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Hyperkalaemia secondary to slow release potassium chloride in patients with normal renal function

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Objective: To highlight the importance of early recognition and management of sustained release potassium chloride (KCl) poisoning in the patient with hyperkalaemia and normal renal function

Case report: Two cases are described from a tertiary emergency department with a presentation of lethargy with an unclear cause. Initial blood tests revealed marked hyperkalaemia (9.8 mmol/ L and 8.4 mmol/L respectively; ref range 3.5-5.5 mmol/ L) with normal renal function. ECG for case one demonstrated sine waves while the ECG for case two demonstrated widening of the QRS complex with peaked T waves, all consistent with hyperkalaemia. There was no history of overdose on initial assessment of either patient. However, considering their normal renal function and no previous renal disease, abdominal X- rays were performed. In both cases, there were radiopaque densities in the gastrum, consistent with KCl tablets. As part of initial management of the hyperkalaemia, case one received 20 mmol 10% calcium chloride and 20 units of Actrapid insulin with 100 mL of 50% dextrose. Case two received 20 mmol 10% calcium chloride, 20 units of Actrapid insulin with 100 mL of 50% dextrose and 300 mL 8.4% sodium bicarbonate. Definitive treatment for both consisted of whole bowel irrigation, commenced in the Emergency Department, with polyethylene glycol (1 L/ hour) via nasogastric tube. The patients were then transferred to the Intensive Care Unit for haemodialysis (1). Both cases had a good outcome. Subsequent ECGs showed normalisation of the QRS complexes and no residual tablets were seen on follow up X- rays. After receiving treatment, one of the patients eventually disclosed to have taken an intentional overdose of sustained release KCl tablets.

Conclusions: The possibility of sustained release KCl poisoning should be considered in all patients who present with hyperkalaemia and normal renal function, even if the history is not suggestive of this. Whole bowel irrigation together with haemodialysis is an appropriate treatment regimen for sustained release KCl poisoning.

References:

1) Gunja, N. Decontamination and enhanced elimination in sustained-release potassium chloride poisoning. Emergency Medicine Australasia, 2011, 23, 769- 772