

When metabolic crisis meets cardiac challenge: DKA and NSTEMI in a single patient

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Introduction:

Diabetic ketoacidosis (DKA) and non-ST elevation myocardial infarction (NSTEMI) are severe conditions that occasionally coexist. DKA arises from insulin deficiency, leading to hyperglycemia, ketosis, and acidosis, while NSTEMI results from myocardial oxygen supply-demand mismatch, often due to coronary artery disease (CAD). Both conditions can be fatal if mismanaged. NSTEMI occurs in approximately 3% of DKA hospitalizations in the United States. The interplay between DKA and NSTEMI is bidirectional: DKA exacerbates CAD, potentially triggering ischemia, while NSTEMI worsens metabolic disturbances in DKA. Troponin elevation in DKA patients is linked to increased cardiac risk, and DKA complicates myocardial infarction with nonobstructive coronary arteries, raising mortality and major adverse cardiovascular events.

Case Report:

A 51-year-old man with diabetes, hypertension, and dyslipidemia presented with 2 days of severe chest pain radiating to the left arm, nausea, vomiting, and dyspnea. He had a history of suspected acute coronary syndrome 15 years prior. Vitals showed hypotension (92/68 mmHg), tachycardia (118 bpm), and tachypnea (22 breaths/min). ECG revealed sinus tachycardia with ST depression in V6. Laboratory findings indicated hyperglycemia (20.1 mmol/l), ketonemia (>7 mmol/l), acidosis (pH 7.06), and elevated creatinine (142 μmol/l), confirming DKA. Troponin T was elevated at 56.2 ng/l, rising to 429 ng/l, confirming NSTEMI. Echocardiography showed global hypokinesia, and angiography revealed severe multivessel CAD with left main involvement, necessitating urgent CABG.

Conclusion:

This case highlights the critical but rare coexistence of DKA and NSTEMI, emphasizing the need for prompt recognition and simultaneous management. A multidisciplinary approach is essential to mitigate risks and improve outcomes in such complex scenarios.

Keywords:

Diabetic ketoacidosis (DKA), non-ST elevation myocardial infarction (NSTEMI), acute coronary syndrome (ACS), coronary artery disease (CAD), myocardial ischemia metabolic, acidosis, hyperglycemia.