

Meeting abstract

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## Non pharmacological venous thromboembolism prophylaxis in old surgical patients

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### Aim of the study

DVT incidence is high even after patient's discharge so an appropriate domiciliary prophylaxis is essential. Physical therapy is a valid (or indispensable), helpful, prophylaxis we focus the attention on "when" and "how" it become compulsory.

### Materials and methods

Three modalities of physical therapy are known: physiotherapy, elastic compression, pneumatic compression. Elderly patients could have deambulation problems and active movements limitation, missing the calf muscular pump. This leads to coagula formation preluding to venous thrombosis and pulmonary embolism. Cardiac pump disorders in perioperative period can make "vis a tergo" ineffective; postoperative respiratory excursion difficulty, surgery-related limitation of diaphragmatic excursions or patient position can make "vis a fronte" ineffective, too. Physiotherapy is time-limited, venous return is improved only during therapeutic manoeuvres so it cannot represent the only treatment in a prophylaxis program. Elastic bandages allow effective pressure at the leg; 18–20 mmHg pressure is a good compromise between minimal effective pressure and patient compliance, and should be reduced to 8–10 mmHg at the thigh. A bandage loses 50% of compressive power in 24 hours so it could be used bandages with mild-long extension during the rest period; they're are more susceptible to move, loss efficacy in prevention DVT and have a "hemostatic string" effect. Elastic socks have an acceptable compliance

(patient and medical staff) and even with some limitations due to patient's immobility, represent an essential method in DVT domiciliary prophylaxis.

### Results

Treadmill and gas plethysmography revealed that elastic socks do not improve ejection fraction. Our study confirms pneumatic intermittent compression (PCI) as choice treatment in postoperative cases with total pump failure and a concrete risk of VTE. During PCI pressure is sensibly higher than during elastic socks wearing: 45 mmHg at the ankle, 35 mmHg at the calf, 30 mmHg at the thigh; flow speed is increased of more than 200%. Alternative sequential compression and decompression cycles mimic the modality of filling and emptying of venous circle avoiding the eventual thrombus formation. Modulating decompression phases on patient venous repletion time avoid blood stasis and increase blood volume relocation per time unit.

### Conclusion

Preoperatively: in patients with limited movements, declive oedema, venous stasis, elastic socks and physiotherapy; surgery and postoperatively: PCI. Active movements: elastic socks compression and physiotherapy until effective deambulation.