

## **ELECTRICAL CALF MUSCLE STIMULATION COMBINED WITH LOW DOSE UNFRACTIONATED HEPARIN (LDUH) AND ELASTIC COMPRESSION (EC) VERSUS LDUH WITH EC ALONE IN THE PREVENTION OF POSTOPERATIVE DVT.**

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**Aim of the study:** Evaluate the potential effect of electrical muscle stimulation (EMS) of the calf in the prevention of postoperative DVT in high risk surgical patients. Evaluate efficacy and safety of EMS in patients with calf DVT.

**Methods:** Prospective, non-randomized, controlled pilot study involving 80 surgical patients with high risk of VTE (According to “Russian clinical recommendations” based on ACCP8). 46 women and 34 men aged 40 to 85 (mean age:  $64.9 \pm 12.2$ ) Abdominal surgery: 44 patients. Neurosurgery: 36 patients. Among other additional DVT risks factors, 81% of patients had 3 or more additional risk factors, 78% rested in bed for at least 3 days, 45% had an active oncological disease, 69% were over 60 years-old. According to VTE prophylaxis patients were divided into two comparable groups. The protocol of VTE prophylaxis for the study group included electromuscular stimulation with Veinoplus device at  $>100$  min per day ( $> 5$  sessions), anticoagulation therapy with the use of a graduated compression bandage. In the control group, the prophylactic treatment consisted of the placement of a similar bandage and the prescription of direct anticoagulants without electromyostimulation



Design of the study protocol:

- Duplex ultrasound at baseline and every 3 days after surgery until discharge

- Ventilation-perfusion lung scintigraphy before discharge if any initial or new DVT detected

- Autopsy performed in all patients with fatal outcome

**Results:** A single case of deep vein thrombosis (2.5%) in the absence of pulmonary embolism was documented in the study group whereas 10 patients of the control group developed thrombotic occlusion (25.0%), and two others (5.0%) presented with thromboembolism of the pulmonary arteries.

**Conclusion:** Addition of EMS using Veinoplus device at >100 min per day (> 5 sessions) to compression and LDUH decreases the incidence of postoperative DVT in high risk patients. Use of EMS in patients with calf DVT does not increase the rate of Pulmonary Embolism. The results need verification in a RCT.

**Key words:** venous thrombosis, pulmonary embolism, prophylaxis, surgery