INTRODUCTION

Sleep architecture abnormalities reported in various psychiatric disorders include non-rapid eye movement (NREM) and rapid eye movement (REM) sleep abnormalities, and enhanced intermittent awakenings. We explored NREM-REM and spindle-delta dynamics in patients with recent-onset schizophrenia, as a measure of brain synchrony.

METHODS

- Controls: n=38
- Schizophrenia: n=38

Single Whole-Night Polysomnography
Sleep scoring
Sleep-stage & Neuro-loop gain analysis

RESULTS & DISCUSSION

NREM-REM Dynamics altered in Schizophrenia

- Longer NREM Stage-1 (N1)
- Longer wake-after-sleep-onset (WASO)
- Shorter NREM Stage-2 (N2) in middle of sleep
- NREM Stage-3 (N3) & REM stages comparable

- Neuro-loop gain is a measure of probability of sleep-related delta & spindle to repeat itself, and is independent of the amplitude of EEG rhythms (Kemp et al., 2000).
- Note the decrease in spindle & delta probability among the patients.

- Statistical Analysis: Used GraphPad Prism 5.0 (GraphPad Software, Inc.). All Bar graphs shown as Mean±SEM. Full night sleep stage and Neuro-loop parameters were tested using Student t-test/ Mann-Whitney U-test; Cycle-wise sleep stage and Neuro-loop parameters were tested using repeated-measures ANOVA followed by post-hoc Bonferroni test. ns-not significant; *p<0.05; **p<0.01; ***p<0.001.

CONCLUSION

The findings of the study reveal the possibility of a fundamental deficit in brain synchronizing mechanisms resulting in impaired NREM-REM and spindle-delta dynamics in schizophrenia. Further research is warranted.

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