

Liste-47

TRANSCRANIAL ELECTROSTIMULATION AS A TREATMENT OF HEAD AND BACK PAIN: IMMEDIATE ANALGESIC EFFECT AND CORRELATION WITH BETA-ENDORPHIN BLOOD LEVEL

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Background: Transcranial electrostimulation (TCES) is a new noninvasive safe method of pain relief. TCES activates the opiate mechanisms of brain antinociceptive system by inducing accelerated secretion of endogenous opioid peptides.

Aim: To check the immediate influence of TCES treatment on chronic back and head pain and on beta-endorphin blood level.

Methods: The new TCES device developed in Israel 'Pulsatilla' was used for this study. An effective current of 1.5-4 mA and frequency of stimulation of 77 Hz and asymmetric biphasic pulse shape for a zero net charge were used. 67 patients were included in the study and allocated to three diagnostic groups: 21 patients with chronic low back pain (gr.1), 21 with cervical pain (gr.2), and 24 with headache (gr.3). The treatment course included 8 consecutive 30 min duration treatments. Pain was assessed by Visual Analog Scale (VAS). Vital signs and VAS were measured before and after each treatment.

Results: There was a significant decrease in VAS for each treatment, for all courses of treatments and for each diagnostic group ($p < 0.05$). In gr.1 VAS (mean \pm STD) was 5.64 \pm 1.9 before and 2.64 \pm 2.6 after the treatment; in gr.2 - 4.86 \pm 2.6 before and 2.07 \pm 2 after the treatment; and in gr.3 VAS was decreased from 2.64 \pm 2.48 before to 0.82 \pm 1.7 after the treatment. No haemodynamic changes and adverse effects were noted. Blood levels of beta-endorphins were measured before and immediately after the first treatment in 10 patients with low back and cervical pain. After the treatment beta-endorphin level was increased in 70% of patients. The increase in beta-endorphin level was positively correlated to clinical improvement.

Conclusions: The new TCES device Pulsatilla has immediate analgesic effect on head, low back and cervical pain. The release of beta-endorphins is one of the mechanisms of action.