

WatchPAT is accurate in the diagnosis of Obstructive sleep apnea in the presence of atrial fibrillation

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Introduction

The WatchPAT is a Home Sleep Testing (HST) device which has been shown to be accurate for diagnosing sleep disordered breathing (SDB). It is based on Peripheral Arterial Tone (PAT) signal's amplitudes and rate, oxygen saturation and actigraphy. Studies so far excluded patients with arrhythmias as the potential effect on PAT amplitude and rate changes had not been validated.

Purpose

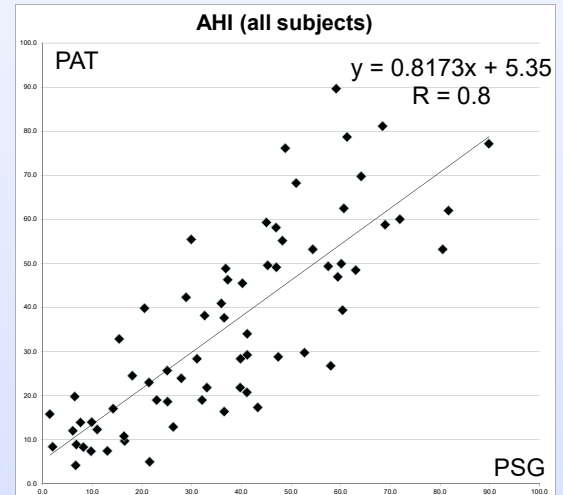
To examine the accuracy of the WatchPAT in detecting SDB in patients with atrial fibrillation (AF).

Methods

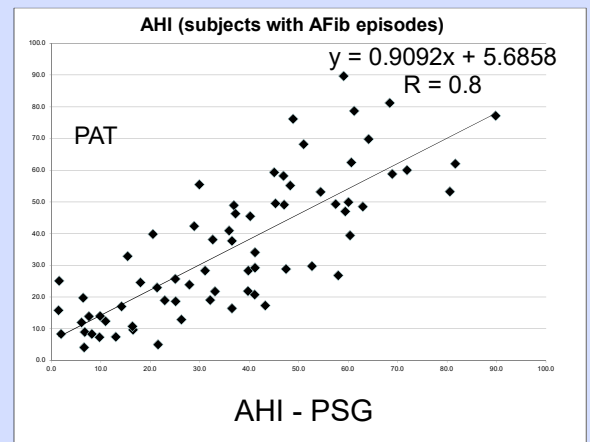
- 69 patients (51 males) previously diagnosed with AF (persistent or paroxysmal) with suspected SDB
- Age 69 ± 10 years.
- Simultaneous recording of full night in-lab polysomnography (PSG) and WatchPAT (Itamar-Medical, Caesarea, Israel), in 8 centers.
- PSG scoring was performed by experienced PSG technologists, blinded to the automatic scoring of the WatchPAT

Results

Of the 69 patients, 26 had AF throughout the night, 9 had AF episodes part of the night, and 34 had no AF events during the night. The presence of AF episodes did not cause significant non-valid PAT signal. Using a threshold $AHI \geq 15$, the sensitivity and specificity of the WatchPAT for all 69 patients were 0.93 and 0.77, respectively. The correlation between AHI assessed by PSG and by WatchPAT for all 69 patients, for the subgroup of 35 patients with AF events and for the 26 patients with AF throughout the night were 0.8, $p < 0.01$ for all. The overall accuracy in sleep staging between WatchPAT and PSG based on an epoch-by-epoch comparison was 62% (compared to the previously reported 65% in the general population). Kappa agreement was 0.41 (compared to the previously reported 0.47 in general population).



• High Pearson correlation between PSG AHI and PAT AHI of 0.80 ($p < 0.01$) with a slope of 0.82.



• High Pearson correlation between PSG AHI and PAT AHI of 0.80 ($p < 0.01$) with a slope of 0.9.

Conclusions

These findings support our hypothesis that WatchPAT can accurately detect SDB events in patients with AF, and that AF should not be an exclusion criterion for using this device