

## THE ANALYSIS OF THE RESPONSE OF PATIENT TO VARIOUS ELECTRICAL PARAMETERS DURING ELECTROTHERAPY WITH USING HMT 2000 (HMT, INC., KONTINENCE™).

### Aims of Study

The purpose of this study is to find appropriate parameters of electrotherapy by analysis of patient's feeling of electrostimulation with the various electrical parameters. The feelings to electric stimulation is important as much as treatment result. The pain and discomfort feelings of electrotherapy reduces the compliance of electrotherapy. That is one important reason that electrotherapy does not get popularity in treatment of urinary incontinence in spite of the good treatment result.

So in this respect if we know which electrical parameters make patient feel good and get good result that helps to establish an appropriate parameters of electrotherapy.

So we are recording and analysis of feeling of electrostimulation during electrotherapy with HMT 2000. (HMT, Inc., Kontinence™).

### Methods

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™).

Patients were asked about the feeling of electrostimulation whenever each protocol is changed. HMT2000(HMT, Inc., Kontinence™) has a 156 protocol with varied electrical parameter

When the patient feels nothing, the score is recorded as "0". When the patient feels like contraction like tetany, the score is recorded as "5"(contraction feeling). A score of "1" is when the patient has only feeling and no contraction. A score of "3" is when the patient has only partial contraction. We score "2" when the patient have less contraction than score"3" and score "4" more contraction than score "3".

When the patient 's feeling to electrostimulation protocol(discomfort feeling) is good, it is scored as "2", poor as "0", so-so as"1".

We compiled statistics on whether these scores have correlation with electrical parameters, frequency, pulse width, duty cycle, electrical energy.

12 patients of 52 patients were asked 2 times sequentially to know difference between treatment.

### Results

All urinary incontinence patients (n=52) are registered to be assessed. Patients showed age (48 SD±9.0), weight(58 kg SD±6.9), height(157cm, SD±5.2).

Pearson's correlation coefficient test shows the degree of contraction feeling and frequency(-0.45018, p=0.003) , pulse width(-0.400837, p= ), duty cycle ( -0.42805, p= 0.009), amount of electrical energy(-0.416, p=0.007)) have a correlation.

The degree of the discomfort feeling and the degree of contraction feeling have a correlation (-0.402 p=0.008) but does not correlate with other parameters and electrical energy. .

The degree of the contraction feeling shows that the value during the first treatment(2.34 ±0.57)is more 0.32 than the value during the second treatment(2.65 ± 0.68).(p = 0.008).

### Conclusions

The strength of contraction that patient feels during electrostimulation (**contraction feeling**) correlated with electrical parameter electrical, frequency, pulse width, duty cycle and energy. but whether the feeling of electrostimulation is good or bad (**discomfort feeling**) is not correlated with electrical parameter. Rather that is correlated with the contraction feeling.

The above mentioned facts suggest that the discomfort feeling originates not from electrostimulation itself but the muscle contraction of electrostimulation. The more treatment patients get, the stronger contraction of electrostimulation patients feel. That may be because patients have an increased awareness of the muscle contraction or they get an improved ability of muscle contraction due to the treatment. The more quantification of patient's feeling of the muscle contraction and the more objectification of patient's feeling of electrostimulation is necessary to find more effective and comfortable electrical parameters of electrostimulation.