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 an acute metabolic complication of diabetes characterized by hyperglycemia, hyperketonemia, and metabolic acidosis. This patient stopped taking his insulin which caused his sugar to increase dangerously high and him to become super dehydrated. The patient's body is breaking down fat at an extremely fast rate where the liver is processing it as ketones which causes the blood to become acidic.

2. What clinical manifestations of DKA does this patient exhibit?
Patient is showing fruity breath which is one of the number one indication of DKA. The patients BG is 730 which is abnormally high. The patient is showing symptoms in HHS the patient does not show symptoms. This patient is weak and was found unconscious. The blood pH is abnormal as well it is more acidic.

2. What factors precipitated this patient's DKA?
   Patient got sick and stopped taking medication. You never stop insulin even if you are vomiting and not eating adequately. You always take it.

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

   Fluids the patient needs fluid and then insulin. We need to get this patient IV fluids as soon as possible. We need to check electrolytes and see if the patient is in need of electrolyte replacement such a K+.

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

In HHS the patient would not likely be showing symptoms. They would not have ketones in their urine. HHS is usually seen in elderly while DKA is commonly seen in type 1 diabetes. This patient pH is decreasing meaning that its more acidic in HHS it would be increasing making it less acidic. Hypoglycemia the patient BG would be low like lower than 70 here the patient BG is extremely high. Also in hypoglycemia we would treat by giving carbohydrates and not by giving insulin.

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

Most important to never stop taking your inulin no matter if you're sick if your vomiting if you're not eating that well always take your insulin.

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

To make sure he is being compliant when it comes to his insulin and his taking them at the right times and every day.

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

Patient is at risk of fluid volume deficit due to decrease fluid intake, vomiting and hyperglycemia- induced osmotic diuresis.

Collaborative problems of LOC, kidney failure, liver failure, and death

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 never stop insulin sick or not. You always continue because it could make things worse and cause DKA or HHS. Also teach the patient about sick day rules.