



Case of the Month

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"Hypophosphatemia Presenting as a Panic Attack: A Case Report"

INTRODUCTION

Panic disorder is extremely common. Up to ten percent of adults experience partial manifestations of panic disorder at some point in their lives. Clinical presentations are variable; patients can present with chest pain, dizziness, or paresthesia and it can be difficult to decide how far to investigate other potentials once the diagnosis of panic disorder is suspected. In an attempt to balance a thorough and conscientious approach when intuition suggests the condition is psychogenic, it is not uncommon to do extensive testing before comfortably making the diagnosis. This report describes a case of an unusual clinical presentation of a panic attack in a patient with hypophosphatemia.

CASE PRESENTATION

A 27-year-old lady was brought by ambulance to the Emergency Department (ED) complaining of dyspnea, pleuritic chest pain and muscle twitching for two hours. Primary survey was normal except for tachypnea.

She had no medical or family history of anxiety or mood disorder. Her past medical and surgical history was unremarkable. After arrival, she suffered a sudden deterioration. Vitals were as follows: BP 120/95 mm Hg; pulse rate 125 bpm; respiratory rate 32 breaths/min; oxygen saturation was 100% on 15 L of oxygen. She appeared tremulous, sweaty and anxious. Her cardiovascular, respiratory and abdominal examinations were unremarkable. ECG showed sinus tachycardia, random blood sugar was normal.

Patient improved only slightly after a dose of 2 mg IV Midazolam. Venous blood gas analysis showed respiratory alkalosis. Electrolytes were within normal limits, except for a low phosphate level of 0.31 mmol/L. CBC, Urea/ creatinine, cardiac troponin, and D-dimer were all normal. Chest X-Ray showed clear lung fields bilaterally.

She was given 1 Liter IV normal saline, and another dose of 3 mg IV midazolam was added. However, symptoms persisted. After two hours of ED stay, patient was still symptomatic. Therefore, the decision was made to substitute the only abnormal electrolyte. 30 mmol of IV sodium phosphate was infused over two hours. An hour later symptoms had completely resolved.

Patient was kept in observation for an additional two hours, then discharged home with a follow up to the primary health care after a month. In the clinic patient denied any symptoms since discharge from ED, and her phosphate level remained normal.

DISCUSSION

This case is instructive because hypophosphatemia is not listed in the literature as a cause of panic disorders. However, some case reports described presentations of panic disorders and linked it to hypophosphatemia.

The challenge with this spectrum of presentation relies in the need to exclude other emergency causes; ACS and PE in our case. Phosphorous plays a key role in many processes- including the maintenance of cell structure, cellular metabolism, regulation of intracellular enzymes and acid-base homeostasis. Therefore, hypophosphatemia affects the body on multiple levels.

Hypophosphatemia is caused by an increase in phosphofructokinase activity, an enzyme that represents the rate-limiting step in glycolysis, triggered by a fall in intracellular carbon dioxide levels. Increased phosphorylation triggers increased cellular uptake of phosphate and consequent hypophosphatemia.

The clinical manifestations usually result from the effect of low phosphate on the musculature, resulting in muscle weakness, rhabdomyolysis, hemolysis, altered mental state and panic. These manifestations usually arise in the context of severe hypophosphatemia of <0.4 mmol/l.

CONCLUSION

Panic disorder presentations are nonspecific, and it should therefore be considered as a diagnosis of exclusion. Clinicians should maintain a low threshold to investigate all possible causes before establishing the diagnosis. Hypophosphatemia can result in a resistant attack of panic; replacement should be done acutely. Fortunately, the outcome was remarkable in our case. We suggest measuring phosphate level in all patients presenting with panic disorders, and treating the deficient. Further studies are needed to solidly link hypophosphatemia to panic disorders.

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