

ELECTROACUPUNCTURE PRETREATMENT AT GB20 EXERTS ANTI-NOCICEPTIVE EFFECTS VIA PERIPHERAL AND CENTRAL SEROTONIN MECHANISM IN CONSCIOUS MIGRAINE RATS

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Background: While electroacupuncture (EA) pretreatment in migraine has been found to attenuate pain and frequencies of attacks, the mechanism of its anti-nociceptive effect remain poorly understood. Emerging evidence suggests that peripheral and central serotonin system may be involved in migraine. We hypothesized that EA would exert anti-nociceptive effects via modulation of serotonin system.

Methods: We used a conscious migraine model induced by repeated electrical stimulation on the dural mater. Forty rats were randomly assigned to one of four groups: an EA group, which received EA at GB20 following dural stimulation; a sham acupuncture group, which received manual acupuncture at a non-acupuncture point following dural stimulation; a Model group, which received dural stimulation but no acupuncture; and a Control group, which received neither dural stimulation nor acupuncture. HomeCageScan was used to measure effects on the spontaneous nociceptive behaviors, radioimmunoassay and HPLC were used to investigate the expression of 5-HT in peripheral plasma and in the periaqueductal gray (PAG), rostroventromedial medulla (RVM), and trigeminal nucleus caudalis (TNC), three key structure of the descending pain modulatory system.

Results: Our study showed that EA pretreatment could produce a significant reduction in resting, freezing and grooming, and a significant increase in exploration behavior. We found that the level of 5-HT in plasma were significantly increased, while significantly reduced in RVM, TNC in Model group. Furthermore, the above results were significantly reversed in EA at GB20.

Conclusions: EA pretreatment exerts anti-nociceptive effects in a rat model of recurrent migraine, possibly via modulation of the serotonin system.