

METHEMOGLOBINEMIA – DAPSONE INDUCED CASE REPORT

INTRODUCTION

Methemoglobin is a form of hemoglobin that does not bind oxygen. When its concentration is elevated in red blood cells, functional anemia and tissue hypoxia may occur.

CASE STUDY

- A 34-year-old man with acquired immunodeficiency syndrome (AIDS) and a CD4 count of 178/mm³ presented to OPD with several weeks of progressively worsening dyspnea on exertion such that climbing a flight of stairs had become difficult.
- He reported no cough, fever, or chills.
- One of his medications was dapsone (100 mg by mouth daily) for *Pneumocystis carinii* pneumonia prophylaxis that had been initiated 3 months earlier.
- Physical exam was notable only for cyanotic extremities. His resting pulse oximetry (SpO₂) was 89%, arterial blood gas PaO₂ was 59 mm Hg, PaCO₂ was 37 mm Hg, and arterial blood gas calculated SaO₂ was 91% on room air.
- The calculated oxygen saturation gap was 2%. He was admitted to the hospital for evaluation of hypoxemia and for treatment of presumed *Pneumocystis carinii* pneumonia.
- The work-up, including chest X-ray, chest computed tomography (CT) scan, ventilation-perfusion scan, transthoracic echocardiogram, bronchoalveolar lavage, and culture, was negative for pathology.
- On the second hospital day, a co-oximetry test was performed and revealed a methemoglobin level of 12.1%, and the patient was diagnosed with acquired methemoglobinemia.
- He had a modest decrease in his functional hemoglobin from 13 g/dL to 11.4 g/dL since 12.1% was methemoglobin (1.6 g/dL).
- Dapsone was discontinued and pentamidine was started for *Pneumocystis Carinii* and methylene blue was given.
- Within 24 hours his oxygen saturation returned to normal, and dyspnea and cyanosis resolved.

DISCUSSION

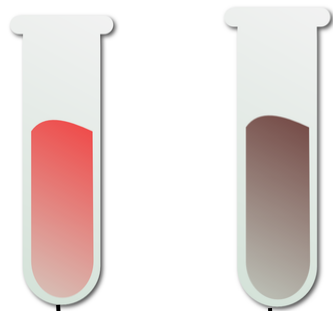
Acquired methemoglobinemia is fairly common and causes morbidity and mortality in both the inpatient and outpatient settings. Drugs that may induce methemoglobinemia are widely used in clinical settings. Rapid recognition of methemoglobinemia and treatment with methylene blue may decrease morbidity. Arterial blood gas Analysis noticed the chocolate-colored blood and performed a co-oximetry test to confirm the diagnosis of methemoglobinemia detected severe cases after dapsone exposure.

CONCLUSION

Acquired methemoglobinemia is a treatable condition that causes significant morbidity and even mortality. We hope that a heightened awareness of methemoglobinemia will result in improved recognition and treatment. Primary prevention efforts have the potential to reduce the morbidity and mortality associated with this condition.

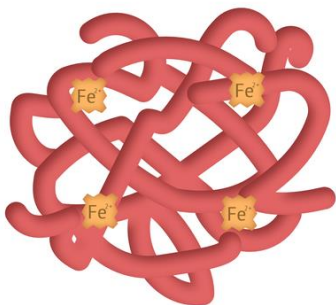
REFERENCES

1. Ward KE, McCarthy MW. Dapsone-induced methemoglobinemia. *Ann Pharmacother.* 1998;32:549553.
2. Wright R, Lewander W, Woolf A. Methemoglobinemia: etiology, pharmacology, and clinical management. *Ann Emerg Med.* 1999;34:

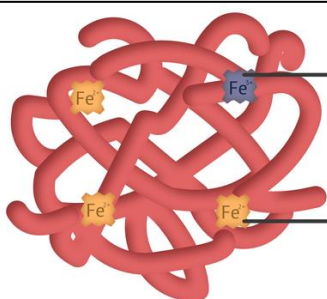


NORMAL BLOOD

CHOCOLATE BROWN COLOURED BLOOD



Hemoglobin



Methemoglobin
(decreased O₂ delivery)