EFFECTS OF INTERVENTIONS FOR CALCIUM CHANNEL BLOCKER POISONING: A SYSTEMATIC REVIEW

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Introduction: There is no evidence-based clinical practice guideline published for the treatment of one of the most severe intoxication: the calcium channel blocker (CCB) poisoning.

Objectives: The objective of this systematic review was to evaluate the effects of current treatments for adults poisoned with CCB on mortality, morbidity, hemodynamics, functional outcomes, hospital length of stay (LOS), intensive care (ICU) LOS, duration of vasopressors use and serum level of CCB.

Methods: A search was done August 1st 2012 without time or language restriction into relevant databases and the gray literature. Any type of study concerning adults poisoned with a CCB looking at the effect of treatments on targeted outcomes were included. Two reviewers independently selected the studies. A group of reviewers abstracted all relevant data using a pilot tested form. Another group analyzed the risk of bias and the studies’ quality with standardized tools. Qualitative synthesis was used to summarize evidence.

Results: 15,621 references were identified by the search strategy. 81 articles and 103 case reports were included (Kappa = 0.8456 CI95%[0.7296-0.8936]). Observational studies were available only for high-dose insulin (HDI) and extra-corporeal life-support (ECLS). Case series and animal studies were found for atropine, vasopressors, calcium, glucagon, lipid emulsion, 4-aminopyridine and levosimendan. Decontamination, pacemaker and plasma exchange were only studied in case series. The risk of bias across studies was high for all interventions and high to moderate for ECLS. HDI seemed beneficial on hemodynamics and maybe on mortality at the risks of hypoglycemia and hypokalemia (low QOE). There was a possible role for ECLS in patients in severe shock or in cardiac arrest to improve survival with documented good functional outcome at the cost of limb ischemia, thrombosis and bleeding (low QOE). The use of
calcium, dopamine and norepinephrine, may also improve hemodynamics and potentially survival without documented important side effects (very low QOE). The use of intralipid may be considered. Inconsistent results from studies with important limitations have been found for other interventions.