



Earlier Detection of Desaturation from the Nasal Ala

Melker RJ, Morey T, Rice MJ, Dennis DM, Wishin J, Dollinger BR, Cannon R, Cohen S, Tan H. *Society for Technology in Anesthesia*. Jan 2014 (abstract).

Introduction

Significant and repeated episodes of mini-desaturation ($>3\%$ of baseline), desaturation ($\leq 90\%$) and disordered breathing in patients during monitored anesthesia care (MAC) have been reported. This study reports earlier detection of desaturation from the nasal ala than from the fingers, and further delays from some oximeters.

Methods

The study included 80 subjects of variable skin tone (28 male and 52 female, aged 19-65 years) who presented for extremity surgery at an ambulatory surgical center (Florida Surgical Center, Gainesville, FL). Assurance® Alar Sensors (Xhale Assurance, Inc., Glastonbury, CT) were placed on both alae and an additional finger sensor was placed adjacent to the site chosen by the anesthesia provider. Either matched pulse oximeters were used to record data from the two ala and finger, or an alternative stand-alone oximeter was used on one ala. Simultaneous finger oximetry data was collected from a multi-parameter patient monitor.

Results

Mini-desaturations were observed in 36 subjects (38%). Desaturations were present in 15 subjects (19%). In subjects with desaturations, alar desaturation occurred on average 9 seconds (range -5 to 33) sooner than the finger with the same oximeter (physiologic delay). Alar desaturation measured with an alternative stand-alone oximeter averaged 7 seconds slower than those from the first oximeter (device delay). The multi-parameter patient monitor introduced a further 5 second average delay. In all, a combination of physiologic delay and device delay results in an average 14 second delay between measurement at the finger and the first measurement at the ala.

Conclusions

Physiologic delays at the finger compared to the nasal ala and device delays contribute to belated recognition of desaturation in spontaneously breathing subjects. A nasal ala sensor combined with a pulse oximeter that responds rapidly to desaturation can significantly reduce delays in detecting desaturation and speed the formulation of a timely clinical response.

This summary was created by Xhale Assurance, Inc. based on the original report by the authors referenced.



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