



Poison HOTLINE

1-800-222-1222

August 2021



Did you know

An overdose of amlodipine may lead to **vasoplegic shock** which is defined as (1) hypotension (MAP <50 mmHg) AND (2) preserved or increased cardiac output AND (3) vasodilation that is poorly responsive to adrenergic vasopressors. When first and second line therapies fail, methylene blue may reverse the low systemic vascular resistance by inhibiting the synthesis of nitric oxide.

One of the most commonly reported side effects of methylene blue is blue discoloration of the skin, urine or feces. This is reversible on cessation of the drug.

Call **1-800-222-1222** for specific treatment recommendations for overdoses with vasoplegic shock.

Methemoglobinemia

Methemoglobin is an abnormal hemoglobin caused by oxidation of the iron molecule in heme so it will no longer hold or transport oxygen. The clinical entity of methemoglobinemia (MetHb) is defined as a MetHb level >2%.

Acquired MetHb can be caused by a wide variety of oxidizing substances including local anesthetics (benzocaine), analgesics, nitrates and nitrites (well water), and antimicrobials. These oxidizers can also cause hemolysis.

Symptoms: Blood with an elevated MetHb level is classically chocolate-brown in color. This brown blood can cause the patient to have a blue-gray “cyanosis” of skin, lips, and nail beds, that doesn’t respond to supplemental oxygen.

[MetHb]	Symptoms
3% - 15%	Possibly no symptoms, blue-grey skin discoloration
15% - 30%	“Cyanosis,” chocolate brown blood
30% - 50%	Dyspnea, headache, fatigue, dizziness, syncope, weakness, pulse oximetry remains in the mid-80% despite O ₂ therapy
50% - 70%	Tachypnea, metabolic acidosis, seizures, CNS depression, coma
>70%	Severe hypoxic symptoms, death

Laboratory Studies: Get a MetHb concentration (abbreviated [MetHb]) to confirm the diagnosis, EKG (monitor for cardiac ischemia), and CBC with microscopy to look for hemolysis. Pulse oximetry may be inaccurate while a blood gas’s calculated oxygen saturation will be normal.

Treatment: Mild to moderate cases of MetHb can be treated with supportive care, removal of offending agent, IV fluids and supplemental oxygen. The specific antidote, methylene blue, should be given if the patient is symptomatic, which usually occurs with a [MetHb] greater than 20-30%; the [MetHb] may be lower in symptomatic patients who have anemia, or underlying cardiovascular or pulmonary disease. The dose of methylene blue is 1 mg/kg IV over 5-30 min. A repeat dose of 1 mg/kg may be given 1 hour after the initial dose if [MetHb] remains >30% or if symptoms persist. Maximal response occurs within 30-60 min. Recheck a [MetHb] about 1 hour following administration of methylene blue. Patients with G-6-PD deficiency may develop hemolysis with treatment.

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