

Fomepizole Clearance with Continuous Renal Replacement Therapy

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Background

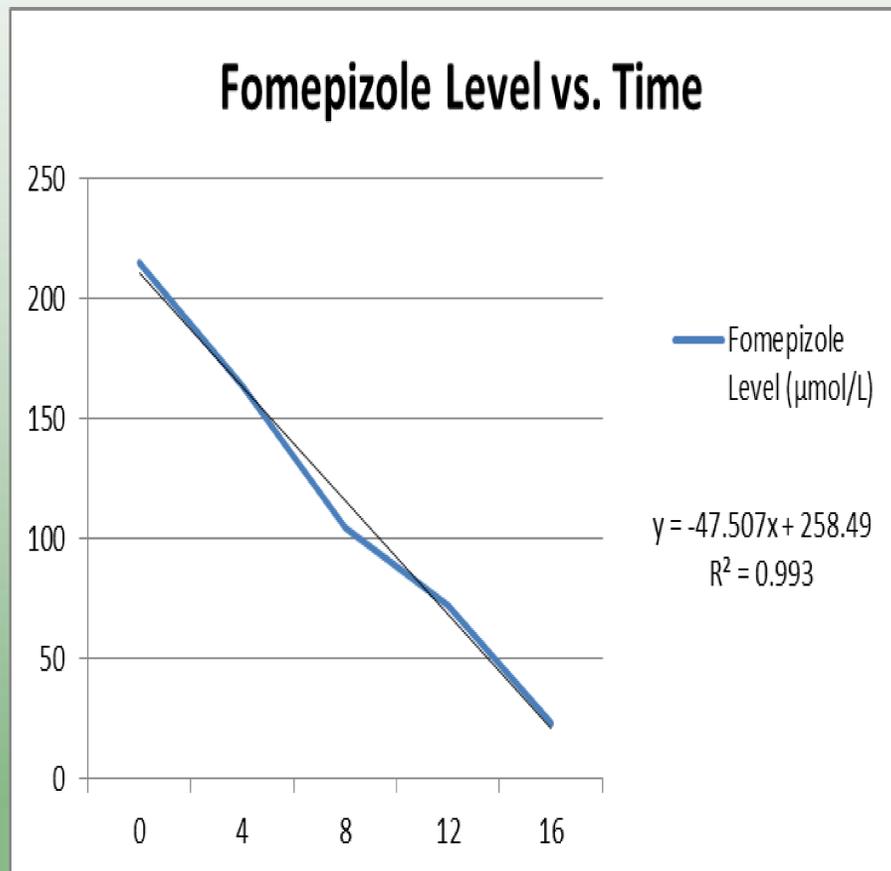
When patients become hemodynamically unstable from the acidosis of toxic alcohol metabolites many nephrologists will prefer to place patients on continuous renal replacement therapy (CRRT). While fomepizole dosing has been studied in patients undergoing hemodialysis, there have not been any studies that have measured fomepizole clearance in patients undergoing CRRT. In this case report we measured fomepizole clearance from a single patient who was treated with intravenous fomepizole and underwent CRRT.

Case Report

A 63 year old male presented to a tertiary metropolitan emergency department with severe intoxication and acidosis. Initial laboratory findings included pH, 7.18, pCO₂, 14 mmHg, pO₂, 125 mmHg, bicarbonate, 4 mEq/L, anion gap, 39 mEq/L, BUN, 31 mg/dL, creatinine, 3.0 mg/dL. These findings were essentially unchanged following administration of 2 liters normal saline and 100 mEq sodium bicarbonate. Because toxic alcohol ingestion was suspected, 15 mg/kg IV fomepizole was administered. The patient was placed on CRRT and fomepizole concentrations were measured prior to beginning CRRT and every four hours thereafter. When the ethylene glycol and methanol concentrations returned below limits of detection 6 hours later, no additional fomepizole dosing was administered.

Results

The average clearance of fomepizole during CRRT in this case was 12 μmol/L/h. The R² value for clearance was 0.993.



Discussion

In our patient undergoing CRRT, clearance of fomepizole was 12 μmol/L/h, which is double the healthy volunteer rate of 6 μmol/L/h. Despite the apparent increase in fomepizole clearance, all concentrations obtained for 16 hours after the initial dose of fomepizole during CRRT were above the assumed therapeutic concentration in humans.

Conclusions

While this case report suggests that fomepizole dosing does not need to be adjusted during CRRT, a formal clinical trial would need to determine the best dosing of fomepizole during CRRT.

