Benzocaine Induced Methhemoglobin after T.E.E.

Macknet M. R., Kimball-Jones P. L. Applegate R. L., Martin R. D., Allard M. W.

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Introduction

Benzocaine induced methemoglobinemia was first described by Bernstein in 1950. It is potentially fatal if not promptly diagnosed and treated. The frequency of this poisoning is unknown because of the previous lack of surveillance techniques. We report a case of methemoglobinemia after topical benzocaine for transesophageal echocardiogram. We discuss new options in the diagnosis and treatment of methemoglobinemia using the Masimo Rad-57 Pulse CO-Oximeter.

Case Report

An 87 year old male with recent onset atrial fibrillation underwent transesophageal echocardiography using 1.5 seconds of oropharyngeal 20% benzocaine spray. The echocardiogram was uneventful; however, 40 minutes afterward the patient's oxygen saturation (SpO2) dropped to 88%. Over the next few minutes the patient developed increasing tachypnea and skin color developed a dusky grey hue. Concern developed about benzocaine toxicity and methemoglobinemia. A Masimo Rad-57 Pulse CO-Oximeter was obtained. The initial methemoglobin readings on the pulse CO-Oximeter ranged from 52-74%. An arterial blood sample was drawn which appeared chocolate brown in color. The blood was analyzed on three Radiometer ABL 720 series CO-Oximeters which reported CO-Oximetry errors (value over calibration limits). Over the next few minutes the patient became more difficult to arouse and was treated with 3 doses of intravenous methylene blue using the pulse CO-Oximeter to guide therapy. The following day the patient underwent an uneventful cardioversion and was discharged shortly thereafter.

Discussion

Methemoglobinemia is a known and potentially fatal complication of benzocaine spray. This case was the third known case at our institution in the last three years secondary to benzocaine usage. The new multi-wavelength pulse CO-Oximeter enabled us to rapidly confirm the diagnosis and continuously monitor the levels of methemoglobin. The Pulse CO-Oximeter has documented SpMet accuracy from 0% to 15%. In this case the levels of SpMet (39% - 46%) were within 5% of a research laboratory CO-Oximeter.