Effectiveness of direct oral anticoagulants with initial intensive therapy for a giant thrombus swivelling in the right atrium

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DESCRIPTION

Case 1. A 45-year-old man with dyspnoea. In his echocardiography, we detected a 35×15 mm left ventricular thrombus (LVT) with a low ejection fraction. Conventional therapy (unfractionated heparin combined with vitamin K antagonists) for the LVT resulted in an acute inferior myocardial infarction due to an embolisation of the LVT. Case 2. A 35-year-old man with dyspnoea. In his echocardiography, we detected a left ventricular/left atrial/right ventricular thrombus with a low ejection fraction. Conventional therapy resulted in a cerebral infarction, renal infarction, splenic infarction

Figure 1 The giant thrombus in the right atrium.

Figure 2 The giant thrombus in the right atrium (RA) temporarily enters into the right ventricular (RV), but since it is cord-like, it returns immediately back into the RA.

Video 1 Transthoracic echocardiography (TTE) showing the giant thrombus in the right atrium (RA). 10×80 mm cord-like structure that was swivelling like a water wheel in the RA from the tricuspid regurgitation-jet.

and pulmonary thromboembolism (PTE). Problems of conventional therapy: (1) Warfarin takes time to reach a therapeutic range and needs frequent activated partial thromboplastin time (aPTT) measurements. (2) Since warfarin deactivates protein C and protein S, two endogenous anticoagulants, the initiation of warfarin leads to a transient hypercoagulable state.¹ (3) Therefore, pre-administration with heparin is required. (4) However, according to the JAVA study, the level of anticoagulation is subtherapeutic in approximately 40% of cases.²

Case 3. An 89-year-old man with syncope. In his echocardiography, we detected a 10×80 mm cord-like structure that was swivelling in the right atrium (RA) due to tricuspid regurgitation (figures 1 and 2 and video 1). In the lower extremity vein echo, there was a deep vein thrombosis (DVT) beyond the

Learning points

- ▶ Conventional therapy (unfractionated heparin combined with a vitamin K antagonist (VKA)) for a giant thrombus in the right atrium (RA) may cause cardiogenic shock due to shower-emboli and we selected to use a direct oral anticoagulant (DOAC) with the initial intensive therapy.
- ▶ Although the patient had chronic kidney disease (CCR 32.4), we chose an initial intensive therapy with rivaroxaban.
- ▶ It was thought that by using DOACs with a rapid onset of the effect, even if the RA thrombus were to migrate to the pulmonary artery, it would shrink rapidly there and would not cause cardiogenic shock.

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right femoral vein. The D-dimer was 62.6, and it seemed that the DVT had become liberated and dropped into the RA. Conventional therapy for a giant thrombus in the RA may cause cardiogenic shock due to shower-emboli and we selected to use direct oral anticoagulants (DOACs) with the initial intensive therapy.

Due to the 2-day administration of oral rivaroxaban 15 mg two times per day, the D-dimer decreased from 62.6 to 17.1, and in the echocardiography, the RA thrombus also disappeared. He had chronic kidney disease with a creatinine clearance (CCR) of 32.4, but no haemorrhagic complications were observed.

A PTE with cardiogenic shock has a poorer prognosis than an acute myocardial infarction and the treatment for an RA giant thrombus is very risky. It was thought that by using DOACs with a rapid onset of the effect, even if the RA thrombus were to migrate to the pulmonary artery, it would shrink rapidly there and would not cause cardiogenic shock.

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