT OF FEMALE URINARY INCONTINENCE WITH MAGNETIC STIMULATION: IS IT EFFECTIVE OR NOT?

Hypothesis/aims of the study

Urinary incontinence (UI) is becoming an increasingly common health problem around the globe, especially due to the growing share of the elderly population. In terms of etiology, several types of UI can be distinguished. UI treatment can be conservative or surgical, depending on several factors. Extracorporeal magnetic innervation (ExMI) is a conservative method that uses a magnetic field to stimulate the pelvic floor muscles by depolarizing the sacral nerve roots and causing contraction of the pelvic floor muscles.

This study assessed the success rate of ExMI in treating various types of UI. The following hypotheses were tested: 1) The success rate of using ExMI to treat UI differs by UI type; 2) UI improvement after ExMI therapy depends on patient age; and 3) ExMI intensity affects the success rate of UI treatment.

Study design, materials, and methods

A clinical prospective non-randomized study was carried out at the University Medical Center. It included 84 randomly selected female patients, irrespective of their UI type. During the first session, each patient completed an ICIQ-SF and Gaudenz questionnaire. This was followed by 10 therapies on an ExMI chair. Three months after the therapy was completed, each patient came for a check-up and completed the third part of the questionnaire. The results were statistically analyzed using the Wilcoxon matched pairs test and the McNemar test for dichotomous variables.

Results

The patients were 65.6 years old on average and 44% had a body mass index between 18.5 and 24.9. The majority of them (74.7%) reported moderate physical activity and 86.6% were postmenopausal. Nearly half (44.6%) had previously had gynecological surgery. Almost all of them (97.6%) had been treated for UI before entering this study, and just under half (47%) had already been receiving pharmacology therapy. Nearly half (48.8%) had experienced UI problems for less than five years.

As part of the study, results were obtained on the frequency of micturition, the amount of the urine leaked, the daytime frequency of urine leakage, the frequency of daytime and nighttime micturition, the circumstances of urine leakage, the number of pads used, and the assessed impact of UI problems on quality of life.

The results showed a statistically significant reduction in the frequency of urine leakage ($p = 0.012$) and the amount of the urine leaked ($p = 0.014$) in stress urinary incontinence (SUI) patients after therapy. Urge urinary incontinence (UUI) patients showed a statistically significant reduction in the frequency of urine leakage ($p = 0.001$), the amount of the urine leaked ($p = 0.001$), the daytime frequency of urine leakage ($p = 0.004$), the frequency of daytime micturition ($p = 0.003$), nighttime micturition ($p = 0.008$), and the frequency of nighttime micturition ($p < 0.001$) after therapy. In turn, mixed urinary incontinence (MUI) patients showed a reduction in the frequency of urine leakage ($p < 0.001$), the amount of urine leaked ($p = 0.003$), the daytime frequency of urine leakage ($p < 0.001$), and the frequency of nighttime micturition ($p = 0.001$) after therapy.

After therapy, a statistically significant reduction was evident in the impact of urine leakage on the everyday lives of SUI patients ($p = 0.002$). UUI patients showed a reduced impact of urine leakage on their everyday lives ($p = 0.001$). In addition, the number of pads used was also reduced ($p = 0.008$). MUI patients showed improvement in the following circumstances of urine leakage: before they managed to reach the bathroom ($p = 0.016$), when coughing or sneezing ($p = 0.039$), or when experiencing urine leakage for no special reason ($p = 0.008$). The impact of urine leakage on everyday life was reduced ($p < 0.001$) and so was the daily number of pads used ($p = 0.008$).

Interpretation of results

A statistically significant reduction in the frequency of urine leakage and a reduced amount of urine leaked was determined for all three UI types. A statistically significant reduction in the daytime frequency of urine leakage was determined only for UUI and MUI, and a reduction in the frequency of daytime and nighttime micturition was established for UUI. The use of pads was reduced for all UI types. Improvement was largely established in younger, premenopausal subjects that do not have a neurological disease and/or diabetes. No statistical correlation was established between the intensity of magnetic stimulation and the success rate of UI treatment.

Concluding message

Our results indicate that magnetic stimulation therapy for treating UI has a positive effect. The impact of urine leakage on everyday life was reduced in all UI types, and the stimulation intensity had no effect on the therapy success rate. UI improvement after ExMI therapy depends on the patient's age. Furthermore, the therapy demands good organization on the part of patients, which requires good personal motivation and more accessible ExMi devices.

Disclosures
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