

Print Close

A186

October 17, 2009
10:00 AM - 11:30 AM
Room Room 356

Home High Resolution Pulse Oximetry as a Screening Tool for Patients with Obstructive Sleep Apnea

* Frank J. Overdyk, M.D., M.S.E.E., Haley E. Moore, B.S., Heather Beeson, B.N., N.D., Philip Rust, Ph.D., Marion B. Gillespie, M.D.
Departments of Anesthesia and Otolaryngology, Medical University of South Carolina, Charleston, South Carolina

Introduction:

Identifying preoperative patients with undiagnosed obstructive sleep apnea (OSA) is important as they are at increased risk of respiratory complications ¹. We have previously shown that OSA patients demonstrate high resolution pulse oximetry (HRPO) patterns temporally associated with partial airway obstruction during polysomnography (PSG) ². [figure1]We hereby investigate the prevalence of those patterns during home sleep in a preoperative population at high risk for OSA, as well as a control group. An overnight, home HRPO study may offer a convenient, cost effective, and objective screening alternative to PSG for identifying patients with OSA.

Methods:

Adult ASA I-III patients admitted for gynecologic, bariatric, lumbar spine, or airway surgery who met criteria to be study or control patients provided written, informed consent.[table1]Patients with PSG confirmed diagnosis of OSA or treated with continuous positive airway pressure were excluded. Patients wore the Konica-Minolta HRPO device for one night at home.[figure2]The presence and severity of HRPO patterns consistent with reduction in airflow (rapid, cyclical oxygen de- and resaturations) were quantified using two commercially developed software packages ("SPD TM", Nellcor-Covidien, Bolder, CO; "DAPR TM", Lyntek Medical, Westerville, OH) in beta test versions. We used the Pearson coefficient to calculate the correlation of OSA patterns between the two packages.

Results

Twenty five patients (15 study, 10 controls) provided informed consent and a complete preoperative HRPO dataset. Ten patients (66%) meeting study criteria and two patients (20%) meeting control criteria demonstrated HRPO patterns consistent with mild to severe OSA. The agreement in identifying OSA patterns between the software packages was high ($r = 0.97$). Using this abbreviated screening tool as the gold standard, the sensitivity, specificity, and positive and negative predictive values of home HRPO were 66%, 80%, 84%, 62% respectively.

Conclusion:

A home HRPO screening study was reasonably sensitive and specific in identifying patients at risk of OSA by a modified Berlin score. We suspect home HRPO may provide even better predictive value in our follow-up study using PSG or the STOP-BANG questionnaire ³ as gold standards for OSA.

Ref :

- 1.Gupta R. et. al. Mayo Clin Proc. 2001;76:897-905.
- 2.Overdyk F, et. al. Anesth. 2008 A1245.
- 3.Chung F, Anesth 2008; 108:812-21.

From Proceedings of the 2009 Annual Meeting of the American Society Anesthesiologists.

Selection criteria (derived from Berlin score) for study/control patients

Criteria A	Criteria B
Loud, frequent snoring	Hypertension
Daytime fatigue	BMI>30

Study patients: Both symptoms from A or one from A and one from B: Control patients: None from A or B

Figure 1

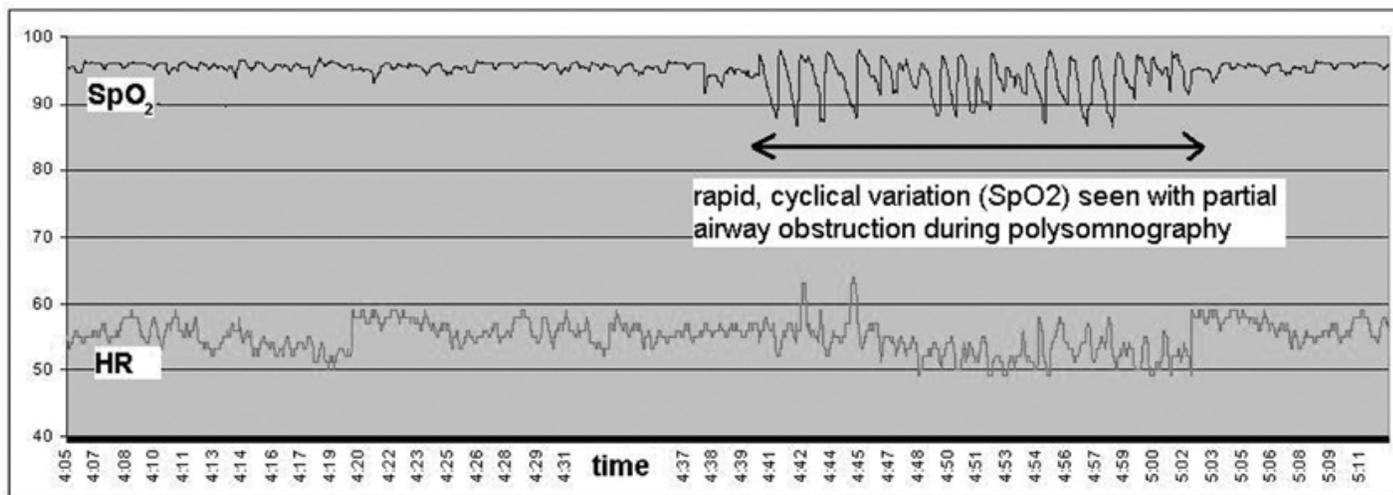


Figure 2

