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IM3

9/11/2022

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.
 - This pt stopped taking diabetic medication when he was experiencing N/V due to a hx of gastroenteritis.
 - Pt is a type 1 diabetic, so the pt's BS started to rise over 250 mg/dL
 - Pt started to produce ketones in urine and in serum - (fruity breath, Kussmauls breathing, skin dry and flushed)
2. What clinical manifestations of DKA does this patient exhibit?
 - Hyperglycemia – 730 mg/dL – (>250mg/dL)
 - Ketosis – Kussmauls breathing, fruity breath, skin flushed and dry
 - Acidosis – pH 7.26 – (pH <7.30)
3. What factors precipitated this patient's DKA?
 - The pt stopped taking medication when he was sick, it is advised for pts to continue medication even when sick.
4. **Priority Decision:** What is the priority nursing intervention for N.B.?
 - 1st priority is to hydrate the pt. Starting and IV for fluids and electrolytes is important.
 - Continuous regular insulin drip – check BS
 - Get labs to check K⁺ - K⁺ replacement as necessary
5. What distinguishes this case history from one of hyperosmolar hyperglycemic syndrome (HHS) or Hypoglycemia?
 - DKA is usually seen in Type 1 DM and HHS is seen in the elderly – our pt is in his 30's
 - This episode was rapid onset – HHS is gradually onset
 - pH is <7.3
 - Ketones are present in urine and serum – HHS has negative ketones
6. **Priority Decision:** What is the priority teaching that should be done with this patient and his family?

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- Priority teaching would be to advise the pt to continue taking the antidiabetic medication regardless of being sick or not.
 - I would also try to teach the s/s of DKA to the pt and supportive family system
 - I would teach the pt to check BS regularly.
7. What role should N.B.'s wife have in the management of his diabetes?
- The wife's role is to be a positive support system to the pt.
 - The wife should try to implement a diabetic diet for pt.
 - The wife should try to implement taking the medication on time and with or without food.
 - The wife should try to help pt that checking BS regularly is vital.
8. Priority Decision: Based on the assessment data presented, what are the priority nursing diagnoses? Are there any collaborative problems?
- Pt had an episode of DKA
 - If pt is having a GI issues and chronic gastroenteritis, maybe we can try to switch oral antidiabetic medications to injections if necessary.
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?
- It is extremely important for DM pts to continue taking their antidiabetic medication even when they are sick. When the body is sick, there is a release of the hormone cortisol which can change the BS levels. Always continue to closely monitor blood glucose levels.
 - Its important to have the numbers. Our first priority with a DKA pt is to rehydrate the pt with IV fluids. Then our next priority to administer insulin in specific increments (0.1 U/kg/hr). After that we would check his electrolytes to make sure his K⁺ is in good range.