The Current Status of Continuous Noninvasive Measurement of Total, Carboxy, and Methemoglobin Concentration.

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Abstract

Intraoperative early detection of anemia, identifying toxic levels of carboxyhemoglobin after carbon monoxide exposure and titrating drug dosage to prevent toxic levels of methemoglobin are important goals. The pulse oximeter works by illuminating light into the tissue and sensing the amount of light reflected. The same methodology is used by laboratory hemoglobinometers to measure hemoglobin concentration. Because both devices work in the same way, efforts were made to modify the pulse oximeter to also measure hemoglobin concentration. Currently there are 2 commercial pulse oximeters (Masimo SET Rainbow and OrSense NBM-200MP) that measure total hemoglobin concentration as well as methemoglobin and carboxyhemoglobin. In this review, we describe the peer-reviewed literature addressing the accuracy of this monitor.