

**Reversal of anticoagulation with dabigatran in a spontaneous haemopericardium using the new antidote idarucizumab.**

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Idarucizumab is an antibody fragment capable of reversing the anticoagulant effects of Dabigatran within minutes; hereby, we present the case of a spontaneous haemorrhagic pericardial effusion solved with Idarucizumab and pericardiocentesis.

An 81-year-old man with a history of hypertension and diabetes mellitus presented to our ER, reporting 2 days of malaise and fatigue. His medication included Cardioaspirin, Enalapril, Valsartan, Hydrochlorothiazide, Amlodipine and Metformin. The patient was eupnoeic and afebrile, his renal function was mildly impaired (eGFR: 53.9 ml/min), his white cell count, CRP and fibrinogen were elevated, the EKG revealed an atrial fibrillation with ventricular response of 130 bpm. A chest X-ray revealed an unclear massive opacity of the right lung (Fig. A), then better investigated with a CT showing cardiomegaly with a mild pericardial effusion (Fig. B). The patient underwent a successful pharmacological cardioversion with amiodarone and anticoagulation with Dabigatran 110 mg b.i.d. was started; he was discharged with aspirin discontinuation and a change in his antihypertensive therapy: Enalapril was stopped and Valsartan dose was doubled.

Fifteen days later, the patient returned to the ER complaining about dyspnoea, arterial desaturation, anuria, psychic numbness, hypotension (86/50 mmHg). The laboratory exams showed a collapse of renal function (eGFR: 17 ml/min/1.73 m<sup>2</sup>), hyperkalemia (7.2 mmol/L), alterations of clotting times and a persistent increase of inflammatory markers. A chest X-ray showed pulmonary congestion, cardiomegaly and bilateral pleural effusion (Fig. C); an abdominal echography showed ascites, an empty bladder and excluded hydronephrosis defining a pre-renal insufficiency. The hypotension, the EKG finding of reduced voltage QRS and the echocardiogram showing a heart swinging in a massive pericardial effusion with diastolic collapse of the right ventricle defined the diagnosis of cardiac tamponade. A Dabigatran concentration test was performed with a result of 1005 ng/ml (therapeutic range: 91 – 175 ng/mL), so Idarucizumab was used to reverse its anticoagulant effect. The metabolic acidosis and pre-renal insufficiency were treated with bicarbonates, dopamine and furosemide. Haemodialysis was performed for both renal insufficiency and Dabigatran accumulation. An ultrasound-guided pericardiocentesis drained 1120 mL of hematic fluid, with an immediate improvement of haemodynamic status.

The chain of events leading to acute kidney failure, Dabigatran accumulation and eventually to haemopericardium is clear. Why did the haemorrhage involve the pericardium? We think that the patient already had a baseline pericardial inflammatory status. This silent pericarditis, in conditions of supratherapeutic anticoagulation, led to a small and constant bleed into the pericardial sac.

