Sleep after concussion: long-term monitoring in children and adolescents in a home-setting

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Sleep after concussion: long-term monitoring in children and adolescents in a home-setting (P596)

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Objectives/Introduction:

Until reaching adulthood, every third child or adolescent experiences a concussion. While sleep problems and fatigue are amongst the most common post-concussive symptoms (PCS), there is increasing evidence that sleep plays an important role in the post-concussion recovery process. In most cases, PCS are transient, but in a subset, they persist throughout the chronic phase. PCS are also linked to cognitive performance, which is affected in about 50% of the patients. Particularly in children, there is very limited objective sleep data available. Thus, to gain valuable insights into the recovery process, we aim to investigate sleep during the acute phase after a concussion in children and adolescents.

Methods:

To monitor sleep with minimal burden for the patients, we use the MHSL-SleepBand device, a mobile electroencephalography (EEG) device developed at ETH Zurich. Patients use the mobile device at home without supervision for multiple consecutive nights.

Results:

We successfully measured three patients so far (aged 9–11 years) for five to seven nights starting on the day of hospital discharge around one day after concussion. Patients were able to apply the device by themselves or with their parents' help with high compliance. The EEG data is of good quality, allowing for conventional sleep staging and analyses. Across all complete nights (n = 12), mean sleep efficiency was 96.59% (range: 93.16 -99.15%), which was paralleled by subjective reports of good sleep quality.

Conclusions:

Our preliminary results show good feasibility of sleep EEG recording in a home-setting over multiple nights in this population. We will further pursue this approach to investigate how sleep in the acute phase after a concussion relates to recovery from a concussion in children and adolescents.