

Accuracy of the AASM-Level 3 Ambulatory Monitoring Device SOMNOscreen™ in unattended home measurements for Sleep Disordered Breathing (SDB)?

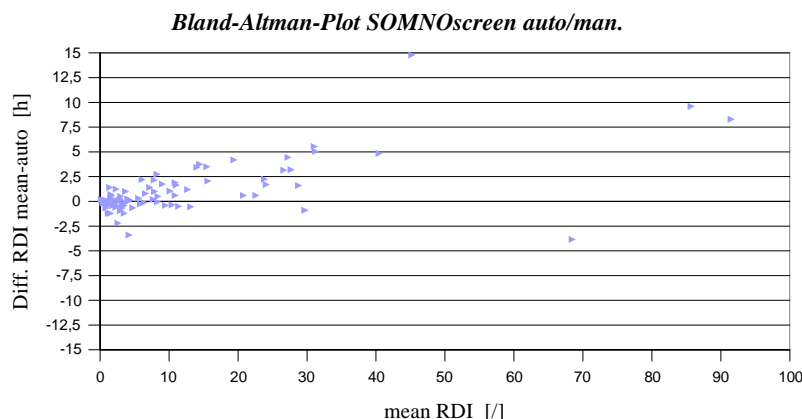
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INTRODUCTION: Attended Polysomnography is considered to be the gold standard for the diagnosis of sleep-related respiratory disorders. We determined the accuracy a Level-3 ambulatory monitoring device.

METHODS: We examined data from 83 measurements (64 during spontaneous breathing, 19 under CPAP, 14 women, 61 men, age 57 ± 13 years, Body-Mass-Index $29,4 \pm 6,5$ kg/m²) using the SOMNOscreen™ device during unattended home Polygraphy. Placement of all sensors was explained and demonstrated in two private practices. Patients applied the sensors themselves at home. The device continuously monitors a) Airflow with Nasal Cannula, or CPAP mask pressure; b) Thoracic/Abdominal Effort using two strain gauges; c) Snoring via nasal Cannula; d) Oxygen Saturation; e) Pulse Rate (pulse oximetry); f) Body Position, via a sensor in the cable box. First, data was analyzed automatically using the SOMNOmedics software. Thereafter, we evaluated the recordings manually.

RESULTS: Quality of the recording was good and allowed accurate manual scoring. Respiratory disturbance index (RDI) was $12,8 \pm 18,7$ /h (automatic analysis) and $10,8 \pm 15,4$ /h (manual scoring). The figure gives a Bland-Altman-Plot of the data:



Using a cutoff of an RDI of 5/h the specificity for the diagnosis or the exclusion of SDB was 0,95, the sensitivity 0,98.

CONCLUSION: The data obtained using the SOMNOscreen™; allows for an accurate manual scoring of Patients with SDB. Automatic scoring of the data using the SOMNOscreen™ Software compares with a high sensitivity and specificity the manually generated diagnosis. The System works well in an unattended home setting. Application of the Measuring Equipment by the patients themselves proved to be very successful after careful explanation and demonstration.

Presented at WASM 2nd World Congress on Sleep Medicine 2007 in Bangkok (Thailand).