

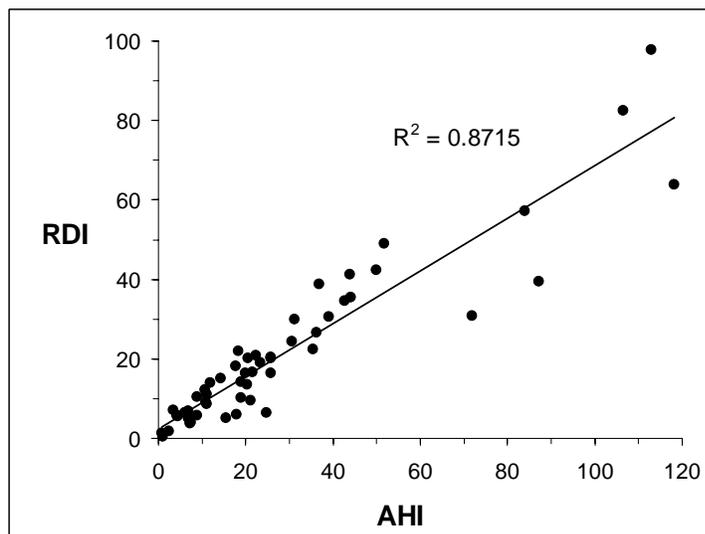
EVALUATION OF A PORTABLE MONITOR COMPARED WITH POLYSOMNOGRAPHY FOR THE DIAGNOSIS OF OBSTRUCTIVE SLEEP APNEA

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Introduction: Validated portable monitors (PM) are a viable tool to assist in the diagnosis of obstructive sleep apnea (OSA) in the estimated 1 in 15 middle-aged adults with OSA of moderate or worse severity. We assessed the utility of a Level 3 PM for OSA, Medibyte® (BRAEBON® Medical Corporation) by pairing it with attended overnight polysomnography (PSG) in the sleep laboratory (Level 1).

Methods: A series of patients, not all of whom were suspected to have OSA, wore the PM with PSG. Hypopneas were scored based on a 50% reduction or more in airflow on the nasal cannula pressure transducer signals from baseline, or a reduction in oxygen saturation of $\geq 3\%$ on the PM record, and on PSG when associated with arousals. The number of apneas and hypopneas for the PM were calculated per hour of recording time - called the respiratory disturbance index (RDI), and for the PSG per hour of sleep time to provide the apnea-hypopnea index (AHI).

Results: For 53 patients (20M/33F) aged 20 to 73 years (mean \pm SD: 52 ± 12) and BMI 33.4 ± 7.3 kg/m² (range 21.4 - 52.7), the AHI was 28.7 ± 28.3 while the RDI was 21.5 ± 20.1 . There was good correlation between the RDI and AHI (Pearson correlation $r = 0.93$) which accounted for 87% of the variance ($R^2 = 0.872$). The mean difference AHI - RDI (PSG versus PM) showed under-reporting using the PM by 7.2 ± 11.9 events per hour. For an AHI ≥ 10 the sensitivity (true-positive), as well as the specificity (true-negative), of the PM were 92%. For severe OSA (AHI ≥ 30), the PM sensitivity was 82% and specificity 100%. All 17 cases of severe OSA had an RDI > 15 on the PM.



Conclusion: Tested in the laboratory, the PM was highly sensitive and specific in evaluating moderate to severe OSA.

Support: MediByte portable monitors and the associated consumables were provided by Braebon Medical Corporation.