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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 occurs because of insulin deficiency, the body starts to break down fat to use for energy creating ketones. The overproduction of ketones accumulates in the blood and urine and turns the blood acidic.**

2. What clinical manifestations of DKA does this patient exhibit?
   - **dehydration, deep and rapid breathing, dry skin, fruity breath odor**

3. What factors precipitated this patient's DKA?
   - **being type 1, infection (gastroenteritis), inadequate insulin dose (stopped taking insulin 2 days prior)**

4. Priority Decision: What is the priority nursing intervention for N.B.?
   - **establish IV access & start on saline, along with insulin drip & potassium replacement as needed.**

5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia?
   - **HHS typically occurs in the elderly & with T2DM because there is still enough circulating insulin to prevent ketoacidosis. Also, his blood sugar is way too high to be considered hypoglycemia.**

6. Priority Decision: What is the priority teaching that should be done with this patient and his family?
   - **Lethargy and weakness can indicate DKA, along with dry and skin & loose and eyes are soft & sunken. Stay hydrated!! Monitor blood glucose regularly and do not stop taking insulin when you are sick/unable to eat! If he is not eating, find alternatives to ensure he is getting proper nutrition & to accompany insulin.**

7. What role should N.B.'s wife have in the management of his diabetes?
    - **Be his support and increase her knowledge of diabetes and any possible symptoms of when a problem may occur. She can also take charge of her health to help encourage him to do the same.**

8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Are there any collaborative problems?
    - **His gastroenteritis was most likely a trigger for his DKA episode. Diarrhea & nausea/vomiting can lead to dehydration which can also affect LOC.**

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, always take your insulin even if you are sick. Not taking can lead to DKA. If they are unable to eat, give carbohydrate-containing fluids.**