Published in *Int Agiol. 2014 Feb;33(1):42-9.*

ELECTRICAL CALF MUSCLE STIMULATION WITH VEINOPLUS DEVICE IN POSTOPERATIVE VENOUS THROMBOEMBOLISM PREVENTION

Presented at: *European Venous Forum 2013 (Belgrade)*

Lobastov K.V.1, Barinov V.E.1, Boyarintsev V. et al.

Russian National Research Medical University named after N.I. Pirogov. Moscow, Russian Federation

Aim: The aim of this pilot study was to evaluate the potential effect of electrical calf muscle stimulation (EMS) in the prevention of postoperative deep vein thrombosis (DVT) in high risk patients and to assess efficacy and safety of EMS in patients with calf DVT.

Methods: This was a prospective non-randomized controlled study involving 80 patients over the age of 40 having major surgery (44 abdominal and 36 cranial or spinal surgery; duration more than 60 min under general anesthesia). Patients were divided into 2 comparable groups: main (N.=40) and control (N.=40). In both groups graduated middle stretch compression bandage with compression level 20-40 mmHg was applied and low dose unfractioned heparin (LDUH) injections (5000 U s.c. 3 t.i.d) were started on 1st or 2- 5th day after surgery and continued until discharge. The time of starting LDUH was comparable in both groups. In addition, electrical calf muscle stimulation (EMS) with Veinoplus device was performed for not less than 5 periods of 20 minutes per day (total >100 minutes) in the main group. Control of venous patency was performed with duplex ultrasound obligatory at baseline (first 24 h after surgery) and then every 3 days until discharge.

Results: The incidence of DVT was 2.5% in the main group and 25% in the control group (P=0.007). In patients without DVT at baseline it was 3% versus 21% (P=0.025). Patients with baseline thrombosis who underwent EMS did not have any new cases of DVT and PE, while in patients without EMS thrombosis progression was observed in 43% cases also without pulmonary embolism (not significant).

Conclusion:

EMS with Veinoplus device at >100 min per day (>5 sessions) can decrease the rate of postoperative DVT in high risk patients. Using of EMS in patients with calf DVT does not increase the rate of PE. These findings need to be confirmed in a randomized controlled trial.

Published in : Wound Medicine 2014 May; (5):25-28.