



Figure 1: Photographs showing bright red discoloration of the patient's skin (A) and urine (B) after treatment with hydroxocobalamin for cyanide poisoning.

Discoloration of skin and urine after treatment with hydroxocobalamin for cyanide poisoning

A 54-year-old woman was brought to hospital from an apartment fire. She had altered mental status, hypotension and evidence of inhalational injury, but no burns. Her carboxyhemoglobin level was 29%, and her lactate level was 16 mmol/L. She was treated with supplemental and hyperbaric oxygen for carbon monoxide intoxication. Hydroxocobalamin 5 g was administered intravenously in the intensive care unit for presumed cyanide poisoning. Subsequently, the patient's skin (Figure 1A) and urine (Figure 1B) became bright red.

Cyanide poisoning often occurs in victims of smoke inhalation. Tests that can confirm a diagnosis of cyanide poisoning are rarely available. However, treatment should not be delayed. The diagnosis is clinical and characterized by altered mental status, cardiovascular instability and lactic acidosis. Hydroxocobalamin has been approved recently as a therapy for cyanide poisoning. It is relatively safe and is better tolerated than the ingredients of the traditional cyanide antidote kit (amyl nitrite, sodium nitrite and sodium thiosulfate). The nitrites induce methemoglobinemia, which can worsen hypotension and reduce the oxygen content of the blood, an important consideration in patients with concomitant carbon monoxide poisoning. Hydroxocobalamin should be administered as soon as cyanide poisoning is suspected — ideally in the prehospital setting.¹ By combining with cyanide, hydroxocobalamin forms cyanocobalamin (vitamin B₁₂), restoring mitochondrial function.² Hydroxocobalamin imparts a harmless and transient reddish colour to the skin and urine. It may also cause transient hypertension, which can be beneficial in patients with cyanide poisoning.¹

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2. Shepherd G, Velez LI. Role of hydroxocobalamin in acute cyanide poisoning. *Ann Pharmacother* 2008;42:661-9.

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