

18. Symptoms and Signs

Reference

Kim SU, Lee JS, Kim SS, et al. The effect of microcurrent electrical neuromuscular stimulation on stress-related hormones. *Hanbang-Jaehwal-Uihakgwa-Hakhoeji (Journal of Oriental Rehabilitation Medicine)* 2003; 13(4): 1–18 (in Korean with English abstract).

1. Objectives

To evaluate the effect of microcurrent electrical neuromuscular stimulation (MENS) on emotional shock and stress condition.

2. Design

Randomized controlled trial (RCT).

3. Setting

One Oriental hospital (details not mentioned), Republic of Korea.

4. Participants

Healthy volunteer male students (n=36).

5. Intervention

Arm 1: Treatment group 1. (M+S)-Stimulation of the right and left Jianjing (GB 21, 肩井) acupoints 1 cm deep and applied in 3 stages of MENS using a Microtim 400-III after a stress task. (One day before the experiment, subjects were ordered to do computer work and forbidden to sleep from 10 PM to 7 AM. On the day of the experiment, subjects were ordered to do barbell shrugs for trapezius exercise for 1 hour beginning at 3 PM.) (N=9).

Arm 2: Treatment group 2. (NM+S)-Stimulation of a non-acupoint (using the same procedure) after the same stress task. The non-acupoint was located on the virtual line connecting the inferior angle of the scapula with the spinous processes of the sacral vertebrae, away from the Urinary Bladder Meridian (足太陽膀胱經), and 4 chon (寸, about 12 cm) from of the right and left acupoints.

Arm 3: Treatment group 3. (M+NS)-Stimulation of the right and left Jianjing (GB 21, 肩井) acupoints but no stress task (N=9).

Arm 4: Treatment group 4. (NM+NS)-Stimulation of non-acupoints but no stress task (N=9).

6. Main Outcome Measures

Levels of hormones (ACTH, β -endorphin, cortisol, catecholamine, norepinephrine, epinephrine) in blood and urine.

7. Main Results

In Arm 1 and Arm 2, ACTH level was significantly increased after stress ($P<0.01$), but significantly decreased immediately and 30 minutes after MENS ($P<0.05$), and β -endorphin level was slightly increased after stress, and decreased right after and 30 minutes after MENS, but the decrease was without significance. Cortisol significantly increased after stress ($P<0.01$ in Arm 1 and $P<0.05$ in Arm 2) but significantly decreased right after ($P<0.05$) and 30 minutes after MENS ($P<0.001$) in Arm 1, and right after MENS in Arm 2 ($P<0.05$). Norepinephrine level in all groups was significantly decreased right after MENS treatment ($P<0.01$ in Arm 1, Arm 3, and Arm 4; $P<0.05$ in Arm 2). Epinephrine level in Arm 2 was significantly increased after stress ($P<0.05$) but decreased right after MENS ($P<0.05$).

8. Conclusions

The hormonal change after MENS indicates that there is a hormonal mechanism distinct from the MENS mechanism that unites mind and body, so MENS can be used to treat pain and mental and physical disorders.

9. Safety assessment in the article

Not mentioned.

10. Abstractor's comments

This study evaluates the effect of MENS on emotional shock under stress conditions. Hormonal changes were evaluated in 4 groups divided on the basis of stress, acupuncture, and MENS application. The study is very meaningful insofar as this is a randomized, controlled trial of MENS under stress conditions. However, the effect is difficult to assess as the change in stress level in individual subjects has not been mentioned.

11. Abstractor and date

Jang GT, 31 August 2010.