

The effect of emotions and acupuncture on myoelectric abdominal activity

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ABSTRACT

BACKGROUND: Many studies showed that somatic skin and muscle afferences are involved in autonomic and neurovegetative control functions^[1,2]. Besides the abdomen has internal organs and gastrointestinal connection, it has neurovegetative and orthophatic functions^[3] and perform important role in emotions. In TCM some diagnose abdominal points link to internal organs, as G1 that corresponds to the Sphinx Oddi area^[4]. Acupuncture has been studied to clarifying the mechanisms in the human body. “Leopard Spot Technique” is an acupuncture techniques with instant symptoms’ relief. **OBJECTIVE:** The main objectives were to compare abdominal myoelectric activity (MEA) and pressure before/after acupuncture in the experimental group, compare abdominal MEA and pressure in the groups and relate abdominal MEA and bearable pressure with applied scales. **METHODS:** This preliminary, prospective and randomized allocated individuals, after G1 palpation, into different groups: C1 - control group (asymptomatic individuals) without acupuncture intervention; C2 - control group (asymptomatic individuals) with acupuncture, and E - experimental group (symptomatic individuals) with acupuncture. Each group was compose by 11 persons. The acupuncture technique used was “Leopard Spot Technique” in the groups C2 and E, at points H3, L6, F41, F26, bilaterally. Healthy volunteers between 18 and 65 years-old were included and excluded gastrointestinal diseases, diabetes, neurological problems, oncological and heart problems, pregnancy and lactation, people with needle phobia. The main parameters assessed were: (i) pain / discomfort by Visual Analogue Scale (VAS); (ii) MEA of the abdominal muscles around G1 by Electromyography; (iii) maximum pressure tolerable at G1 measured by digital algometer. The values were collected before and after the acupuncture. **RESULTS:** The results show that myoelectric activity increased in C1= 11.8% and C2= 42.2%. While in the experimental group (E) it decreased by 7.4%. Pain values in VAS increased in control group with acupuncture (C2) in 17.8%, decreasing in the C1= 50% and E= 81.8%. The maximum tolerated pressure in decreased in C1= -8.5% and C2= -2.1%, contrary E group increased by 2.4% after acupuncture. In the Emotion Assessment Scale, the E group obtained subscales’ higher values

(subscales as anxiety, anger and fear) and more vegetative patterns in tongue's evaluation. C1 register higher value of "Happiness" subscale. **CONCLUSIONS:** In conclusion, acupuncture is effective to relief pain perception. In spite of the decrease tendency of MEA after acupuncture, the decrease of myoelectric activity and increase in pressure tolerance is inconclusive. Further studies studying acupuncture should be performed with more individuals.

Keywords: *Myoelectric activity, electromyography, acupuncture, emotion*

References:

- [1] Takahashi T. Mechanism of Acupuncture on Neuromodulation in the Gut—A Review. *Neuromodulation: Technology at the Neural Interface*. 2011; 14: 8–12. DOI: 10.1111/j.1525-1403.2010.00295.
- [2] Liu S, Peng S, Hou X, Ke M, Chen JDZ. Transcutaneous electroacupuncture improves dyspeptic symptoms and increases high frequency heart rate variability in patients with functional dyspepsia. *Neurogastroenterol Motil*. 2008; 20: 1204–1211. DOI: 10.1111/j.1365-2982.2008.01164.x
- [3] Yamada T. *Principles of Clinical Gastroenterology*. Blackwell Publishing; 2008. ISBN: 978-1-405-16910-3
- [4] Greten J. *Understanding TCM, The Fundamentals of Chinese Medicine Part I*. Heidelberg School Editions. 6th ed. Heidelberg; 2013. ISBN 978-3-939087-18-2.