PREVENTION of PTS: Is the Jury still Out? Statins and VTE

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Graduated Elastic Compression and PTS

- Elastic compression reduces venous hypertension, edema and minimizes damage to the microcirculation\(^1,2\)
- Four RCTs (745 patients) have demonstrated that elastic compression for 2 years in patients with proximal DVT reduced the incidence of PTS from 39% to 19% (RR 0.49; 95% CI 0.38 to 0.62)\(^3-6\)
- A Recent large RCT (n=803) failed to confirm the above results \(^7\)


Long-Term LMWH Therapy and PTS

- Compared with VKA long-term LMWH produces improved recanalization\(^4\)
- Meta-analysis of 5 studies reported improved recanalization and a reduced risk ratio of 0.66 (95% CI 0.57 to 0.77; P < 0.0001) in favor of long-term LMWH\(^7\)
- Pooled analysis of studies yielded an 87% risk reduction with LMWH in the incidence of venous ulcers (P=0.019)\(^8-9\)


Early Surgical Thrombectomy and PTS

Incidence of PTS decreased from 93% with anticoagulation only to 58% with thrombectomy (RR 0.63; 95% CI 0.44 to 0.90)\(^1,2\)


Catheter Directed Thrombolysis and PTS

- Catheter directed thrombolysis increases vein patency and reduces PTS\(^1,2\)
  - Two RCTs (138 patients) demonstrated a patency rate of 70% in the CDT group and 33% in the standard anticoagulation therapy group (RR 0.48; 95% CI 0.33 to 0.70)\(^5,6\)
  - Another RCT (209 patients) showed iliofemoral patency rates at 6 months of 64% with CDT versus 47% with conventional treatment (RR for patency 1.42; 95% CI 1.09 to 1.85)\(^7\)
  - At 24 months, PTS developed in 41% of patients in the CDT group and 56% of patients with conventional treatment (RR 0.74; 95% CI 0.55 to 1.00; P=0.047)

Percutaneous Endovascular Venoplasty and Stenting

- Observational studies suggest percutaneous endovascular venoplasty and stenting to relieve chronic venous obstruction may alleviate PTS
  1,2
- In the largest series published
  1
  4
  Severe leg pain (VAS >5) and leg swelling (grade 3) decreased from 54% and 44% pre-stent to 11% and 18% post-stent
  4
- At 5 years, cumulative rates of complete relief of pain and swelling were 62% and 32% and ulcer healing was 58%

Prevention of PTS
Prevention of Primary and Secondary DVT

- Prevention of DVT should reduce the prevalence of PTS in the general population
  1
- Guidelines aimed to reduce PTS and leg ulcers by 50% by year 2020 have been published
  2

Recurrent VTE
Following Cessation of Anticoagulation

- Prandoni et al. Haematologica 1997; 82:423

Low-dose Aspirin for Preventing Recurrent VTE

- Brighton TA et al NEJM 2012;367:1979

Extended Use of Apixaban in VTE
(AMPLIFY-Extension Study)

- Agnelli G et al NEJM 2013;368:699-708
**Extended Use of Apixaban in VTE (Amplify-Extension Study)**

- **Major or CRNMB**
  - Agnelli G et al. NEJM 2013;368:699-708

**Sulodexide: Multicenter RCT**

**Efficacy:** 54% reduction in VTE  
**Bleeding:** No Major bleeding  
2 patients in each group had clinically relevant bleeding episodes

**Statins**

- Hyperlipidemic patients on statins (rosuvastatin) have a reduced incidence of primary DVT by 50% (JUPITER study) and 4 case controlled studies

- Patients with VTE on statins had a lower risk of recurrent VTE (adjusted HR 0.74; 95% CI 0.68 to 0.80) (nation wide study - Denmark)

- In a RCT in patients (n=234) with DVT, rosuvastatin + LMWH vs LMWH alone for 3 months, the Villalta scale > 5 was found in less patients in the rosuvastatin group (38.3% vs 48.5%; P = 0.019)

**Conclusion**

- There are many ways to reduce the incidence of PTS
- Early thrombolysis of proximal DVT is important
- Reduction in recurrent VTE without any increase in bleeding is now possible; it should contribute to the reduction in PTS
- After DVT, a combination of methods should be considered.
  - Extended anticoagulation
  - Endovascular venoplasty and stenting
  - Venoactive drugs in combination with elastic compression