An Uncommon Complication of a Common Medication: Diffuse Alveolar Hemorrhage Secondary to Supratherapeutic INR

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An Uncommon Complication of a Common Medication: Diffuse Alveolar Hemorrhage Secondary to Supratherapeutic INR

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INTRODUCTION

Diffuse alveolar hemorrhage (DAH) is an uncommon cause of acute hypoxic respiratory failure. The many etiologies for DAH include infection, connective tissue disease, vasculitis, and inhalational injury. DAH secondary to a supratherapeutic INR is a known but rare complication of warfarin which is only reported in a paucity of case reports.[1-5] High index of suspicion is necessary in order to diagnose DAH in this rare instance.

CASE DESCRIPTION

A 73-year-old female with COPD, diastolic CHF, end stage renal disease, and atrial fibrillation presented to the hospital in respiratory distress. On exam, she was hypoxic with an oxygen saturation of 80% on ambient air. She acknowledged non-compliance with a fluid restrictive diet. A chest x-ray showed diffuse pulmonary infiltrates with no pleural effusions (Image 1) initially interpreted as pulmonary edema. The patient was emergently hemo-dialyzed removing two liters of fluid and placed on BiPAP without improvement. Due to persistent respiratory distress, she was ultimately intubated. A CT scan of the chest revealed diffuse ground-glass opacities and no interlobular septal thickening to suggest interstitial edema (Image 2). Based on these findings, a bronchoscopy was done with three subsequent bronchoalveolar lavages (BAL) consistent with DAH. Her initial INR was 9.5 and Vitamin K was administered for reversal of warfarin. Serologies for vasculitides and connective tissue disease including ANA, ANCA, C3 and C4, cryoglobulins, anti-GBM, and RF were normal. The BAL viral panel and bacterial cultures were also negative. DAH was attributed to the supratherapeutic INR. After reversing the INR, the patient began to improve and was eventually discharged home.

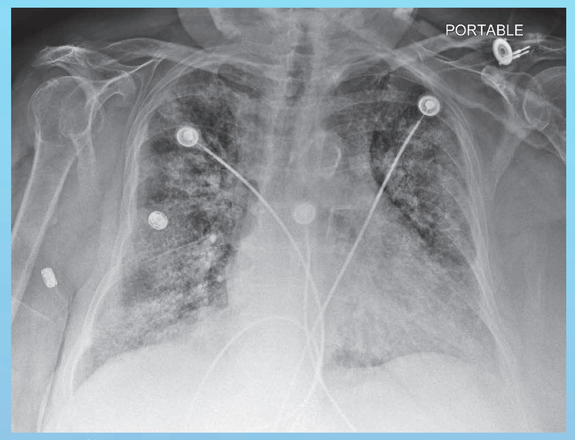

Image 1. Chest x-ray showing pulmonary vascular congestion as well as interstitial edema.

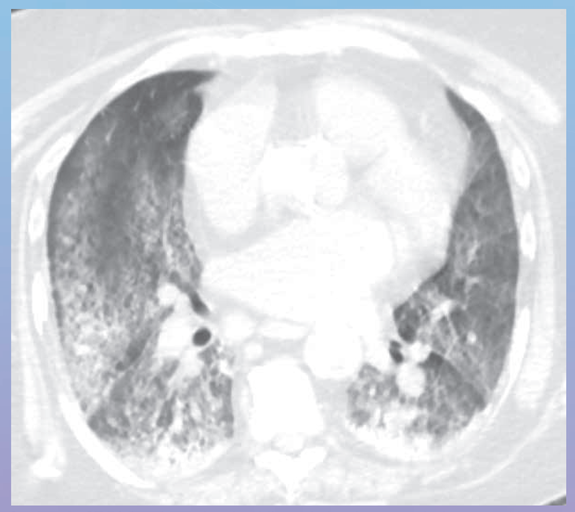

Image 2. CT of the chest showing bilateral alveolar ground-glass opacities involving he upper lobes as well as the right middle and left lower lobes.

DISCUSSION

DAH can be a diagnostic challenge. It requires a high degree of clinical suspicion in patients presenting with a supratherapeutic INR and respiratory distress. DAH must remain on the differential for patients on warfarin in respiratory distress and bilateral infiltrates on x-ray, particularly when heart failure is a comorbidity, as high pulmonary vascular pressures can facilitate alveolar hemorrhage. Treatment for DAH related to anticoagulation is reversal of coagulopathy with vitamin K, and, if needed, prothrombin complex concentrate or fresh frozen plasma. We have found no specific recommendations regarding the timing of reinitiation of anticoagulation.

REFERENCES

1. Waness A, Aldabbagh T, Harakati M. Diffuse Alveolar Haemorrhage Secondary to Warfarin Therapy for Atrial Fibrillation: A Case report and literature review. *BMJ Case Reports*. 2009;2009:bcr08.2008.0757.
2. Erdogan D, Kocaman O, Oflaz H Goren T. Alveolar Hemorrhage Associated with Warfarin Therapy: A Case Report and Literature Review. *International Journal of Cardiovascular Imaging*. 2004;20(2): 155-159.
3. Klenner A, Friesecke S, Schaper C, Ewert R, Glaser S. Diffuse Alveolar Hemorrhage with Acute Respiratory Distress Syndrome Associated with Phenoprocoumon Therapy. *Blood Coagulation & Fibrinolysis*. 2008; 19(8):813-815
4. Itoh M, Oh-ishi S, Nemoto K, et al. A Case of Diffuse Alveolar Hemorrhage Associated with Tegafur Plus Uracil and Warfarin Therapy. *Clinical Medicine Insights Case Reports*. 2011;4:73-77.
5. Heffler E, Campisi R, Ferri S, Crimi N. A Bloody Mess: An Unusual Case of Diffuse Alveolar Hemorrhage Because of Warfarin Overdose. *American Journal of Therapeutics*. 2016; 23(5):e1280-e1283.

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