Clinical Evaluation of a Prototype Motion Artifact Resistant Pulse Oximeter in the Recovery Room.

Dumas C., Wahr J.A., Tremper K.K. *Anesth Analg.* 1996 Aug;83(2):269-72.

Introduction

The frequency and nature of spurious pulse oximetry readings were compared using both a conventional pulse oximeter (CPO) and a prototype Masimo signal extraction technology pulse oximeter (Masimo SET).

Methods

At a university hospital, 50 ASA physical status I-IV adult patients who underwent general or spinal-epidural anesthesia were selected from a group of 250 patients on the basis of high-alarm generation with routine postoperative pulse oximetry. Pulse oximetry data were recorded simultaneously from both devices with a computer.

Results

Overall, the CPO alarm frequency (i.e., oxygen saturation < 90%, or complete signal loss) was once every 13 min, and 87% of these alarms were considered false. Alarms were considered false based on reference electrocardiographs (16 patients), arterial blood gases (7 patients), and clinical assessment. The prototype Masimo SET device alarm frequency was once every 30 min, and 59% of these were considered false. During arm motion with 15 patients, the CPO device produced spurious signals on 54 occasions compared with five for the prototype Masimo SET.

Conclusion

The incidence of artifactual pulse oximetry events during patient motion appear to be substantially reduced with the prototype Masimo SET device, relative to a CPO device.