Sarah Kearney

**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 mmo1/L)
- Blood pH 7.26

**Discussion Questions**

1. Briefly explain the pathophysiology of the development of diabetic ketoacidosis (DKA) in this patient.

DKA is caused by a profound lack of insulin in the body. The body begins to break down fats, which are processed by the body to produce ketones. The ketones cause the blood to become acidic and can be deadly for patients as they develop metabolic acidosis, as seen by the low blood pH.

2. What clinical manifestations of DKA does this patient exhibit?

The patient has kussmaul breathing, fruity smelling breath, loss of appetite, dry, flushed skin, acidic blood pH and high blood glucose.

3. What factors precipitated this patient's DKA?

The patient stopped taking their insulin when they did not have an appetite, which caused their blood glucose to keep rising

4. Priority Decision: What is the priority nursing intervention for N.B.?

The most important thing is to give the patient IV fluids to rehydrate him.

5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia?

DKA is most commonly seen in T1DM and has a rapid onset. The patient had a low blood pH while one with HHS would have a higher blood pH. Another distinguishing factor is the fruity breath odor that DKA patients have.

6. Priority Decision: What is the priority teaching that should be done with this patient and his family?

Teach the patient that even when sick, he should still take his insulin on schedule since his body is not producing insulin. This is called the "sick day" rules and if appropriate, find a handout that outlines these guidelines for the patient to reference at home.

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

She can remind him to take his insulin as well as helping him remember to check his glucose. Furthermore, I as the nurse could teach her symptoms of DKA and hypoglycemia so that she can be able to notice if her husband is experiencing symptoms.

8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Are there any collaborative problems?

The priority nursing diagnosis is impaired nutrition, fluid imbalance, and deficient knowledge on insulin administration. A dietician/ nutritionist or HCP may need to collaborate to help him get the nutrition he needs as well as addressing anorexia signs and if gastroenteritis is impeding his nutrition.

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?

Yes, you should give your husband insulin because as a type 1 diabetic, his body cannot produce his own insulin. Even if he does not have an appetite, it is important to continue administration of insulin on schedule and encourage eating something and drinking noncaloric fluids.