

Centre for Neuro Skills Presents an Abstract

Sleep architecture following stroke is distinct from TBI.

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Objective: To investigate sleep disturbances after stroke and traumatic brain injury (TBI).

Design: Sleep measures were compared between TBI and stroke groups and age-matched normative data.

Setting: Private post-acute rehabilitation clinic and a controlled sleep lab for a night.

Participants: Stroke (n=25, M age = 53.9) and TBI (n=15, M age = 43.8) patients.

Main Outcome Measures: Polysomnography and apnea. Functional outcome: Disability Rating Scale (DRS) and Mayo-Portland (MPAI).

Results: Wake after sleep onset (WASO) was over two times higher than normative data in both groups. WASO for stroke was higher compared to TBI ($p = 0.004$), 95% CIs [50.4, 84.5] and [24.1, 46.6] respectively. Apnea events were negligible for those under 45 years, but higher for those above 45 regardless of injury ($p = 0.0002$); 95% CIs [50.05, 8.05] and [35, 85.3]. Both groups spent more time on stage 1 compared to normative data. Stroke patients spent more time in stage 2 ($p = 0.06$), 95% CIs [67.8, 78.5] and [59.3, 71.5] and significantly less time in stage 3 ($p = 0.03$), 95% CIs [-0.2, 3.2] and [3.9, 19.8] compared to TBI. Stroke patients aged 50-60 also spent ten times less time in stage 3 compared to normative data. A higher WASO was correlated with more disability (DRS $p = 0.02$) and with decreased initiation in social participation (MPAI, $p = 0.01$).

Conclusions: Both of these populations have sleep disturbances compared to normative data. Analysis of sleep architecture indicated distinct profiles for TBI and stroke. These findings have implications for cognitive functioning. Future research may want to identify therapy approaches most beneficial to these groups given their markedly distinct sleep profiles.

Key words: sleep, stroke, traumatic brain injury