

## **#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  $62.5 \pm 11.6$  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  $70.1 \pm 6.9$  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  $15.1 \pm 3.6$  mm Hg ( $p < 0.05$ ) and diastolic BP on  $6.0 \pm 0.8$  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.