

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.
Diabetic ketoacidosis is a complication of diabetes characterized by production of high levels of ketones. This happens when the body is unable to produce enough insulin. Because NB stopped taking his insulin when he felt ill, and his body does not independently produce insulin, he developed this condition.
2. What clinical manifestations of DKA does this patient exhibit?
 - shortness of breath
 - fruity scented breath
 - hyperglycemia
 - elevated blood pH
3. What factors precipitated this patient's DKA?
This patient's DKA was precipitated by being unable to keep food down and also not taking his insulin.
4. Priority Decision: What is the priority nursing intervention for N.B.?
The first priorities for this patient are fluid replacement and administration of insulin.
5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia?
Hyperglycemia is present in both HHS and DKA, however ketoacidosis is unique to DKA. The patient's blood glucose of 730 is however still in the hyperglycemic range, ruling out hypoglycemia.
6. Priority Decision: What is the priority teaching that should be done with this patient and his family?
Priority teaching includes to be very cautious when ill or if you have an infection, and that it is extremely important to continue monitoring your blood glucose and taking your diabetes medication exactly as prescribed.
7. What role should N.B.'s wife have in the management of his diabetes?
She should be cognizant of his condition and how insulin plays a vital role in his health, if she is supportive then he is more likely to be proactive about his health and stick to his regimen. Also, if she leads a healthy lifestyle by example it could encourage him to follow.
8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses?

Are there any collaborative problems?

- ineffective breathing caused by acidosis
- ineffective blood glucose monitoring
- ineffective insulin regimen

It is evident that at some point, a care team member was not thorough enough in explaining the importance of maintaining his insulin regimen even when he is feeling ill, it is important to communicate correctly as a nurse.

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?

- Tell her that this is not her fault, but that in the future it is good to know that insulin must not be stopped even if the patient is ill and that if he needs her help administering it, she should help him.