RAD-57 Rainbow CO-Oximeter in Detecting Methemoglobin during Upper GI Endoscopy – A Case Report.

Padakandla U.B. *Anesthesiology* 2007; 107: A1543.

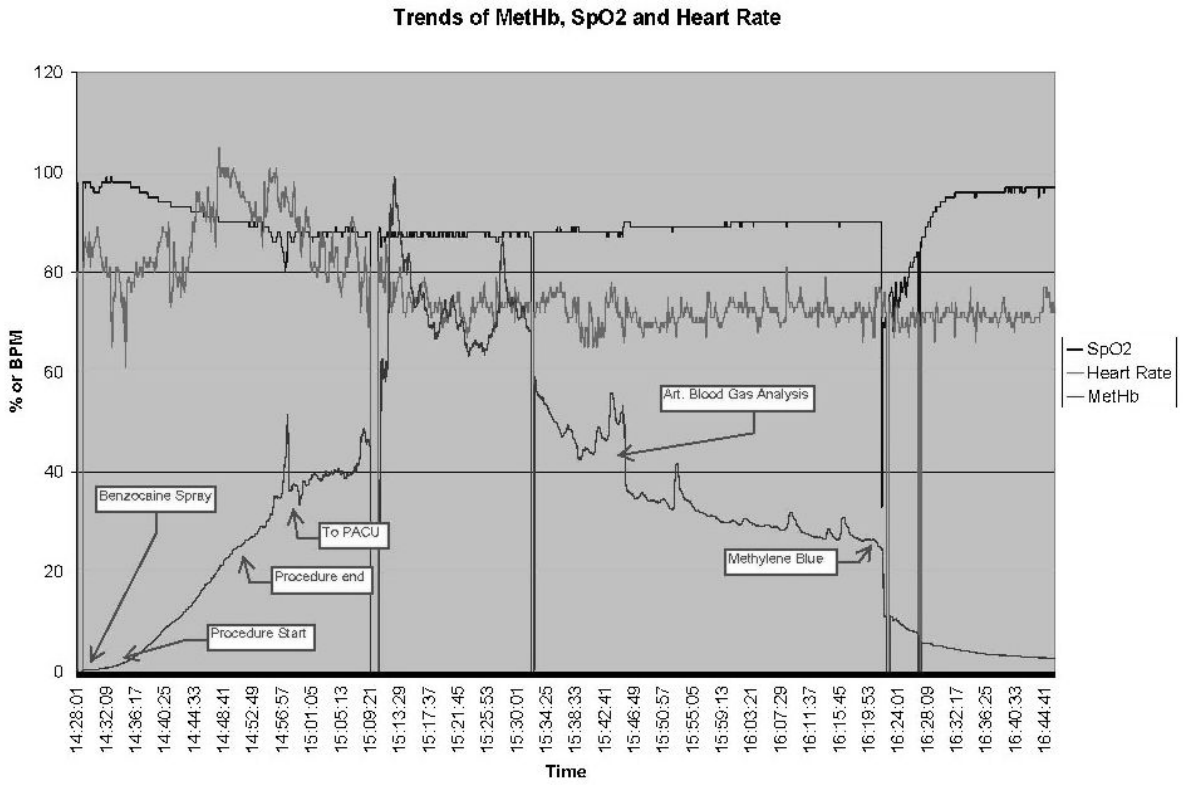
Introduction

This is a report on a case of methemoglobinemia that developed during the course of an upper GI endoscopy. Methemoglobinemia was measured non-invasively throughout the procedure using the new RAD-57 oximeter from Masimo Corporation. The diagnosis was confirmed by arterial blood gas analysis.

Case Report

A 57-year old male was brought to gastrointestinal endoscopy suite for upper gastrointestinal endoscopy for evaluation of persistent nausea and vomiting Pertinent medical history included chronic pancreatitis, multiple small pancreatic pseudocysts, surgical gastrojejunostomy for relief of gastric outlet obstruction, and placement and removal of a pancreatic stent. The patient was also found to have a pituitary prolactinoma which was being managed conservatively (Dostinex {Cabergoline} 0.25 mg twice weekly) and was not thought to contribute to nausea and vomiting. Other medications included Pantoprazole, Pancrelipase, Citalopram, Acetaminophen and Zolpidem. None of these medications have been implicated in causing methemoglobinemia. Rad-57 Pulse CO-Oximeter was in use in that suite that day. The patient's mouth was sprayed by the presenter prior to the procedure. Patient was then deeply sedated with propofol as a bolus at 1mg/kg and continued as infusion at about 100 mcg/kg/min throughout the procedure that lasted 20 minutes. Oxygen was administered at 6 L/min through a nasal cannula and the patient breathed spontaneously, needing only a sporadic jaw thrust to maintain airway patency. Pulse rate, blood pressure (cuff), respiratory rate and pulse oximetry were monitored throughout the procedure. In addition the Rad-57 monitor also continually measured carboxyhemoglobin and methemoglobin. Starting approximately 4 minutes after the spray, the Rad-57 started to show a continual rise in methemoglobin. Pulse oximetry showed a slower rate of decrease to around 90% at the end of the procedure. After discontinuation of propofol, patient woke up smoothly and was transferred to Recovery Room and was given oxygen by non-rebreather mask in view of low pulse oximeter values. Patient remained clinically stable with no discernible symptoms, except for SpO2 of 90%. No cyanosis was detectable. Methemoglobin continued to register an increase for a few minutes into Recovery Room stay before starting to decline. (Fig.1) An arterial blood gas analysis with CO-Oximetry was ordered and confirmed methemoglobinemia. Methylene Blue was ordered and administered intravenously over 5 minutes. About 10 minutes after Methylene blue, SpO2 started to rise again and reached 98% in a few minutes. Blood gas with CO-oximetry repeated at 1 hr. and 3.5 hrs. post-treatment showed low methemoglobin values. Patient remained asymptomatic throughout the day, and was observed in intensive care unit for a few hours and transferred back to floor in the late evening.

Figure 1


Trends of MetHb, SpO2 and Heart Rate
% or BPM
120
100
80
60
40
20
0
Time
14:28:01
14:32:09
14:36:17
14:40:25
14:44:33
14:48:41
14:52:49
14:56:57
15:01:05
15:05:13
15:09:21
15:13:29
15:17:37
15:21:45
15:25:53
15:30:01
15:34:25
15:38:33
15:42:41
15:46:49
15:50:57
15:55:05
15:59:13
16:03:21
16:07:29
16:11:37
16:15:45
16:19:53
16:24:01
16:28:09
16:32:17
16:36:25
16:40:33
16:44:41
SpO2
Heart Rate
MetHb
Art. Blood Gas Analysis
Benzocaine Spray
To PACU
Procedure end
Procedure Start
Methylene Blue