Preventing postsurgical venous thromboembolism: Pharmacological approaches (Article)

Tufano, A.[a],
Coppola, A.[a],
Cerbone, A.M.[a],
Ruosi, C.[b],
Franchini, M.[c]

[a] Regional Reference Centre for Coagulation Disorders, Department of Clinical and Experimental Medicine, Federico II University Hospital, Via S. Pansini, 5, 80131 Naples, Italy
[b] Department of Orthopedics, Federico II University Hospital, Naples, Italy
[c] Immunohematology and Transfusion Center, Department of Pathology and Laboratory Medicine, University Hospital, Parma, Italy

Abstract

The use of antithrombotic drugs for the prevention of venous thromboembolism (VTE) in patients undergoing surgery is presently based on solid principles and high-level scientific evidence. This article reviews current strategies of pharmacological thromboprophylaxis. The level of VTE risk following surgery depends on a variety of factors that the surgeon should take into account, including the type of surgery and the presence of additional risk factors, such as elderly age and cancer. In patients undergoing minor general surgery, early mobilization is sufficient as prophylaxis, whereas in those undergoing major general surgery, thromboprophylaxis with low molecular weight heparin (LMWH), low-dose unfractionated heparin, or the pentasaccharide fondaparinux is recommended. Patients undergoing major orthopedic surgery have a particularly high risk of VTE, and routine thromboprophylaxis with LMWH, fondaparinux, or a vitamin K antagonist (international normalized ratio target: 2.0 to 3.0) is the standard of care in this group of patients. Recently, two new oral anticoagulants, rivaroxaban (a factor Xa inhibitor) and dabigatran etexilate (a direct thrombin inhibitor) have been licensed to be used for thromboprophylaxis after orthopedic surgery in Europe. Mechanical methods of thromboprophylaxis (compression stockings, intermittent pneumatic compression, vena cava filters), not discussed in detail in this review, should always be considered in patients at high thrombotic risk, in association with the pharmacolocical strategies, or in cases of contraindications to antocoagulants, as in patients or procedures at high risk of bleeding.