

THE EFFICACIES OF INTERFERENTIAL THERAPY FOR THE TREATMENT OF URINARY INCONTINENCE AND STORAGE DYSFUNCTION REFRACTORY TO THE CONVENTIONAL CONSERVATIVE TREATMENTS

Hypothesis / aims of study

Pelvic floor electrical stimulation has been reported to be effective for the treatment of stress, urgency and mixed urinary incontinence. The types of electrodes usually used include anal, vaginal and surface electrode. These electrodes directly stimulate the related muscles. On the other hand, there is another type of stimulation which is generated by interferential waves.

Interferential therapy produces a low-frequency stimulating current within the body while avoiding the problems of skin resistance [1-3]. Two different medium-frequency currents of around 4000 Hz are applied to the body from different directions using 4 surface electrodes, so that interferential waves can be generated by the crossing of these two currents in the bladder or the pelvic floor. The frequency of the thus generated interferential waves can be controlled to be 0 to 100Hz [1, 2]. McQuire et al [1] performed an interferential therapy and reported that 16 of the 24 patients with stress incontinence or urinary frequency were greatly improved. The aim of the present study is to investigate the efficacies of the interferential therapy for the treatment of urinary incontinence and storage dysfunction refractory to the conventional conservative treatments.

Study design, materials and methods

A total of 51 patients (25 males and 28 females) with a mean age of 47 years old (range 4-76) were included in the study. These patients included stress incontinence (16 patients), mixed incontinence (8 patients), overactive bladder with or without urgency incontinence (12 patients), nocturnal enuresis (11 patients), painful bladder syndrome including chronic prostatitis (2 patients) and interstitial cystitis (2 patients). All patients were refractory to the conventional therapies including bladder training, pelvic floor muscle training and pharmaceutical therapy. Frequencies of 50Hz were used for stress incontinence and 10 or 20 Hz for other diseases. The initial stimulation was given for 20minutes, twice a week for 3 weeks. Then the effects were estimated, and the additional therapies were performed if patients needed once a week or every two weeks. The effects of the interferential therapy were assessed by the changes in ICIQ-SF score, 24-hour pad test and frequency/volume chart before and at 3 weeks after the treatment. No ethical approval was needed because this therapy was approved for use in Japanese insurance system.

Results

Eight patients (16%) were cured, 12 (23%) were improved and 10 (19%) were slightly cured of their conditions. 21 patients (38%) stopped treatment at 3 weeks because of no therapeutic effects. No side effects including voiding difficulty or increase in postvoid residual urine volume were noted.

Interpretation of results

Electrical stimulation has been reported to be effective for stress and urgency urinary incontinence. Cure and improvement rates in urinary incontinence have been reported to range from 30% to 50%, and from 60% to 90% respectively. However, this therapy has not been popularized in Japan because of pain or discomfort at the insertion of the electrode. The interferential therapy is the only method that is approved in the Japanese insurance system. The cure and improvement rates of 39% may be lower compared with the pelvic floor stimulation, but patients in this study were refractory to the conventional conservative therapies and no adverse events were noted.

Concluding message

Interferential therapy is thought to be effective and safe for the treatment of storage dysfunction.

References

1. Electrotherapy and exercises for stress incontinence and urinary frequency. *Physiotherapy* 1975;61:305-307.
2. An objective assessment of physiotherapy for female genuine stress incontinence. *Br J Obstet Gynaecol* 1987;94:575-582.
3. Interferential therapy in the treatment of incontinence. *Physiotherapy* 1988;74:161- 168.

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CLINICAL TRIAL REGISTRATION:

This clinical trial has not yet been registered in a public clinical trials registry.

HUMAN SUBJECTS: This study did not need ethical approval because this therapy is approved in Japanese insurance system but followed the Declaration of Helsinki Informed consent was not obtained from the patients.