

Venous Thromboembolism Prophylaxis for Medical Patients

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KEYWORDS

- Venous thromboembolism
- Venous thromboembolism prophylaxis
- Intermittent pneumatic compression • Guidelines

HOSPITAL MEDICINE CLINICS CHECKLIST

1. Assess all hospitalized patients for risk of venous thromboembolism (VTE) using a validated method.
2. Assess all hospitalized patients for contraindications to VTE prophylaxis (VTE-P).
3. Provide pharmacologic VTE-P to acutely ill medical patients with impaired mobility and/or other VTE risk factors, unless estimated bleeding risk exceeds VTE risk.
4. Consider effects of obesity and renal function when prescribing pharmacologic VTE-P.
5. Promote ambulation, and use intermittent pneumatic compression for patients with contraindications to pharmacologic VTE-P, and possibly those at high risk of VTE.
6. Monitor for and recognize complications of VTE-P, such as heparin-induced thrombocytopenia and hemorrhage.
7. Remain vigilant for signs and symptoms of VTE in hospitalized patients.
8. Avoid unnecessary central venous catheter use to minimize catheter-associated VTE.
9. Discontinue prophylaxis at the time of discharge in almost all medical patients.

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EPIDEMIOLOGY

1. What is venous thromboembolism?

Deep venous thrombosis (DVT) and pulmonary embolism (PE) are collectively known as venous thromboembolism (VTE). Distal DVT involves the deep calf veins. Proximal DVT involves the popliteal, femoral, or iliac veins, and is responsible for 90% of cases of PE.¹ Upper extremity DVT, which is often catheter related, carries a similar risk of pulmonary embolism as lower extremity DVT.² Despite its name, the superficial (common) femoral vein (SFV) is a deep vein, and management of SFV thrombosis is the same as for any other DVT. True superficial venous thromboses (SVT) are less worrisome than DVT but, depending on the location and associated risk factors, often progress to DVT.³

2. What are the symptoms and clinical consequences of VTE?

DVT can cause a spectrum of symptoms ranging from edema, pain, and discoloration, to chronic and disabling symptoms or venous ulceration, or may be asymptomatic. PE may cause tachycardia, dyspnea, hypotension, hypoxemia, chest pain, pleural effusion, or sudden death or, like DVT, may be asymptomatic or unsuspected, and discovered only at autopsy or incidentally by imaging studies.⁴

No individual clinical feature is reliable for the diagnosis of DVT. In an evaluation of 5 clinical studies, the sensitivity of calf pain for acute DVT was 66% to 91% and the specificity was 3% to 87%; swelling of the calf or leg had sensitivity of 35% to 97% and specificity of 8% to 88%.⁵ Multiple clinical features can be tallied to predict the likelihood of VTE (**Table 1**).⁶

Approximately one-third of patients with symptomatic VTE present with PE while two-thirds manifest DVT alone.⁷ Proximal DVT is complicated by PE in up to 50% of cases.⁴ Mortality after acute PE was 15% to 18% at 3 months in an observational

Table 1	
The Wells score	
Clinical	Score
Active cancer (active treatment or within 6 months)	1
Paralysis, paresis, or recent plaster immobilization of lower extremities	1
Recently bedridden for 3 of more days or major surgery within 4 weeks	1
Localized tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
More than 3 cm of calf swelling when compared with asymptomatic leg	1
Pitting edema (greater in symptomatic leg)	1
Collateral superficial veins	1
Alternative diagnosis as likely or more likely than DVT	-2
High probability	3 or higher
Moderate probability	1 or 2
Low probability	0 or less
Modified Wells score	
DVT likely	2 or higher
DVT unlikely	1 or less

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