

Case Study 1: Patient N.B.

Diabetic Ketoacidosis

Patient Profile

N.B., a 34-year-old Native American man, was admitted to the emergency department after he was found unconscious by his wife in their home.

Subjective Data (Provided by Wife)

- Was diagnosed with type 1 diabetes mellitus 12 mo. ago
- Was taking 50 U/day of insulin: 5 U of lispro insulin with breakfast, 5 U with lunch, and 10 U with dinner Plus 30 U of glargine insulin at bedtime
- States a history of gastroenteritis for 1 wk with vomiting and anorexia
- Stopped taking insulin 2 days ago when he was unable to eat

Objective Data

Physical Examination

- Breathing deep and rapid
- Fruity acetone smell on breath
- Skin flushed and dry

Diagnostic Studies

- Blood glucose level 730 mg/dL (40.5 mmol/L)
- Blood pH 7.26

Discussion Questions

1. Briefly explain the pathophysiology of the development of diabetic ketoacidosis (DKA) in this patient. DKA occurs by not enough insulin > blood sugar becomes very high > cells break down protein and fat into energy > ketones build up leading to Acidosis. N.B. not taking his insulin for 2 days along with gastroenteritis increased the blood glucose and led to DKA.
2. What clinical manifestations of DKA does this patient exhibit? The clinical manifestations of DKA exhibited by the patient include breathing deep and rapid, fruity acetone smell on breath, and skin flushed and dry.
3. What factors precipitated this patient's DKA? N.B. had gastroenteritis which caused stress on his body and increased his blood glucose increasing the demand of insulin. N.B.'s caloric intake decreased due to vomiting and anorexia, and he stopped taking his insulin. This caused his cells to starve and break down fat and protein releasing ketones which caused acidosis and resulted in DKA.
4. Priority Decision: What is the priority nursing intervention for N.B.? The priority nursing intervention for N.B. is to rehydrate.
5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia? Hyperosmolar hyperglycemic syndrome the blood glucose is high just like in DKA, but there is just enough insulin so no acidosis is present. On the contrary, Hypoglycemia is low blood glucose with symptoms including cool and clammy skin, palpitation, and irritability.
6. Priority Decision: What is the priority teaching that should be done with this patient and his family? The priority teaching to be done with the patient and his family is the importance of continuing to take all medications and insulin as prescribed even when sick.

7. What role should N.B.'s wife have in the management of his diabetes?

N.B.'s wife will have a direct role. She should be monitoring his caloric intake, blood glucose, and s/s of hyperglycemia.

8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Based on the assessment data presented, N.B. had deficient knowledge about sick day rules, improper nutrition, and not enough fluids.

Are there any collaborative problems?

The collaborative problems with N.B. include being unconscious and hyperglycemia.

9. Evidence-Based Practice: N.B.'s wife asks you if she should have given her husband insulin when he got sick? How would you respond?

I would educate N.B.'s wife about sick day rules and diabetes management. Emphasizing on the importance of monitoring glucose levels and administering insulin when her husband is sick. I would also teach her the S/S of hyperglycemia.