

#1610 - NON-INVASIVE PERIPHERAL TRANSCUTANEOUS ELECTRONEUROSTIMULATION: NEW POSSIBILITY FOR NON-PHARMACOLOGICAL TREATMENT OF ARTERIAL HYPERTENSION?

Malakhov, Konstantin Yu. / Kokorin, Valentin A. / Gurov, Alexander A. / Kirichok, Irina V. / Malakhov, Vladimir V. / Fedorov, Andrey A. / Bersenev, Evgeny Yu.

Background

The aim: to assess the efficacy and safety of the non-invasive device for peripheral transcutaneous electrostimulation (TENS) in patients with arterial hypertension (AH)

Methods

We performed 2 randomized sham-controlled studies involving 105 patients. In the first one, 77 patients (24 men, 53 women, mean age 62.5 ± 11.6 years) were allocated to active treatment and sham control groups in ratio 1:1. In the second one, 28 patients (8 men and 20 women, mean age 70.1 ± 6.9 years) suffering from AH and comorbid disorders were allocated to active treatment and sham control groups in ratio 3:1. All patients with the verified AH diagnosis had taken the recommended pharmacotherapy but did not achieve target blood pressure (BP) levels. The patients underwent the procedure of TENS 3 times per day for 14 days using device ABP-051 (Ekaterinburg, Russia). In control group, the procedure was performed using sham devices. In the second study, BP rates were monitored for 14 days after the treatment course.

Results

Both studies showed similar antihypertensive effect of the method. At the end of the treatment period, the significant decrease of systolic BP on 15.1 ± 3.6 mm Hg ($p < 0.05$) and diastolic BP on 6.0 ± 0.8 mm Hg ($p \sim 0.06$) was found. BP decrease was observed regardless of the AH grade. The combined results of the both studies showed that target BP was achieved in $>80\%$ of the patients (84.6% and 81.0%, respectively). There was no significant change of the BP values in the control groups ($p < 0.05$). The follow-up after the treatment showed that antihypertensive effect was maintained for 14 days. During the treatment period, there were no specific adverse effects related to the procedure.

Conclusion

The study showed antihypertensive effect of the non-invasive transcutaneous electrostimulation in patients with AH, who did not reached the target BP levels on pharmacotherapy. Further studies are necessary for confirm our preliminary results.