

## **Acute Care of VTE: Anticoagulation and Thrombolysis**

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Venous thromboembolism (VTE) includes deep-vein thrombosis (DVT) of the leg or pelvis, and its complication, pulmonary embolism (PE). VTE is a disease state that carries significant morbidity and mortality, and is a known cause of preventable death in hospitalized and orthopedic surgical patients. Although there are many identifiable risk factors for VTE, up to half of VTE incident cases have no identifiable risk factor and carry a high likelihood of recurrence, which may warrant extended therapy. For many years, parenteral unfractionated heparin, low-molecular weight heparin, fondaparinux, and oral vitamin K antagonists have been the standard of care in VTE management. Recently, novel oral anticoagulant agents, which are rapidly expanding but currently include dabigatran, rivaroxaban, apixaban, and edoxaban, have been studied and approved for several indications worldwide. In the setting of high risk, acute management consists of resuscitation, supportive care, and thrombolysis should be applied for patients with hemodynamically unstable PE or limb-threatening DVT. Thrombolysis remains first-line treatment for high-risk PE. It should be considered, especially, if surgical embolectomy or catheter-directed treatment is not immediately available. In patients with absolute contraindications to thrombolysis, other catheter-based techniques such as thrombus fragmentation, rheolytic or rotational thrombectomy, or suction thrombectomy may be applied. But, most devices are not available in Korea and evidence for these procedures remains weak. This also remains true for surgical pulmonary embolectomy. Some patients in whom PE has resulted in chronic thrombo-embolic pulmonary hypertension and who are not suitable for pulmonary endarterectomy may be expected to benefit from emerging pharmaceutical and interventional treatment options such as balloon pulmonary angioplasty.