Haemadsorption therapy for calcium channel blocker overdose: A case report

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Abstract

Background Modern resin filter haemadsorption/hemoperfusion for calcium channel blocker (CCB) overdose is yet to be reported in the published literature. The characteristics of CCB's effectively make them unamenable to removal by haemodialfiltration or charcoal hemoperfusion, however, removal using styrene bead adsorption in an in vitro model has been demonstrated. Its clinical use is described in this case report. Case presentation A male patient in his twenties was admitted with haemodynamic instability and shock into the Intensive Care Unit (ICU), following an overdose of an unknown quantity of a dihydropyridine calcium channel blocker (amlodipine) and risperidone (atypical antipsychotic). Resuscitation and supportive care were administered, but hypotension did not resolve despite the administration of intravenous fluids, infusions of calcium, adrenaline, and hyperinsulinemic-euglycemic therapy (HIE). Methylene blue was then administered to maintain the mean arterial pressures. However, the haemodynamic effect was short-lived and did not allow the weaning of the adrenaline. Drug clearance using hemoperfusion/haemadsorption was attempted using a styrene resin filter. During the two hemoperfusion sessions, each of 6 hours duration, and 24 hours apart, the patient had successfully weaned off all supportive measures and was later discharged home. At the end of each session, significant amlodipine concentrations were detected in blood aspirated from both filters. Conclusions Our case illustrates a temporal relationship between resin hemoperfusion therapy and the resolution of haemodynamic instability and shock. Significant amlodipine concentrations were measured in blood from the filter while shock resolution after initiation of hemoperfusion occurred in less than one elimination half-life of amlodipine.

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