

Hydroxocobalamin extravasation, progression, and resolution in a house fire victim

Supa Niruntarai¹, Ross Sullivan¹, William Eggleston^{1,2}

¹*SUNY Upstate Medical University, Department of Emergency Medicine, Syracuse, NY, USA*, ²*Upstate New York Poison Center, Syracuse, NY, USA*

Background: Hydroxocobalamin is an antidote for cyanide toxicity administered intravenously. Extravasation of hydroxocobalamin is not reported.

Hypothesis: Hydroxocobalamin is a benign medication that does not produce significant tissue injury after extravasation.

Methods: This is a single patient chart review. An 89 year-old female presented to an Emergency Department unresponsive after being exposed to smoke in her apartment secondary to a fire in the adjacent apartment. The patient was bradycardic and hypotense. Smoke inhalation injury and cyanide toxicity were suspected. She was intubated and intravenous hydroxocobalamin was administered by EMS. On arrival significant physical exam findings included dark purple discoloration and swelling at the infusion site over the left forearm extending to the dorsum of the left hand without impaired tissue perfusion. No skin breakdown or necrosis were noted. No other medications were administered in the catheter at the extravasation site.

Results: The patient's left arm was elevated and warm compresses were applied to the site to manage the extravasation. She had orange discoloration of the urine that persisted for 6 days after hydroxocobalamin administration. On hospital day 7 the patient's skin discoloration and swelling had significantly improved and cleared. Her left forearm was well perfused. She denied pain, tingling and weakness of the left arm and hand.

Discussion: Extravasation of intravenous medications can result in tissue injuries varying from local swelling and redness to necrosis and compartment syndrome. Tissue injuries following extravasation depend on a number of drug-specific factors, including the active ingredients, diluents, concentration, and volume extravasated. Treatment of extravasation injuries varies from conservative care to surgical intervention. Hydroxocobalamin has a favorable safety profile and causes only minor adverse effects including red discoloration and colorimetric laboratory assay interferences. However, the appropriate management of hydroxocobalamin extravasation is not known. Our case demonstrated mild local swelling and tissue discoloration following hydroxocobalamin extravasation. Both resolved by hospital day 7 without any significant complications.

Conclusion: Extravasation of hydroxocobalamin is unlikely to cause serious local tissue injuries or long-term sequelae. Elevation and warm compresses are likely sufficient for managing the extravasation.