

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 is a serious health condition that mostly affects Type 1 DM patients. It is characterized by profound insulin deficiency in the blood caused by stress, illness, and inadequate to no insulin administration causing tremendous glucose spikes.
2. What clinical manifestations of DKA does this patient exhibit? Kussmaul respirations, fruity breath, dry flushed skin, labs indicative of metabolic acidosis, and extremely elevated BG.
3. What factors precipitated this patient's DKA? Illness that led increased BG but patient made the situation worse by stopping to take his insulin despite being unable to eat.
4. Priority Decision: What is the priority nursing intervention for N.B.? Rehydration with 0.9%NS will be priority, then administer insulin drip 0.1 U/kg/hr. When the BG subsides to less than 250, add dextrose to IV fluid.
5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia? HHS is a life-threatening syndrome that mostly occurs with the elderly diabetic pt's who are able to make enough insulin to prevent DKA but not enough to prevent severe hyperglycemia, osmotic diuresis, and extra cellular depletion. Has a more gradual onset and ketone bodies may be absent or minimal in both blood and urine.
6. Priority Decision: What is the priority teaching that should be done with this patient and his family? I would tell N.B to not stop taking his insulin even on his sick days and to closely monitor BG levels and ketones in urine. He should notify HCP immediately of BG levels greater than 300 to avoid going into DKA
7. What role should N.B.'s wife have in the management of his diabetes? N.B's wife should help him properly administer his insulin on a regular basis. Also help him maintain a balanced diet with adequate carbs 45-60%. Walking to help with aerobic exercises and helping him examine his feet daily to ensure there's no bruising or cuts that could turn fatal.

8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Are there any collaborative problems? Nursing diagnoses; Hyperglycemia, lack of knowledge on Type1 DM Collaborative problems?- Yes. Help N.B identify resources that are available to help give more information about living with a chronic condition such as Diabetes. Refer him to an endocrinologist and a nutritionist.
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. Continue to give insulin even on sick days. Him being a Type1 Diabetic, his life is dependent on insulin whether he is sick or not sick.