EEG recordings as a source for the detection of IRBD

The purpose of this pilot study was to develop a supportive algorithm for the detection of idiopathic Rapid Eye-Movement (REM) sleep Behaviour Disorder (iRBD) from EEG recordings. iRBD is defined as REM sleep without atonia with no current sign of neurodegenerative disease, and is one of the earliest known biomarkers of Parkinson's Disease (PD). It is currently diagnosed by polysomnography (PSG), primarily based on EMG recordings during REM sleep. The algorithm was developed using data collected from 42 control subjects and 34 iRBD subjects. A feature was developed to represent high amplitude contents of the EEG and a semi-automatic signal reduction method was introduced. The reduced feature set was used for a subject-based classification. With a subject specific re-scaling of the feature set and the use of an outlier detection classifier the algorithm reached an accuracy of 0.78. The result shows that EEG recordings contain valid information for a supportive algorithm for the detection of iRBD. Further investigation could lead to promising application of EEG recordings as a supportive source for the detection of iRBD.