A Case Report of Benzocaine-induced Methemoglobinemia: A Life Threatening Complication After a Transesophageal Echocardiogram (TEE)

The following abstract will be presented at the Southern Medical Association Annual Scientific Assembly, October 29-31, 2015, in Destin, Florida.

Objectives

Upon completion of the lecture, learners should be better prepared to:

1. Recognize that Methemoglobinemia is a prevalent clinical condition.
2. Understand that treatment with methylene blue will result in reversal of methemoglobinemia and clinical recovery in most cases but needs to be used at appropriate doses in carefully selected individuals.
3. Realize that physicians who perform procedures involving the application of benzocaine for topical anesthesia need to rapidly recognize and treat methemoglobinemia to avoid significant associated morbidity and mortality.

Abstract

Introduction: Methemoglobinemia (MHb) is defined as abnormal levels of oxidized hemoglobin that cannot bind and transport oxygen. It is clinically characterized by cyanosis, low pulse-oximetric readings, and normal arterial PO2 values. Benzocaine is being used as anesthetic for endoscopic procedures is an uncommon but clinically important precipitant of acquired methaemoglobinaemia which can result in a fatal outcome. We report a case of methemoglobinemia after a repeated topical benzocaine during a trans esophageal echocardiogram.

Case Presentation: A 43 year old female patient who was referred to our emergency room from the oncology clinic as she was found to have sinus tachycardia (HR =110 bmp), leukocytosis and acute kidney injury on CKD stage III with hyperkalemia. PMH: Rectal cancer post colonic resection with Ileostomy bag placement, urolithiasis post right ureter stent, and stage III chronic kidney disease. PSH: rectal surgery, hysterectomy, and one Caesarian section. FH: CAD, HTN, and DM. SH: 20 pack year history of cigarette smoking, she quit smoking 6 months prior to admission, no history of alcohol consumption or illicit drug use. The patient was admitted to the ICU and was diagnosed with MRSA bacteremia related to peripherally placed central line sepsis for which a transesophageal echocardiogram (TEE) was ordered to rule out endocarditis. The patient had TEE done, Cetacaine spray as topical anesthetic was used repeatedly. The TEE was uneventful; however, 10 minutes after the patient is back in her ICU bed, she started to complain of dizziness, palpitation, and was found to have central cyanosis on physical exam. Vital signs showed: Pulse rate of 130 Bpm, RR: 18, BP: 152/88 mmHg, O2 saturation: 80%. Chest X-Ray showed no acute cardiopulmonary process, and an EKG was normal. The patient was placed on high flow oxygen therapy through non-rebreather, her O2 saturation was 80%. ABG on 60% FIO2; PH: 7.48, PO2: 293, PCO2: 31, HCO3: 22.4, and O2 saturation of 100%. Methemoglobinemia was suspected. MetHB level was checked and was found to be 67.4%%.patient received one dose of IV Methylene Blue, 1 mg/kg over 10 minutes after which her symptoms improved, and a repeat MetHB level 30 minutes later was 0.5%.

Discussion: Severe methemoglobinemia is a life-threatening condition and if untreated may result in fatal consequences. Early diagnosis and appropriate treatment are crucial in treating this emergency situation. Physicians using topical anesthesia in endoscopic suites should be aware of this potentially life-threatening treatable condition. High clinical suspicion and availability of methylene blue in endoscopy suites will facilitate prompt diagnosis and treatment.

Disclosure

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Fathia Alfakeri, MD, PGY-1– No Relevant Financial Relationships to Disclose
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