It Wasn't A Duck: A Case of the Misdiagnosis of Ketoacidosis

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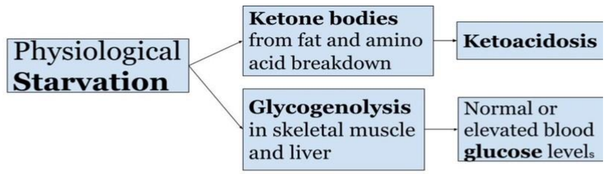
INTRODUCTION

- Ketoacidosis is a complicated physiological state resulting from fatty acid and amino acid degradation often associated with type 1 diabetics presenting in diabetic ketoacidosis(DKA)
- It can also arise with excess alcohol consumption, pregnancy, starvation, and exercise. Levels of ketone bodies can be detected in blood or urine.
- We present the case of a young non-pregnant female with history of excess alcohol use and treatment for presumed diabetic ketoacidosis who presented with unremitting abdominal pain, nausea, vomiting with elevated blood glucose levels. She improved clinically with treatment for starvation ketoacidosis, not diabetic ketoacidosis.

- Physiology of Starvation



- Multifactorial Nature of Ketosis

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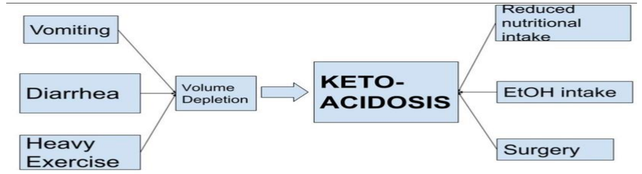

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CASE DESCRIPTION

- 31 year old female with a past medical history of excess alcohol consumption and suspected diabetes presents with 5 day history of diffuse achy abdominal pain associated with intermittent nausea, vomiting. She endorses increased urinary urgency, fatigue, decreased appetite, and unintentional weight loss of roughly 20 pounds in recent months.
- Of note, she had a similar presentations to our facility several times in last year when she was treated for diabetic ketoacidosis and discharged on a home insulin regimen. On the first and third admissions, she had been started on an IV insulin infusion, and on the second admission, she was only given a small bolus of IV insulin. She was continued on a home insulin regimen on discharge each time
- Pertinent Investigations: Elevated blood glucose of 240 on admission, elevated anion gap of 15, bicarbonate of 24, elevated serum beta hydroxybutyrate, normal lactic acid, normal blood alcohol level, low phosphate and low magnesium
- Patient Progress: Crucially on this admission her blood ketone and glucose levels gradually normalized with very minimal insulin requirements (a total of three units of rapid-acting insulin throughout the three day admission, and no IV insulin infusion) and initiation of only 5% dextrose-normal saline fluids. She displayed no signs and symptoms of alcohol withdrawal. Electrolytes particularly phosphate and magnesium were repleted.
- Outcome: She was discharged on oral thiamine for 30 days. A registered dietitian met with patient giving her guidance on healthy dietary habits; she received counselling on alcohol cessation. We advised her that she was likely never a diabetic and to stop taking insulin at home.

DISCUSSION

- This patient's initial hyperglycemia was likely multifactorial in the setting of rebound hyperglycemia after inappropriate insulin administration, chronic alcohol use and starvation ketoacidosis (1,2)
- The presence of ketoacidosis and elevated blood glucose (albeit only mild) may cause clinicians to suspect a possibility of euglycemic diabetic ketoacidosis; however, this is a misdiagnosis due to how the patient responded to our treatment plan on this admission.
- On the first admission as noted previously, she had only been diagnosed with pre-diabetes. However, in subsequent documentation, this diagnosis changes to diabetes mellitus type 2, with associated non-compliance to her insulin regimen, and the diagnosis is then carried forward for the next several encounters without any correction.
- Ultimately, the case required we look holistically at the patient, taking into account the patient's social history, nutritional intake, and past treatment measures that failed to resolve the issue at hand---starvation ketoacidosis, not diabetic ketoacidosis.

References

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