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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 – Kussmaul
- Fruity acetone smell on breath - DKA
- Skin flushed and dry - Dehydration

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 developed in this patient because he stopped using insulin. DKA is the result when there is no insulin in the system. Where the cells would start breaking down fat, and the byproduct of fats are ketones, which is very acidic, thus resulting to DKA.

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

- Anorexia, Gastroenteritis, Kussmaul's respirations, Fruity smell on breath

3) What factors precipitated this patient's DKA?

- The patient taking insulin when he was unable to eat, probably due to gastroenteritis, vomiting and anorexia

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

- Administer IV fluids of isotonic solution (0.9%) NaCl to correct circulatory fluid volume deficit

5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia?
   - For patients with HHS, it is more common with T2DM, it is where they have enough insulin circulating in their system to prevent DKA, but not enough to take on hyperglycemia. It is also rare and more life threatening than DKA, where it can cause coma, seizures, to hemiplegia and aphasia. Hypoglycemia on the other hand, is not having enough glucose in the system that the whole body shuts down because there is nothing/few left to fuel the whole body.

6. Priority Decision: What is the priority teaching that should be done with this patient and his family?
   - Remember to hydrate and never to forget to take insulin every day.

7. What role should N.B.'s wife has in the management of his diabetes?
   - N.B.'s wife should help him monitor his BG levels, remind him to take his insulin in the right time, remind him to stay hydrated, being aware what are the s/s of hypo/hyperglycemia, report to healthcare provider if there is something not normal.

8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Are there any collaborative problems?
   - Patient has fluid volume deficit, we handled it with starting an IV, stabilizing his fluids first and administer IV insulin. There is also an imbalanced nutrition, that his body is meeting less than the requirements, this could be an effect of anorexia and dehydration. Last is having insufficient knowledge to the disease, this result to his condition right now.

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?
   - (to N.B.'s wife) Yes Ma'am, I advise that you should still continue to give your husband insulin even if he got sick. If the body gets sick, it releases some hormones, and those hormones increases his body's blood sugar and that is one reason why his sugar levels are high because he stopped for a couple of days, it accumulates overtime. Have him eat a liquid diet or something that he can tolerate without vomiting, and still continue to monitor his blood sugar and give him insulin afterwards with the right amount and the right time to prevent hypoglycemia.