CASE REPORT

Rivaroxaban for the treatment of saphenous vein graft thrombosis

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KEYWORDS
Saphenous vein graft disease; Thrombus; Anticoagulant

Abstract
Thrombus formation plays a significant role in disease of saphenous vein bypass grafts. Use of oral anticoagulants has not been tested in treatment of thrombotic occlusion of saphenous vein graft (SVG) disease. Here we describe the use of the novel oral anticoagulant rivaroxaban in the treatment of occlusive SVG disease with intraluminal thrombus, leading to successful recanalization.

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PALAVRAS-CHAVE
Doença do enxerto da veia safena; Trombose; Anticoagulantes

O rivaroxabano no tratamento da trombose do enxerto de veia safena

Resumo
A formação de trombos tem um papel significativo na doença do bypass do enxerto da veia safena (EVS). A utilização de anticoagulantes orais não foi testada no tratamento da oclusão trombótica na doença do EVS. Apresentamos o uso de um novo anticoagulante oral, o rivaroxabano, no tratamento da doença oclusiva do EVS com trombo intraluminal e recanalização bem-sucedida.

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Case report

A 67-year-old woman with a history of coronary artery bypass grafting (CABG) six months previously underwent coronary angiography for stable class III angina. Extensive thrombus burden was visualized in the mid-distal segment of the saphenous vein graft (SVG) to the second obtuse marginal...
branch with decreased Thrombolysis In Myocardial Infarc-
tion (TIMI) 2 flow (Figures 1 and 2) and without evidence of
obstructive atherosclerosis. The patient was placed on oral
anticoagulation with rivaroxaban (Janssen Pharmaceuticals,
Titusville, NJ, USA) 20 mg once daily. Follow-up catheter-
ization after four weeks revealed angiographic resolution
of the thrombus with significantly improved TIMI 3 flow
(Figures 3 and 4).

Rivaroxaban is a new oral anticoagulant, a direct fac-
tor Xa inhibitor which is currently FDA approved for the
prevention and treatment of venous thromboembolism, and
for the prevention of stroke and systemic embolism in
non-valvular atrial fibrillation. 1 ATLAS ACS 2-TIMI 51 dem-
onstrated reduced risk of the composite end point of death
from cardiovascular causes, myocardial infarction, or stroke
in patients with a recent acute coronary syndrome placed
on rivaroxaban at the expense of increased risk of non-fatal
major bleeding and intracranial hemorrhage. 2 Thrombosis,
intimal hyperplasia and atherosclerosis are the common
mechanisms of SVG disease and occlusion; however, the
Post CABG trial failed to demonstrate higher SVG primary
patency rates with low-dose anticoagulation with warfarin
as a primary prevention strategy. 3 This case highlights the
potential benefit of the new-generation oral anticoagulants

Figure 1  Saphenous vein graft to second obtuse marginal at
baseline, in left anterior oblique view.

Figure 2  Saphenous vein graft to second obtuse marginal at
baseline, in right anterior oblique view.

Figure 3  Saphenous vein graft to second obtuse marginal four
weeks after rivaroxaban, in left anterior oblique view.

Figure 4  Saphenous vein graft to second obtuse marginal four
weeks after rivaroxaban, in right anterior oblique view.
Rivaroxaban in saphenous vein graft disease

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in the secondary prevention and treatment of saphenous vein thrombosis-related disease. A similar approach was reported by Fiorina et al. in a small case series of 14 patients with non-ST-elevation myocardial infarction and occluded SVGs, in which after angioplasty with an undersized balloon to achieve TIMI flow 1-2, patients were placed on anticoagulation with warfarin for 11±7 days. A follow-up angiogram revealed that all the SVGs were patent, 14% of them with no residual lesions.4

**Ethical disclosures**

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

**Conflicts of interest**

The authors have no conflicts of interest to declare.

**References**