Implementation of simple instructions for partial sleep deprivation prior to paediatric EEG reduces the need for sedation

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Background and Objective: Electroencephalography (EEG) is a non-invasive and important tool in the diagnostic evaluation of patients with suspected seizures. During this procedure, both the drowsy and sleep states are necessary to obtain the most complete EEG data. The objective of this study was to assess the usefulness of providing simple instructions for partial sleep deprivation on reducing the need for sedation in paediatric patients undergoing EEG.

Methods: Children and adolescents below 18 years of age undergoing non-urgent routine EEG were studied on the need for sedation. Three consecutive 3-year periods from January 1996 were reviewed. During the first 3 years (study period I), no instructions for sleep deprivation were given. During the second study period, simple instructions were given to patients to reduce their amount of sleep prior to the EEG test. The instructions were for the subjects to sleep 2 hours later than their normal bedtime the night before the test and waking up 2 hours earlier on the test day without taking any naps during the day. The same instructions were given irrespective of the ages of the patients. In the final 3-years, the same instructions were given with the addition of a telephone reminder one to two days prior to the EEG appointment. We excluded all urgent EEG requests performed on the same day as well as all neonatal and portable EEG recordings from our study.

Results: We reviewed a total of 3210 children and adolescents during the entire 3 study periods. In the first 3-year period, only 314 (27%) out of 1152 patients managed to fall asleep without the need for sedation. Following instructions for sleep deprivation, 678 (52%) of 1298 patients fell asleep naturally, an increase of 25%. There was a further increase of 19% in the third study period following telephone reminders whereby 578 (71%) of 812 patients did not require sedation. The decrease in the number of patients requiring sedation when comparing study periods I and II, and study periods II and III were both statistically significant (p 0.001). We further categorised the patients into different age groups for analysis. Results between study periods I and III showed that the highest success rate for achieving natural sleep was 52% for patients in the 3-6 year age group where natural sleep was least likely. For patients above 9 years of age, there was an increase of 46% managing to sleep without sedation.

Conclusion: Implementation of simple instructions for sleep deprivation and telephone reminders prior to the EEG significantly reduced the need for sedation in paediatric patients undergoing the test. The results obtained were statistically significant and clinically relevant, resulting in better quality of EEG records obtained as there were no superimposed EEG changes due to the effects of the sedative given. In addition, there was improved safety as it avoided the risks of sedation such as respiratory depression and apnoea, especially in infants and smaller children.

References

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