

VTE PREVENTION FOR SURGICAL PATIENTS

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Effective measures are available to prevent venous thromboembolism (VTE) in surgical patients. Modalities include mechanical prophylaxis, pharmacological prophylaxis, and combined mechanical plus pharmacological prophylaxis.

For mechanical prophylaxis, graduated compression stockings increase venous blood flow. Intermittent pneumatic compression devices increase venous blood flow and enhance endogenous fibrinolysis. Inferior vena caval filters constitute a mechanical barrier to prevent pulmonary embolism (PE). Urbankova's meta-analysis in 2,270 postoperative patients from 15 randomized trials shows that intermittent pneumatic compression reduces DVT risk by 60%.

For general surgery, a multitude of pharmacological options are effective and safe. These include heparin 5,000 units every 8 hours, enoxaparin 40 mg once daily, and dalteparin 5,000 units once daily.

For orthopedic surgery, an even wider range of pharmacological strategies can be used. These include enoxaparin 40 mg once daily, enoxaparin 30 mg twice daily, dalteparin 5,000 units once daily, fondaparinux 2.5 mg once daily, and warfarin, target International Normalized Ratio (INR) between 2.0 and 3.0.

Patients undergoing total hip replacement are especially susceptible to "late onset" VTE postoperatively. Enoxaparin prophylaxis has received FDA approval for 28 days of administration.

Neurosurgery patients have the highest DVT rates. They can best be managed by combined mechanical and pharmacological prophylaxis. These patients are often unable to complain of leg pain, chest pain, or shortness of breath. Therefore, pre-discharge venous ultrasonography should be considered in high risk neurosurgery patients even if they remain asymptomatic.

The role of prophylaxis for patients undergoing coronary artery bypass grafting (CABG) remains controversial. The rate of clinical VTE after CABG is about 1%. VTE accounts for approximately 6% of hospital readmission after CABG.

Overall, surgeons have done a better job instituting VTE prophylaxis than medical physicians. For surgeons, VTE prophylaxis is embedded in the culture. Surgeons are following consensus guidelines. Their successes in changing physician behavior may provide clues for other health care providers to emulate.

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