Heparin-induced gross haematuria: a case study

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INTRODUCTION

Haematuria defines as a presence of red blood cells in the urine. A frequency of gross haematuria is unknown. There is a long list of aetiologies that falls under the differential diagnosis of gross haematuria (Shatat, 2018). To know the origin of haematuria, the physician should obtain the detailed history of the patient to differentiate between haematuria, whether it is due to any trauma, medications or any history of blood disorders. Clinical manifestations in patients with haematuria play a significant role such as elderly patients, male gender, history of any urologic disease or history of cigarette consumption. A prior history of urologic disease or a presence of flank pain should be noted. Patients present with gross or microscopic haematuria should undergo a thorough urologic evaluation. Complete blood count and urine evaluation can specify the cause of haematuria. In our three cases, the patient developed gross haematuria but with differential diagnosis. The most common thing between all the instances was anti-coagulation therapy. Heparin was used as an anti-coagulant, and it works as a blood thinner. Heparin is basically used to prevent blood clots and its growth, which has been formed in the blood vessels. Heparin can be given as an intravenously or subcutaneously form. Heparin is associated with some severe adverse effects such as thrombocytopenia, hypersensitivity, erythema or many more. In our consecutive three cases, heparin induces gross haematuria, which showed a causal relation with heparin. Naranjo’s causal assessment scale was used to determine the causality of the drug, where it reveals the definite relationship between drug and adverse-effect.

CASE HISTORY

Case 1
Mrs YZ 85 years old female visited casualty/ICU department with a chief complaint of chest pain from past one hour that radiated towards her left arm. Her vitals were found to be healthy. Her abnormal laboratory values are presented in Table 1.

Table 1: Laboratory investigations for above mentioned three cases

| Parameter          | Abnormal value (Case 1) | Abnormal value (Case 2) | Abnormal value (Case 3) | Reference range |
|--------------------|-------------------------|-------------------------|-------------------------|----------------|
| Haemoglobin        | 10.8 g/dL               | 9.6 g/dL                | 20.3 g/dL               | 12-16 g/dL (Female) |
| Sr. creatinine     | 1.7 mg/dL               | 1.4 mg/dL               | 1.6 mg/dL               | 0.6-1.2 mg/dL (Male) |

She was provisionally diagnosed with chest pain for evaluation and unstable angina. She was treated with Aspirin, Clopidogrel, Atorvastatin, Inj. Heparin (Un-fractioned heparin) 5000 IU. On day 2 by 6:00 A.M she had a complaint of passing blood through urine two times after this physician stopped heparin.

Case 2

Mrs BC 75 years old female visited casualty/ICU department with a chief complaint of breathlessness on & off, expectoration from past three days, swelling of face and legs along with chest pain. On examination, she was conscious, oriented and afebrile. Her vitals were normal except RS: B/L wheeze+ and high BP. She was provisionally diagnosed with SHT/ IHD/ LRI/ CCF/ Giddiness for evaluation. Her abnormal lab value data is presented in Table 1. She has treated with Clopidogrel, Aspirin, Atorvastatin, Enalapril, Heparin 5000 IU, Frusemide, Ranitidine, Dexamethasone and Salbutamol nebulisation. On day 2 she had a complaint of breathlessness, chest pain and blood in the urine. Physician recommended to taper heparin dose from 5000 IU to 2500 IU. On day 3, haematuria was still persistent, and heparin was stopped.

Case 3

Mr EF 49 years old male visited the ICU department with a chief complaint of chest pain from past one week and cough with cold. On examination, his vitals were abnormal and noted with BP: 210/130 mmHg. His abnormal lab values is presented in Table 1. He was provisionally diagnosed with chest pain for evaluation/ accelerated SHTN/ and Acute MI. His ECG showed left the anterior block. He was treated with Inj. Heparin 5000 IU, Frusemide, Ranitidine, Aspirin, Clopidogrel and Atorvastatin. On day 2 he had a complaint of palpitations and haematuria with pain. Heparin was stopped further.

RESULTS AND DISCUSSION

Gross haematuria can be a highly distressing complication for patients. Haematuria can be complicated if left untreated. Here in all the three cases, the patient had a complaint of gross haematuria, and all were on anti-coagulant (Heparin) unfractionated heparin. Physical examination should be done, such as detailed skin examination, abdominal examination or a proper examination of the genitalia. Diagnosis can be made on the basis of laboratory investigations. Urinalysis, blood urea nitrogen and serum creatinine levels shall be done to determine the source of the bleeding. Management can be done on the basis of haematuria. Here we found out the causal relation between drug and haematuria, due to this, the dose of the drug was initially reduced and then stopped after stopping the drug patient didn’t complain of bleeding or pain while passing urine. The ACP (American College of Physicians) has recommended and advises to clinicians to daily review gross haematuria in their routine (Nielsen and Qaseem, 2016).

CONCLUSIONS

To conclude the case study, every suspected should be checked for a causal assessment and its related adverse drug reactions. Heparin is known to cause bleeding, but to differentiate the type of haematuria, it should be analyzed in an appropriate manner. Patient consent was taken for the publication of data.

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