CASE REPORT

Use of apixaban for an elderly patient with left atrial thrombus

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Accepted 25 May 2014

SUMMARY

An 86-year-old man had long-standing persistent atrial fibrillation, but had not received any anticoagulants. Transthoracic echocardiography revealed a large thrombus formation in the left atrium. We hesitated to use the conventional anticoagulant, warfarin, because he was very old and had dementia. We decided to resolve the thrombus at our outpatient clinic. He was started on the novel oral anticoagulant, apixaban, 2.5 mg twice daily, which is a direct factor Xa (FXa) inhibitor. After 11 weeks on that therapy, the thrombus formation had almost resolved. During oral anticoagulant therapy, no serious bleeding complications, systemic embolisms or strokes were noted. To the best of our knowledge, we are the first to report that apixaban (5 mg/day) can possibly resolve a thrombus formation in the left atrium.

BACKGROUND

For resolution of left atrial appendage thrombi, warfarin is generally used in elderly patients. At present, novel oral anticoagulants have been used to prevent thromboembolic complications associated with non-valvular atrial fibrillation (AF). As shown in a meta-analysis of clinical trials with novel oral anticoagulants, the direct factor Xa (FXa) inhibitor, apixaban, has been shown to be superior to warfarin and safer and more effective than the other novel oral anticoagulants.¹ Apixaban may be a first-line therapy for the prevention of ischaemic strokes and has less bleeding in elderly patients. To the best of our knowledge, the present case is the first documented case involving a left atrial thrombus that was resolved by apixaban, 2.5 mg twice daily, which suggests that the range of this thrombus resolution therapy will be widened.

CASE PRESENTATION

An 86-year-old man was referred to our hospital due to palpitations. He had a history of hyperuricaemia and long-standing persistent AF diagnosed 2 years earlier. He had no hypercoagulability conditions such as an infection, malignant tumours or dissection.

Despite a CHADS₂ score of 1 and a CHA₂DS₂-VASc score of 2, he had not been receiving any anticoagulants. At that time, the ECG showed AF with a ventricular rate of 68 bpm, and the blood tests revealed a creatinine (Cr) level of 1.38 mg/mL (eGFR, 38 mL/min/1.73 m²) and a D-dimer level of 6 µg/mL. Transthoracic echocardiography (TTE) did not reveal any structural or valvular heart disease. The left ventricular ejection fraction was 68% and the left atrium diameter was 48 mm by TTE. However, TTE revealed

a large thrombus formation (48×22 mm) in the left atrium (figure 1A).

Frequent blood sampling was difficult since he was hospitalised because of dementia in another institution. Some reports have demonstrated that left atrial thrombi were resolved by novel oral anticoagulants such as dabigatran and rivaroxaban. We selected apixaban due to his old age and chronic kidney disease. In addition, we thought warfarin control would be very difficult. The direct FXa inhibitor, apixaban, was started. According to the practice guidelines, an appropriate dose of apixaban for him was 5 mg twice daily (dose reduction to 2.5 mg twice daily in patients with at least 2 of the following characteristics: age ≥80 years old, body weight ≤60 kg or serum creatinine ≥1.5 mg/dL). However, due to his advanced age (86-years-old) and renal dysfunction (serum creatinine 1.38 mg/dL), the dose was set at 2.5 mg twice daily. After 2 weeks of apixaban treatment, the TTE showed a decreased thrombus size (40×24 mm; figure 1B). After 4 weeks, the thrombus was even smaller (34×14 mm; figure 1C). He remained on anticoagulant therapy with apixaban for 11 more weeks, and the TTE showed a slightly smaller thrombus (15×6 mm; figure 1D), and the D-dimer level was 2.9 µg/mL at the end of that period. Moreover, MRI of the head revealed no fresh infarctions or strokes before or after the anticoagulant therapy. During the oral anticoagulant therapy, no serious bleeding complications, systemic embolisms or strokes were noted.

OUTCOME AND FOLLOW-UP

The patient has been visiting the outpatient clinic of our institute without any complications.

DISCUSSION

Generally, the risk of a stroke is high in patients with AF. Anticoagulant therapy is an important part of stroke prevention, and until recently it has been performed in combination with a vitamin K antagonist, usually warfarin. For stroke prevention, warfarin is highly effective; however, it is difficult to be controlled due to its narrow therapeutic range, food and drug interactions, and varying response among individuals. Furthermore, it requires regular monitoring of the International Normalised Ratio. However, the effectiveness of the novel oral anticoagulant therapy for the prevention of strokes or systemic thromboses has been confirmed, and it is thus used clinically.

In the ARISTOTLE (Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial

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To cite: Dobashi S, Fujino T, Ikeda T. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-203870

Figure 1 Transthoracic echocardiography (TTE) in the long axis view. (A) First transthoracic echocardiography. A large thrombus in the left atrium (48×22 mm). (B) Decreased thrombus formation after 2 weeks on apixaban. (C) Decreased thrombus formation after 4 weeks, showing a 34×14 mm mass. (D) Last TTE after 11 weeks on apixaban, showing a 15×6 mm mass (Aorta; Left atrium).

Fibrillation) study, apixaban was found to be superior to warfarin in preventing strokes or systemic embolisms. It also caused less bleeding and resulted in a lower mortality.² Apixaban is a rapidly absorbed oral FXa inhibitor with an 8–15 h half-life and 25% renal excretion, which is lower than the other novel oral anticoagulants.³ The difference in blood concentration between the peak and trough values is small. The stable blood concentration even with renal dysfunction and in elderly patients might be the reason for the lower risk of a stroke, systemic embolism or bleeding.

Recent case studies have shown that dabigatran, rivaroxaban and apixaban can resolve left atrial thrombi and deep vein throm-

boses.^{4–8} In these case studies, regular dosages of the drugs were used to resolve the thrombi. A relative predominance of the plasma fibrinolytic activity over the thrombin activity is the inference of a regression of the thrombi.⁹ Moreover, there was a report about rebaroxaban causing looser clots, which are more sensitive to the fibrinolytic enzymes, FXa inhibitors of thrombin, which may be the reason for the dissolution of the left atrial thrombi.^{7 10}

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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Patient's perspective

Apixaban, 2.5 mg twice daily, prevents strokes as well as possibly may be useful to resolve an atrial thrombus formation in elderly patients without serious bleeding.

Learning points

- ▶ A novel oral anticoagulant, apixaban (2.5 mg twice daily), resolved a large thrombus formation in the left atrium.
- ▶ Apixaban can be used to resolve atrial thrombi in elderly patients without any major bleeding complications.
- ▶ For resolution of thrombi in the left atrium, several weeks will be needed when the drug is applied.

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