average time taken for oximetry is 15 minutes compared with 75 minutes for LCSS (times were pooled from 5 Welsh sleep centres). We proposed an investigative approach that combined a screening algorithm that would allocate high probability patients to oximetry and low probability patients to LCSS. High probability subjects with negative oximetry also proceeded to LCSS. This 2-step approach has been recently tested with a subsequent sensitivity of 97% and specificity of 87%. The aim of our study was to assess if our interpretation of this approach reduced investigation time for the diagnosis of OSA.

Methods

We recruited consecutive sleep referrals over a 5 month period. A screening algorithm was employed. The following risk factors were used to score referrals: (1) Snoring, Apnoea (2) Daytime somnolence (3) Hypertension, Obesity, Large neck size 0.2/3 positive factors made the referral high probability; 2/3 negative-low probability. A referral with inadequate information went straight to LCSS. A high probability patient with subsequent negative oximetry proceeded to LCSS.

We compared the total and average time taken with our algorithm against a strategy (control arm) of LCSS for every patient. The study was powered for 50 patients.

Results

N=50. Median age 55 years, 34 were male. See figure 1 for outcomes.

For the control arm, assuming every patient had LCSS, the total investigation time for the 50 patients was 3750 minutes with an average time of 75 minutes per patient.

For the algorithm arm, the total time was 2715 minutes with an average time of 54.3 minutes per patient.

Average time saving – 20.7 minutes per patient.

Conclusion

We propose that allocating high probability subjects to oximetry and using LCSS for low probability subjects and for oximetry negative high probability subjects results in significant time and resource savings.

References


Studies

P264 NOCTURNAL HEART RATE IN PATIENTS WITH OBTURATIVE SLEEP APNOEA

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1MFP Pengo, 2PD Drakatos, 1CK Kosky, 1AW Williams, 1NH Hart, 2GPR Rossi, 1US Steier. 1Guy’s and St Thomas’ NHS Foundation Trust, London, United Kingdom; 2University Hospital of Patras, Patras, Greece; 1King’s College, London, United Kingdom

Background

Obstructive sleep apnoea (OSA) is the most common sleep disorder and a significant risk factor for cardiovascular disease. In addition, heart rate is an important predictor of hypertension and a risk factor for cardiovascular morbidity and mortality. We hypothesised that changes of nocturnal heart rate in OSA are associated with changes in blood pressure following commencement of continuous positive airway pressure (CPAP) therapy.

Methods

A total of 1846 nocturnal pulse oximetry (two consecutive nights) were scored to identify patients with OSA in a tertiary referral centre for sleep disorders. Demographics and pulse oximetry data were recorded at baseline. To assess nocturnal changes heart rate (HR) was compared between the first hour and the last hour of the night-time recording. In patients who were diagnosed with OSA, we further recorded daytime sleepiness, blood pressure, and body weight at three months and one year follow up.

Results

Out of all the screened pulse oximetry, a complete dataset of 58 patients with OSA (mean 4% ODI 28.9 (3.3) h⁻¹, 36 males, age 49.4 (1.2) years, weight 109.7 (3.6) kg) and 57 without OSA (mean 4% ODI 2.0 (0.1) h⁻¹, 34 males, age 46.4 (1.7) years, weight 95.0 (7.0) kg) was identified. Pulse rise index, mean HR, and HR of the first and last hour of recording were higher in the OSA group (p=0.0001), whilst oxygen saturation was lower in the OSA group (p<0.0001).

Conclusion

Nocturnal heart rate vs mean SpO₂ (r=−0.39, p<0.01), mean nocturnal HR vs mean SpO₂ (r=−0.4, p<0.01) and average HR vs systolic blood pressure (r=−0.42, p<0.05) correlated inversely (Figure).

Nocturnal HR is higher in OSA patients than in control subjects likely because of an enhanced sympathetic activation. Changes in nocturnal HR of OSA patients established on CPAP at one year follow up predict changes in systolic but not in diastolic blood pressure or body weight.