CARDIAC ACTIVITY AND WRIST MOVEMENTS: SOMNOART A NEW TECHNOLOGY TO ASSESS SLEEP ARCHITECTURE IN HEALTHY, DEPRESSED, INSOMNIAC AND OSA PATIENTS

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PURPOSE

Previously we showed how the integrated analyses of heart rate and body movements during sleep can lead to an equivalent evaluation of sleep architecture and continuity to the one obtained from polysomnographic recordings (Muzet et al. 2016). These data were based on 60 nights records from healthy subjects. The aim of the current study was to confirm that this new approach of sleep stage scoring can also be applied to patients, depressed, insomniac and OSA patients. Furthermore, a larger pool of healthy control subjects has also been assessed.

METHODS

The results presented here are based on 363 sleep nights (78 healthy, 63 insomniacs 186 depressed and 36 OSA nights). The recordings combined standard PSG and recording heart rate and body movements. The data were processed for PSG scoring according to the AASM's rules and for heart rate and body movement using the Somno-Art software. A comparison of the extracted sleep architecture and continuity parameters was performed. Commonly-cited cutoffs for qualitative ratings of agreement based on ICC values: poor for ICC values < 0.40; fair for 0.40 to 0.59; good for 0.60 to 0.74; excellent ≥ 0.75.

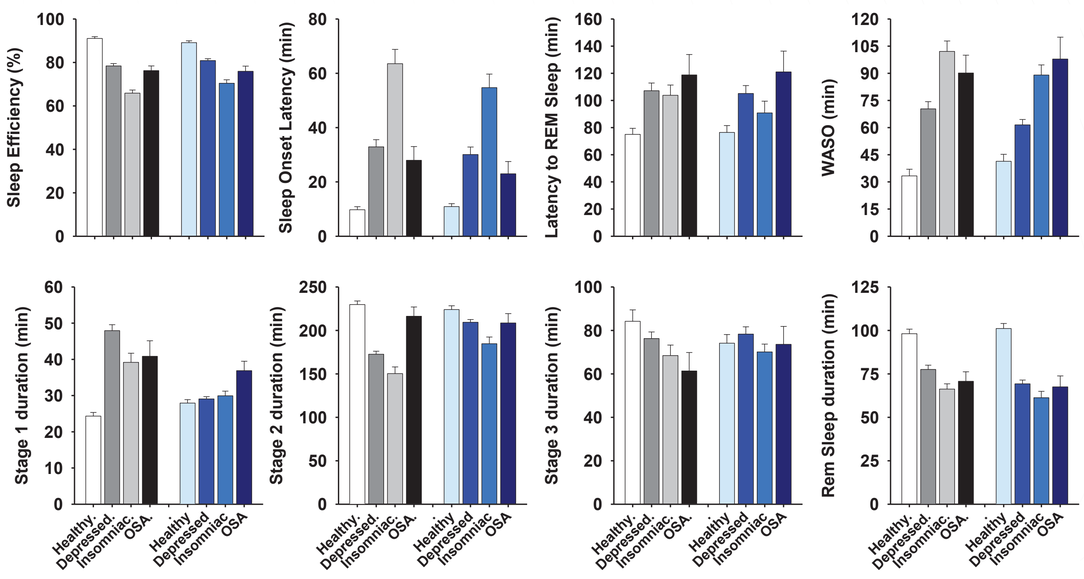

Figure 1: *Mean (±SEM) of sleep parameters extracted by PSG scoring (black gradient) vs Somno-Art technology (blue gradient).*

RESULTS

Based on the statistical analyses as mean intra-class correlation coefficient (ICC), good and excellent agreement were found between the PSG scoring and the Somno-Art analyses for the various sleep parameters.

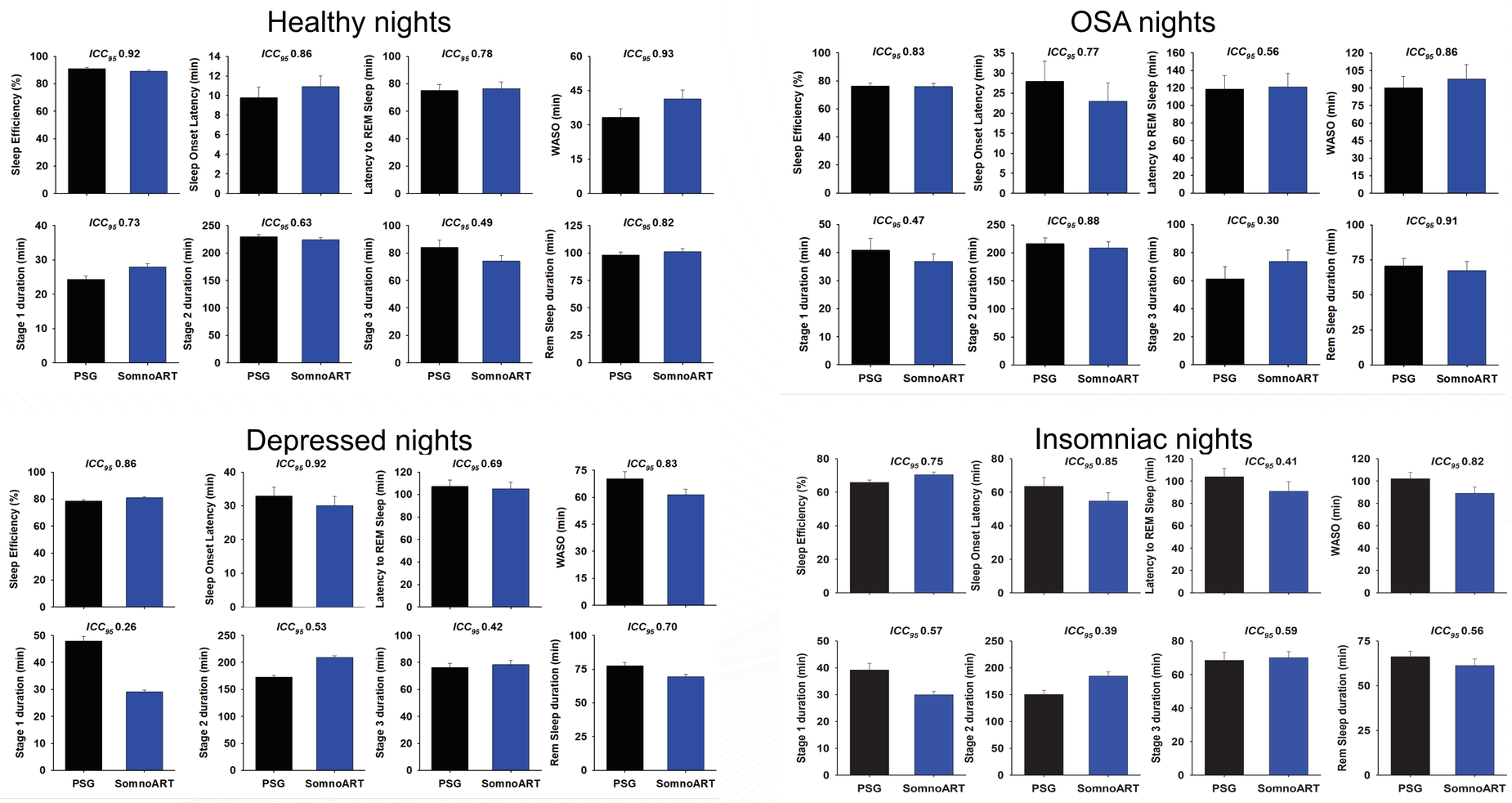

Figure 2: *Mean (±SEM) of sleep parameters extracted by PSG scoring (black) vs Somno-ART technology (blue). A 95% Interclass correlation coefficient (ICC95) between the two analyses are mentioned on the top of each parameter.*

CONCLUSION

SomnoArt new sleep scoring approach represents a valid alternative to the cumbersome PSG recordings and brings a valuable advantage over PSG given the fact that of the easy to use recording system which can be carried out repeatedly in ambulatory settings in both healthy subjects and pathological patients.