

Stationarity during REM sleep in Old Adults



(Nombres y grados académicos)

Introduction

Patients suffering cognitive impairment are reported to show a "less complex" neural activity; weak stationarity is investigated as a possible measure of that hypothesis. REM sleep is chosen as it will reflect undirected brain activity.

Methods

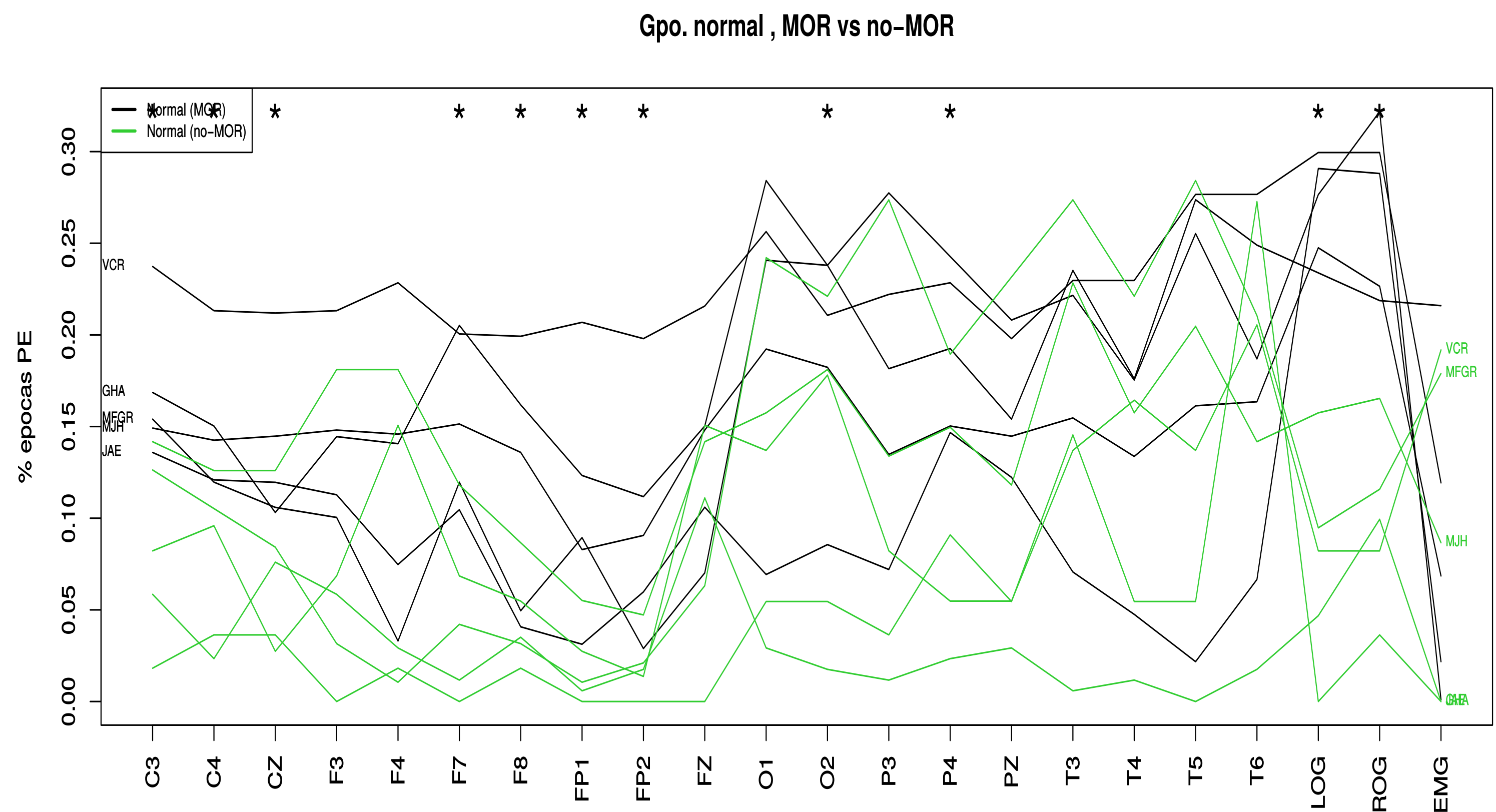
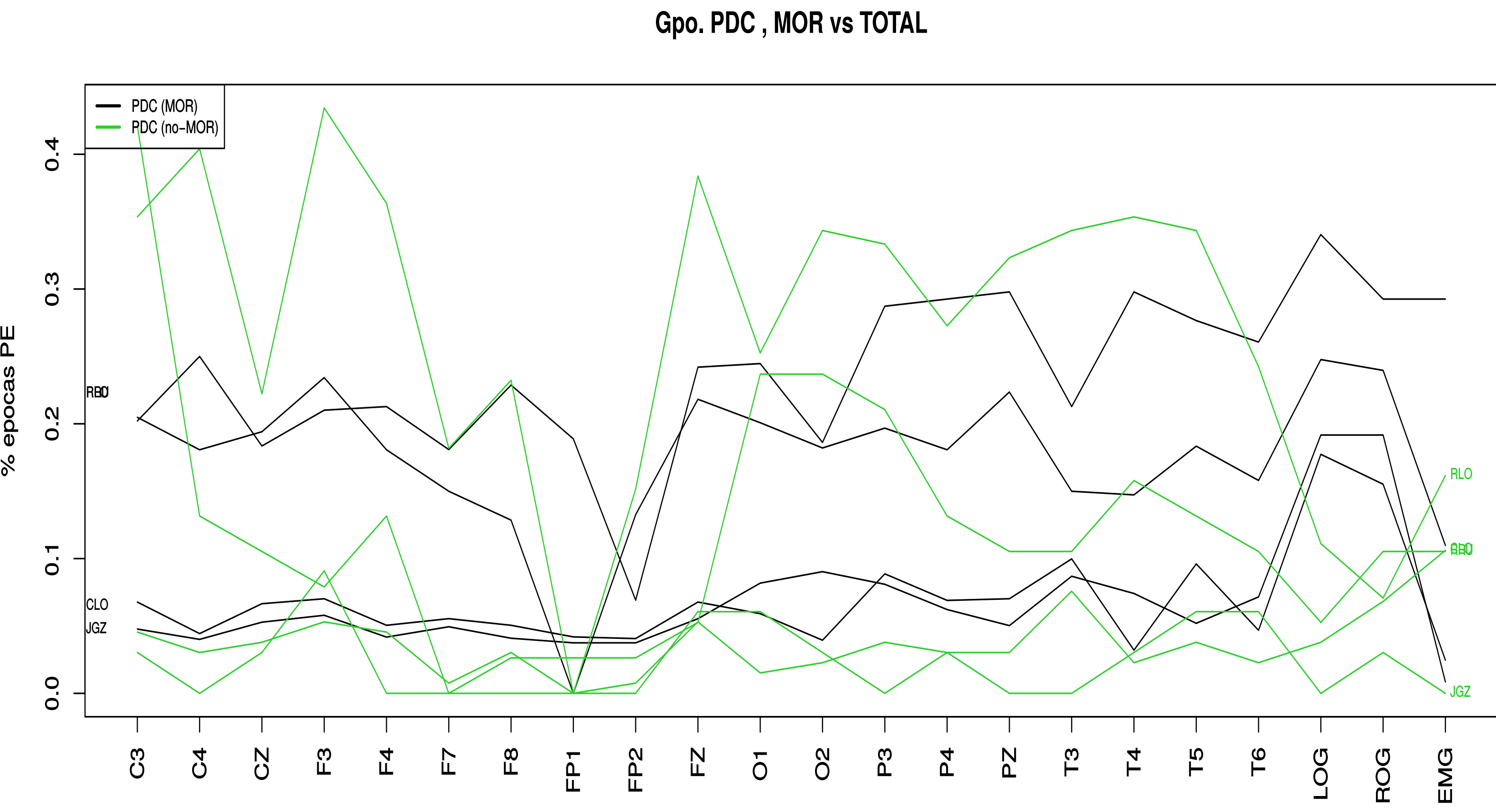
Subjects

Nine participants [3 m, 6 w; age=67.3+5.5] were subject to neuropsychological tests (Neuropsi, MMSE, SATS, KATZ, Gds) and then grouped as Control [2 m, 2 w; age=68.2+7.2] or with Probable Cognitive Impairment (PCI) [1 m, 3 w; age=66.3+2.8] For one night of sleep, Polysomnography (PSG) was recorded, EEG from the scalp loci of the 10-20 system using MEDICID 5 equipment (Neuronic mexicana); data was organized as 30 s epochs then REM sleep was visually classified.

Priestley-Subba Rao test for weak stationarity

A stochastic process [a set of random variables over time] is said to be weakly stationary if its mean, variance and autocorrelation function doesn't depend on time. The method introduced by Priestley and Subba Rao to detect weak nonstationarity[] consist in estimating locally the spectral density function of the signal and then to test the hypothesis that it doesn't vary statistically over time -if so, it would be weakly stationary. As the whole procedure is old, is fast and reliable under conditions found on filtered signals to test stationarity as a yes/no. Data was filtered to remove trends and periodic components using STL algorithm[], then PSR test was performed over every epoch at every channel for all the subjects [approx. 1 hour per subject].

Results



Discussion

Conclusions

Aknowledgements

References

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- > M. B. Priestley. Spectral Analysis and Time Series, volume 1,2. Academic Press,1981.
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