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Authors: PARK KT*, SONG YS**, KIM SH**, KANG SB**

Institution: * HMT, Inc. incontinence center, Seoul, Korea ** Dept of OB & Gynecology Seoul National University Hospital, Seoul, Korea

Title: AN EVALUATION OF NEW VARIANT TECHNIQUE OF ELECTRICAL STIMULATION AND EMG BIOFEEDBACK PELVIC FLOOR EXERCISE (KONTINENCE™ HMT 2000) FOR URINARY INCONTINENCE

Aims of study:

The purpose of this study is to evaluate a new variant technique of electrical stimulation and EMG biofeedback pelvic floor muscles exercise using Kontinence™ HMT2000 as primary treatment of urinary incontinence. New Variant technique was created out to transmit electrical energy into pelvic floor muscle and nerve effectively. We believe that changing all electrical parameters with synchronous 2 channel rather than merely sweeping frequency only¹⁾ is important in transmitting electrical energy to pelvic floor muscles and nerves with the least discomfort. We also think that electrical parameters should be changed because acceptability of electrical stimulation varies between patients and variability in electrical therapy prevents psychologic burnout as in exercise therapy²⁾ because variability of electrical parameters prevent accommodation and patient's psychological burnout and physical maladaptation.

Electrical therapy plays an important role in education of locality and action of her pelvic floor muscles especially for woman who is not or is only very poorly able to contract the pelvic floor muscles. In addition, pelvic floor muscles can be re-educated where voluntary activity has been lost/reduced due to pregnancy, obstetric trauma.

Basically, HMT 2000 device provides two functions of EMG biofeedback exercise and electrical therapy with synchronous 2-channel Variant technology.

Method:

All urinary incontinence patients (n=27) are registered to be assessed. Patients showed age (48 SD±9.0), weight (58 kg SD±6.9), height (157cm, SD±5.2).

The assessment included 1hour pad test, physical exam, pelvic examination, pelvic floor muscle strength check, stress leakage test, Q-tip test and manometry, history taking of urinary incontinence, fecal incontinence, constipation, pelvic pain, sexual dysfunction (before and after treatment) and manometry checked 3 times at pre, mid(6session), post treatment(12session).

Treatment was applied for 20 minutes electrical stimulation with Variant mode and 5 ~ 10 minutes EMG biofeedback PFM exercise twice per week for six weeks with total 12 sessions using clinical device HMT 2000(HMT, Inc., Kontinence™). After patient was able to follow the target wave, we recommended home self training or home trainer, HMT21(HMT, Inc., Kontinence™).

Result:

Leakage amount(from 5.5g to 4.0g) in 1 hour pad test decreased significantly (p=0.014). Digital pelvic floor

muscle strength of Oxford method(from 1.85 SD±0.9 to 2,7 SD±1.3) increased significantly(p= 0.001). Q-tip test (from 30.9 SD±8.5 to 28.0 SD±11.1) was shown to be significantly decreased angle(P=0.0327).

Subjectively, 83 %(n=24) of all patients were improved in urinary incontinence.

59.3 % of patients (n=19) do not know about pelvic floor muscle and 70.4% of patients does not know how to exercise pelvic floor muscles .

Conclusion:

Combination of new Variant technology of electrical stimulation and EMG biofeedback using HMT2000 is thought to be effective as a primary treatment of urinary incontinence. New Variant technology is also supposed to be very effective in transmitting electrical energy to pelvic floor muscles and nerves.

Reference:

- 1) Pelvic floor reeducation: Principles and practice, London, Springer, 1994
- 2) Sports medicine and rehabilitation sports specific approach, Hanley & Belfus Mosby, Buschbacher Braddom.