

Drug-Induced Methaemoglobinaemia

Dear Editor,

I read the case report of cocaine induced methemoglobinemia¹ in the recent edition of the acute medicine journal with interest.

There are a few additional points, which I feel would be useful for acute physicians in the evaluation and management of drug induced methemoglobinemia.

Drugs as dapsone, benzocaine (a cocaine adulterant), and aniline, produce a rebound methemoglobinemia, in which methemoglobin levels increase 4 to 12 hours after successful methylene blue therapy.²

Methylene blue is most effective in intact erythrocytes; efficacy is reduced in the presence of haemolysis. Moreover, in the presence of haemolysis, high dose methylene blue (20-30 mg/kg) can itself initiate methaemoglobin formation.³ Ascorbic acid, part of the minor reduction pathway of methemoglobin, may be useful in patients in whom methylene blue is contraindicated.

Dextrose should be given because the major source of NADH in the red blood cells is the catabolism of sugar through glycolysis. Dextrose is also necessary to form NADPH through the hexose monophosphate shunt, which is necessary for methylene blue to be effective.⁴

N-acetylcysteine, is believed to restore intracellular glutathione and may be capable of serving as a glutathione substitute capable of directly reducing oxidized agents. Hyperbaric oxygen is another modality recommended, but is reserved only for those patients who have a methemoglobin level >50% or those who do not respond to standard treatment.⁵

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References

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