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Current State of Vascular Intervention in Venous Thromboembolism

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ABSTRACT

Venous thromboembolism (VTE) has high incidence especially in the hospital and can cause mortality and morbidity. They are caused by thrombotic obstruction in the vein in superficial, deep, or in pulmonary artery. Therefore, proper identification and revascularization indication are needed especially in acute setting to deal with acute or late complication. This article tries to state current position of vascular intervention in VTE to reduce its mortality and morbidity.

Introduction

Venous Thromboembolism (VTE) occurs in 10% to 80% of hospitalized patients[1], which has case fatality rate ranging from 1 to 10%. Fatal case is mainly due to pulmonary embolism (PE). About one third of patients with VTE will develop PE[2]. The rate of VTE recurrence is also high 29.7% over 8 years[3].

Management

Anticoagulation is the only drugs to treat VTE. However, it does not dissolve the thrombus. Mechanical strategies have been developed for thrombus removal combined with thrombolysis administration, which is called catheter-directed thrombolysis. It has been recommended as an effective treatment for DVT because it can reduce the thrombus burden rapidly, relieve DVT symptoms promptly, maintain venous valve function, and reduce recurrency of DVT4. However, bleeding events are higher in CDT than in anticoagulation. Thus, in the newer guideline it is recommended in low bleeding risk patient 5.

An update from the current guideline also underlines for importance of thrombophilia testing. Thrombophilia testing is useful in patients with their first unprovoked DVT, DVT at an unusual site (e.g., cerebral vein), history of recurrent miscarriages, intra-uterine foetal death, and other late obstetric morbidities due to placental ischaemia, particularly intra-uterine foetal growth restriction and pre-eclampsia. For patients with unprovoked deep vein thrombosis, testing for antiphospholipid antibodies should be considered if a decision to stop anticoagulation is contemplated (IIaC of level recommendation)

Intervention

Early thrombus removal can reduce 33% of incidence of post thrombotic syndrome (PTS). Incidence of PTS is around 25-75% after VTE. Surgical thrombectomy, catheter directed thrombolysis, or pharmacomechanical catheter directed thrombolysis are difference strategy could be done depend on each resource. Stenting after CDT are reported ranging from 17% to 80% from many centers. Forest plot analysis of randomized controlled trials comparing early thrombus removal techniques with anticoagulation alone showed that CDT would increase bleeding risk 5.68 time. Therefore, CDT should be done in low risk of bleeding patient.

Severe form and extension of DVT are phlegmasia alba dolens or phlegmasia cerulea dolens due to total iliofemoral occlusion with rapid extension to deep and superficial vein and also collateral. It causes severe pain, massive congestion, cyanosis, tachycardia, and shock. Intervention is recommended to reduce amputation and mortality rate.

For patients with proximal deep vein thrombosis who have contraindications to anticoagulation during the initial or principal treatment phase, temporary inferior vena cava filter insertion is recommended (IC level recommendation)[5].

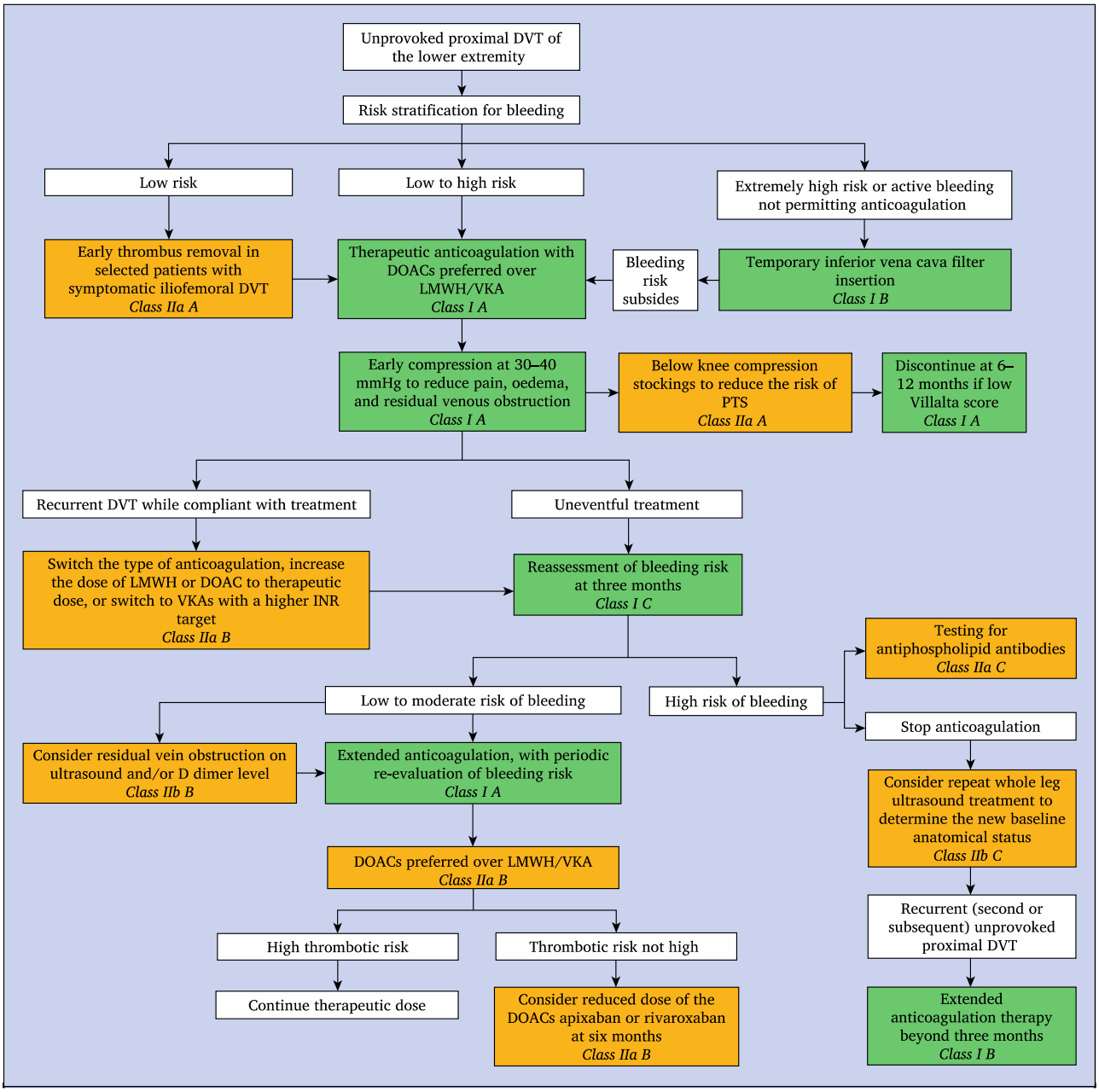

Figure 1. Treatment algorhythm for VTE (unprovoked)

References

1. Geerts WH, Pineo GF, Heit JA, et al. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest. 2004;126:338S-400S.
2. Prandoni P, Villalta S, Bagatella P, et al. The clinical course of deep-vein thrombosis. Prospective long-term follow-up of 528 symptomatic patients. Haematologica. 1997;82:423-428.
3. Essam, A. E., Sharif, G., & Al-Hameed, F. (2011). Venous thromboembolism-related mortality and morbidity in King Fahd General Hospital, Jeddah, Kingdom of Saudi Arabia. Annals of thoracic medicine, 6(4), 193–198. https://doi.org/10.4103/1817-1737.84772

4. Lu Y, Chen L, Chen J, Tang T. Catheter-Directed Thrombolysis Versus Standard Anticoagulation for Acute Lower Extremity Deep Vein Thrombosis: A Meta-Analysis of Clinical Trials. Clin Appl Thromb Hemost. 2018;24(7):1134-1143. doi:10.1177/1076029617739703
5. Kakkos, Stavros K.ESVS Guidelines Committee, Document reviewers, et al. Editor's Choice – European Society for Vascular Surgery (ESVS) 2021 Clinical Practice Guidelines on the Management of Venous Thrombosis. European Journal of Vascular and Endovascular Surgery, Volume 61, Issue 1, 9 - 82