280

Imanishi R[1], Nakagawa H[2], Matsumoto K[3], Awaji S[3], Nabekura M[3], Tanno O[3], Kaiho Y[2], Matsushita M[2], Arai Y[2], Kohzuki M[1]

1. Department of Internal Medicine and Rehabilitation Science, Tohoku University Graduate School of Medicine, 2. Department of Urology, Tohoku University Graduate School of Medicine, 3. Geriatric Health Services Facility, Matsushima Midorinoie

EFFECTS OF SACRAL SURFACE THERAPEUTIC ELECTRICAL STIMULATION FOR RESIDENTS IN A GERIATRIC HEALTH SERVICES FACILITY

Hypothesis / aims of study

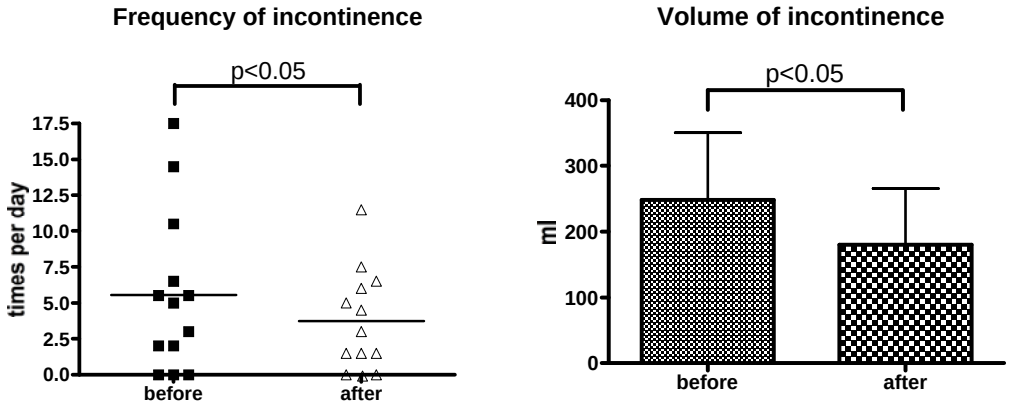
Electrical stimulation therapies have been widely used to treat lower urinary tract dysfunction.
In this study, we evaluated the efficacy and safety of sacral surface therapeutic electrical stimulation (SS-TES) for aged residents in a geriatric health services facility who require care and exhibit lower urinary tract symptoms.

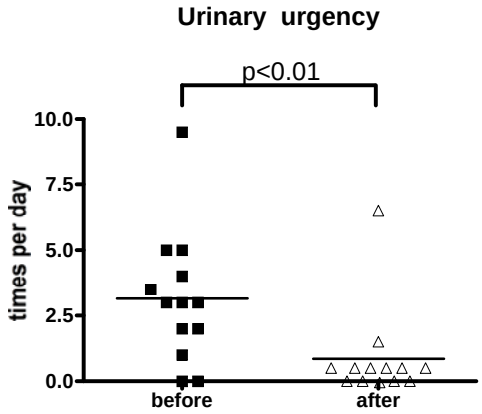
Study design, materials and methods

This study included 13 female residents. The mean age was 79.8±5.0years (range 68 to 87). Lower urinary tract function was evaluated using a sensing machine. We changed the pad and/or diaper after each sensor response and measured the volume of leakage by weighing the pad and/or diaper. Moreover, the voided volume was measured during urination by a urine meter installed in the toilet in the rest room. The subjects were monitored with a sensing machine for 2 days, and the urination time, incontinence time, 24-hour frequency, frequency of incontinence, voided volume, volume of leakage, urinary urgency, 24-hour total fluid intake and action observation at incontinence were recorded in a bladder diary. The evaluation was performed before and after treatment. Electrical stimulation was performed twice daily for one month in their bed with a portable electrical stimulator: for a 15-minute duration (10 seconds on, 5 seconds off) at a frequency of 30 Hz, biphasic rectangular pulses, 200μs width and sub-maximum tolerable intensity to the subject. The surface electrodes (10cm×6cm) were placed bilaterally at the level of the sacral root from S2 to S4. Statistical differences were determined by Wilcoxon's signed ranks test. Differences of $p<0.05$ were considered significant.

Results

As result of the evaluation prior to treatment, 13 female residents were diagnosed with dry overactive bladder (OAB) in 3, wet OAB in 8, and with stress urinary incontinence in 2. The frequency of incontinence decreased significantly from 5.5±5.6 (mean±S.D.) times/day before treatment to 3.7±3.5 times/day after treatment ($p<0.05$). The volume of leakage decreased significantly from 247.9±369.4 mL/day before treatment to 179.9±307.1 mL/day after treatment ($p<0.05$). Urinary urgency decreased significantly from 3.2±2.5 times/day before treatment to 0.8±1.7 times/day after treatment ($p<0.01$). On the other hand, there were no statistically significant differences in 24-hour frequency, 24-hour production, 24-hour total fluid intake. Moreover, there were no side effects of SS-TES.





Interpretation of results

In this study, the effect of SS-TES was clear and there were no side effects. This method is also low cost and very easy for treatment. Further studies are required to determine how to select the appropriate patients.

Concluding message

Our results suggest that SS-TES is effective for urinary incontinence and urinary urgency among elderly female residents who require care in geriatric health services facilities.

FUNDING: **None**

CLINICAL TRIAL REGISTRATION: **This clinical trial has not yet been registered in a public clinical trials registry.**

HUMAN SUBJECTS: **This study was approved by the Ethics Committee Tohoku University School of Medicine and followed the Declaration of Helsinki Informed consent was obtained from the patients.**