

A Case of diabetic ketoacidosis with influenza a co-infection and refractory metabolic acidosis successfully treated with continuous venovenous hemodiafiltration

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ABSTRACT

Introduction: Diabetic Ketoacidosis (DKA) frequently heralds the onset of Type 1 Diabetes Mellitus. Severe DKA coupled with Influenza A co-infection may result in multiorgan dysfunction that may not be responsive to standard DKA therapies. Here, we describe a case with multiorgan involvement and refractory metabolic acidosis in which hemodiafiltration produced impressive results. **Case Description:** A 10-year-old girl, exhibiting polyuria, polydipsia and polyphagia for one month, presented with sudden abdominal pain, fever and tachypnea, and subsequently became unresponsive. Upon presentation, she was in respiratory distress, compensated shock, and a Glasgow Coma Scale (GCS) score of 11. Notably, her blood glucose level was measured high at 24 mmol/L alongside severe metabolic acidosis (pH 6.739, HCO₃ 3.3mEq/L). Further investigations revealed serum sodium 137 mmol/L, creatinine 100 umol/L, serum ketones 5.8 mmol/L, and troponin-I 13199 ng/L. Prompt fluid resuscitation and insulin infusion were initiated. Unfortunately, her GCS declined within five hours of admission, necessitating cerebral resuscitation and hemodynamically required triple inotropic support. Despite efforts, her renal profile deteriorated with refractory metabolic acidosis. Considering the risk associated with intravenous sodium bicarbonate, continuous venovenous hemodiafiltration (CVVHDF) was chosen as the therapeutic modality. Complete resolution of metabolic acidosis ensued after 39 hours, with discontinuation of inotropes at nine days and extubation at 11 days. CVVHDF was discontinued after nine days. **Discussion:** The patient demonstrated a favourable response to hemodiafiltration, resulting in the resolution of severe metabolic acidosis and improvement of multiorgan dysfunction, ultimately leading to survival. Hemodiafiltration emerges as a promising option for managing refractory metabolic acidosis in such cases.