A Rare Case of Diffuse Alveolar Hemorrhage Secondary to Dabigatran Successfully Treated with Extracorporeal Membrane Oxygenation

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Introduction

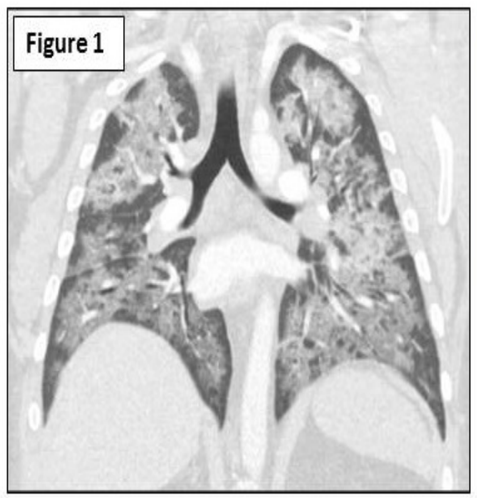
Dabigatran, a direct thrombin inhibitor, is used for stroke risk reduction in non-valvular atrial fibrillation and for treatment and prevention of venous thromboembolism.

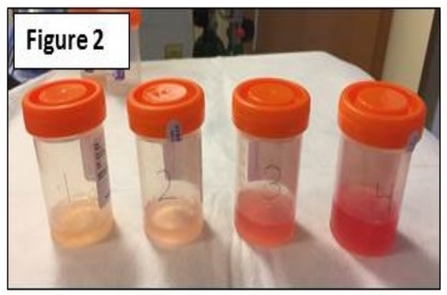
Minor side effects include indigestion and stomach pain.

Major life threatening bleeding occurs in up to 2% of patients and is largely attributed to gastrointestinal hemorrhage.

Here, we describe a case of a dabigatran related diffuse alveolar hemorrhage (DAH) treated successfully with extracorporeal membrane oxygenation

Images





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Case Summary

40 year old gentleman with a history of obesity, atrial fibrillation, and prior provoked pulmonary embolism on dabigatran presented for elective cardioversion.

12 hours post procedure, he developed hypoxia, pink tinged sputum and dyspnea.

WBC 18.4 x109/L, HGB 14.5g/dL, PTT 46sec, INR 1.45, lactate 1.2mmol/L, Troponin T <0.01ng/mL.

Chest computed tomography showed diffuse bilateral groundglass opacities sparing the periphery, and did not reveal pulmonary emboli or effusion (Figure 1).

Initial therapies: noninvasive ventilation, diuresis, and dabigatran reversal with idarucizumab

The patient was intubated and managed with lung protective ventilation, deep sedation and neuromuscular blockade.

Venovenous extracorporeal membrane oxygenation (VV ECMO) with prone positioning was initiated for refractory hypoxemia.

bronchoscopy with sequential bronchoalveolar lavage: progressively hemorrhagic lavage samples (Figure 2), cytology, hemosiderin laden macrophages.

An extensive serologic workup did not reveal an underlying systemic disease. The patient required VV ECMO for 20 days, and after 6 weeks of hospitalization he was discharged to a rehabilitation center. A new deep vein thrombosis was diagnosed during the hospitalization and he was discharged on warfarin. He successfully completed a course of anticoagulation and is now in sinus rhythm.

Discussion

DAH is generally associated with vasculitis, autoimmune disease or primary pulmonary pathologies.

DAH has been described with clopidogrel, warfarin, and in case reports with apixaban.

Dabigatran, a direct thrombin inhibitor, has been associated with alveolar hemorrhage in only two prior reports, to our knowledge

In both cases the patients were elderly (>75 years), and managed with supportive care with either noninvasive or invasive ventilation and discontinuation of the drug.

This case is important to discuss as it highlights a rare and potentially fatal side effect of a novel anticoagulant. Treatment with idarucizumab was not sufficient to reverse the progression of DAH in this case, and the patient required VV ECMO, with a good outcome.

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