

In the name of God , the compassionate and the merciful

Diabetic ketoacidosis

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Case Presentation

- A 22-year-old man with a 5-year history of type 1 diabetes mellitus was admitted to the emergency department following an episode of gastroenteritis. He presented with nausea, vomiting, abdominal pain and **polyuria**.
- Due to inadequate oral intake on the day of admission, the patient had **reduced his usual insulin dose**.

- On examination the patient was agitated, with an altered mental status (acute confusional state) and Kussmaul respirations. He had mild to moderate dehydration.
- Vital signs:
 T: 36 °C **RR:** 30/min **HR:** 100/min **BP(supine):** 110/70 mmHg, with no orthostatic changes.
- Abdominal examination revealed generalized tenderness without localized signs or rebound tenderness.

- With an initial diagnosis of DKA, an IV infusion of 0.9% sodium chloride was initiated, and laboratory investigations were requested.
- The initial laboratory results after 45 minutes were as follows:

Biochemistry		VBG		U/A		CBC	
BS	560 mg/dl	HCO ₃	3 mEq/l	Ketone	3+	WBC	30000 (P=80%, B=5%)
Na ⁺	142 mEq/l	P _a CO ₂	15 mmHg	Glucose	2+		
K ⁺	5.1 mEq/l	pH	6.92	WBC	20-25/HPF		
BUN	60 mg/dl						
Creatinine	2.5 mg/dl						

- Direct stool exam, blood, urine and stool cultures, ECG, Chest X-ray, triglyceride, and serum amylase were requested.

- Regarding the case, answer the following questions:
 1. What were the **diagnostic criteria for DKA** in the aforementioned patient?
 2. What was the **cause of DKA** in this patient?
 3. What is the best **fluid** for this patient initially and during treatment?
 4. What are the type, dosage, and routes of **insulin** administration for a patient with DKA?
 5. What is your opinion regarding **potassium** and **bicarbonate** administration in a patient with DKA?

6. At what point should **glucose** be added to the intravenous infusion?
7. What is your opinion regarding the administration of **antibiotics** and **heparin** to the aforementioned patient?
8. By which criteria have the **therapeutic goals** for DKA been achieved?
9. What are the causes of **rebound hyperglycemia** during the course of treatment?
10. When can **basal insulin** be used in the treatment of a patient with DKA?
11. What are the major **complications of DKA**?
12. What recommendation do you suggest to **prevent the recurrence of DKA**?



Thank you for your attention