

Sugar and Stress: Takatsubo Cardiomyopathy Induced by Severe Diabetic Ketoacidosis

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Background

Takatsubo cardiomyopathy, or stress-induced cardiomyopathy, is characterized by transient left ventricular (LV) dysfunction. Patients often present with symptoms of acute coronary syndrome, however are noted to have normal coronary arteries. Various stressors have been known to precipitate Takatsubo cardiomyopathy. We present a case of diabetic ketoacidosis (DKA) inducing cardiac arrest and subsequent Takatsubo cardiomyopathy in a young patient.

Clinical Case

Patient is a 19-year-old male with past medical history of type 1 diabetes mellitus who presented to the emergency room due to altered mental status for one day. He was tachycardic to 124, with blood glucose of 1,123, positive acetone in the serum and ketonuria. Venous blood gas showed a pH of 6.79 and chemistry showed an anion gap of 44. Patient was started on IV fluids, insulin and bicarbonate infusions and admitted to the medical ICU. Labs were noted to improve over the next 12 hours however he was still lethargic. Later in the afternoon, he went into pulseless ventricular tachycardia and ACLS protocol was initiated. Patient was shocked once and given 1 dose of epinephrine and ROSC was achieved after 4 minutes. A bedside transthoracic echocardiogram showed significantly decreased LV function to 20%. Patient was started on dobutamine and transferred to the CCU. He was weaned off of the dobutamine over several days and DKA also resolved. A cardiac MRI did not show any areas of perfusion defect or inflammation. Subsequent TTE showed improvement of EF to 49%.

Conclusion

Takatsubo cardiomyopathy can be caused by various physical or emotional stressors. In this case, our patient presented with severe DKA and had a subsequent cardiac arrest with extreme dysfunction of his left ventricle. This patient was young and had no other risk factors for cardiovascular disease or acute coronary syndrome. A normal cardiac MRI and subsequent improvement in cardiac function support this diagnosis.