

Saved by Insulin! Continuous Intravenous Insulin Infusion as an Adjunctive Treatment for Refractory Hyperkalaemia

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Abstract

Intravenous insulin infusion which is used in treatment of hyperglycaemic emergencies can cause hypokalemia. We report a case of how this disadvantage was utilised to save a patient with life threatening hyperkalaemia. A 46-year-old lady with diabetes mellitus and chronic kidney disease (CKD) presented with breathlessness for 3 days. She had been taking excessive durian for 5 days before admission. Her medications included atenolol. On examination, she was severely bradycardic with pulse rate of 35 beats per minute. She had clinical features of fluid overload. Her renal profile showed elevated urea (17.5 mmol/l) potassium (7.8 mmol/l) and creatinine (322 umol/l). Electrocardiograph (ECG) showed junctional bradycardia. Despite counselling, she declined renal replacement therapy. Various potassium lowering therapies were given including regular nebulised salbutamol, calcium polystyrene sulfonate, intravenous furosemide, and regular insulin chase. After 5 rounds of insulin chases, potassium level remained markedly elevated at 8.2 mmol/l. When she finally consented, haemodialysis was performed. 9 hours post haemodialysis, potassium level was 7.6 mmol/l. While waiting for a next session of haemodialysis, fixed rate intravenous insulin infusion (0.1 unit/kg/hour) was given with concurrent dextrose fluids. Blood glucose was monitored hourly. 15 hours later potassium dropped to 5 mmol/l. ECG changes resolved with resolution of hyperkalemia. She did not require further haemodialysis. Patients with CKD should be cautious with durian intake as it is rich in potassium and may lead to severe hyperkalemia. This case highlights a novel use of continuous fixed-rate insulin infusion for treatment of refractory hyperkalemia when all else fails.

Keywords: Hyperkalemia, insulin, renal failure

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