

PREVENTION AND TREATMENT OF VENOUS THROMBOEMBOLISM

International Consensus Statement 2013 Guidelines According to Scientific Evidence

Developed under the auspices of the:

Cardiovascular Disease Educational and Research Trust (UK)

European Venous Forum

North American Thrombosis Forum

International Union of Angiology and

Union Internationale du Phlebologie

Key Issues and Remaining Questions

Chapter 25

Key Issues and Remaining Questions

Patient Populations

Key Issues and Remaining Questions

Patient Populations

- 1. Although VTE is an appealing target for maximally effective prevention, there is still a low rate of appropriate prophylaxis worldwide particularly for the acute medically ill patients**
- 2. Continuing efforts to educate combined with hospital-wide protocols, local audits for VTE prevention, electronic alerts and use of clinical nurse specialists have been shown to result in a marked increase in appropriate application of guidelines**

Key Issues and Remaining Questions

Patient Populations

- 3. The risk of DVT in the various minimally invasive abdominal surgical procedures and advanced laparoscopic surgery, as well as upper limb surgery, needs to be established**
- 4. Recurrence rates of DVT in relation to the residual thrombus, increased D-dimer or risk factors following treatment of the first episode needs to be determined**
- 5. A database needs to be created to establish the risk of pulmonary hypertension in patients with PE**
- 6. The value of spiral CT evidence of right heart failure as predictor of a high-risk group in patients with PE requiring thrombolysis needs to be determined**

Key Issues and Remaining Questions

Prophylaxis

Key Issues and Remaining Questions

Prophylaxis

- 1. Further studies are needed to assess additive effects on the efficacy, cost-effectiveness and safety of chemical agents and mechanical methods in high and medium-risk patients for various medical and surgical specialities**
- 2. Possible differences in the efficacy of mechanical devices of different design need to be determined**
- 3. The efficacy of modern muscle contraction equipment used not only during surgery but also during the postoperative period should be determined in adequately powered RCTs**

Key Issues and Remaining Questions

Prophylaxis

- 4. In a cost-constrained system, the relative value of aspirin and the new oral agents (cost, safety, efficacy) requires proper and definitive studies, particularly in knee replacement and hip fracture**
- 5. Now that the fatal PE rates after arthroplasty are low, the equivalence of symptomatic VTE events and symptomatic bleeding events with different prophylactic modalities should be evaluated with regards to morbidity, cost and medicolegal liability**
- 6. The prophylaxis of patients in plaster casts requires further study**
 - ▶ Establishing those at risk and delivering prophylaxis for an adequate duration in a safe, cost effective and pragmatic way

Key Issues and Remaining Questions

Prophylaxis

7. Prophylaxis for those at high risk of VTE having day case surgery need further study

- ▶ The day surgery environment may preclude the administration of in-hospital chemical prophylaxis due to the bleeding risk with proximity to surgery
- ▶ This will require administration for an adequate period of time (this period as yet unknown) in an out-of-hospital environment
- ▶ Oral agents have a pragmatic advantage in this group but their safety and efficacy require study

8. RCT in high risk patients having plastic surgery are needed to determine the efficacy and safety of pharmacological and mechanical prophylaxis

Key Issues and Remaining Questions

Prophylaxis

- 9. RCT in patients having prostatectomy are needed to determine the efficacy and safety of pharmacological and mechanical prophylaxis**
- 10. RCT in patients having elective spine surgery are needed to determine the efficacy and safety of pharmacological and mechanical prophylaxis**
- 11. RCT in patients having spinal cord injury are needed to determine the efficacy and safety of combined pharmacological and mechanical prophylaxis**
- 12. RCT in patients with burns are needed to determine the efficacy and safety of pharmacological and mechanical prophylaxis**

Key Issues and Remaining Questions

Prophylaxis

- 13.** RCT are needed to determine the optimal duration of extended prophylaxis and whether or not mortality is influenced in general surgical patients
- 14.** Further studies are needed before recommendations can be made for prophylaxis beyond 35 days in patients having hip surgery
- 15.** The value of new oral anticoagulants in the prophylaxis of different groups of patients having non-orthopedic surgery needs to be determined
- 16.** RCT in patients with acute stroke are needed to determine the efficacy and safety of combined pharmacological and mechanical prophylaxis

Key Issues and Remaining Questions

Prophylaxis

- 17.** A multicenter trial assessing efficacy, cost-effectiveness and safety of thromboprophylaxis in high-risk pregnant patients is required
- 18.** The optimum prophylactic therapy in patients having laparoscopic surgery needs to be determined
- 19.** There is a need for further studies to assess the efficacy of mechanical methods in medical patients
- 20.** Well-designed RCT to determine optimal duration of thromboprophylaxis in high risk medical patients are needed

Key Issues and Remaining Questions

Prophylaxis

- 21.** There is a need to adequately validate VTE and bleeding risk assessment models in hospitalized medical patients
- 22.** Phase four studies (post-marketing surveillance) to address the long term potential harm of prophylactic methods should be encouraged
- 23.** The value of routine thromboprophylaxis in those receiving radiotherapy needs to be evaluated
- 24.** Adequately powered studies are needed to determine the benefits and harms of new anticoagulant drugs in cancer patients with indwelling central venous catheters and in specific subgroups of patients

Key Issues and Remaining Questions

Treatment Regimens

Key Issues and Remaining Questions

Treatment Regimens

- 1. The value of extended treatment with aspirin in patients who are at high risk of bleeding when taking VKA needs to be confirmed by further studies**
- 2. The efficacy and safety of thrombolytic therapy in patients with PE and right ventricular dysfunction requires confirmation by randomized trials**
- 3. A randomized study comparing catheter directed thrombolysis of proximal DVT with conventional anticoagulation therapy in preventing the post-thrombotic syndrome is required**

Key Issues and Remaining Questions

Treatment Regimens

- 4. Studies comparing post-thrombotic morbidity in patients treated with CDT versus those treated with pharmaco-mechanical lysis are needed**
- 5. The best approach for LMWH use (e.g. dose adjustment or anti Xa monitoring) in pregnancy, obesity and renally impaired patients needs to be determined**
- 6. Managing bleeding in patients treated with LMWH, fondaparinux and the new oral anticoagulants needs to be determined**
 - ▶ Studies should explore the efficacy of protamine sulphate in patients bleeding from LMWH

Key Issues and Remaining Questions

Treatment Regimens

- 7. The role of long-term LMWH versus vitamin K antagonists in the treatment of DVT and prevention of post-thrombotic syndrome should be determined by further randomised trials**
- 8. The value of prognostic markers such as D-dimer, C reactive protein and extent of residual clot burden in guiding the duration of long-term oral anticoagulant therapy needs to be studied further**
- 9. New drugs in terms of the production of HIT antibodies and their use as an alternative to UFH or LMWH in patients with HIT need clinical evaluation**

Key Issues and Remaining Questions

Treatment Regimens

- 10. More RCT are needed to determine the complications / harm produced by prophylactic methods**
- 11. Further trials are needed to clarify whether LMWH is possibly superior to UFH in the initial treatment of VTE in patients with cancer**
- 12. The improved survival in patients with cancer treated with LMWH needs to be confirmed by further prospective clinical trials with appropriate design and power to assess cancer outcome before recommendations can be made**

Key Issues and Remaining Questions

Treatment Regimens

- 13. The safety and efficacy of inferior vena cava filters for management of cancer-associated thrombosis needs to be evaluated**
- 14. The relative benefit/harm of the new oral anticoagulants needs to be further determined**
- 15. RCT are needed to determine the efficacy of percutaneous endovascular venoplasty and stenting to relieve chronic venous obstruction, may alleviate the symptoms of PTS**