Use of a 30 minute EEG over a 2 hour EEG

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Objective:
To test the hypothesis if 2-hour EEG has a diagnostic advantage in detecting epileptiform abnormalities over a 30 min REEG.

Background:
Current literature suggests that a 4-hour EEG increases the yield of discovering interictal abnormalities compared to a routine EEG. However, the optimal duration of a repeat study in patients with an initially normal 30-minute EEG is not clear.

Methods:
A single-center, retrospective study was done at UT Southwestern Medical Center at Dallas and Parkland Memorial Hospital. EEG data was pulled from existing EEG database for patients, who had a first normal regular 30-minute EEG recording. EEG interpretation was done by board certified clinical neurophysiologist, who classified each EEG as normal or abnormal, with relevant subsequent sub-classification.

Results:
Over an 18-year interval from 1997 to 2015 a total of 14,937, 30-minute EEGs were performed. Of these, 1019 patients had at least one more EEG done after the first normal EEG. Among these patients, 759 had a 30-minute EEG as the second study with 248 (33%) reported as abnormal. A total of 260 had a 2-hour EEG as the second study with 67 (26%) reported as abnormal. The abnormal detection rate in patients with altered mental status (AMS) was not different between a 30 minute and a 2-hour EEG, but there was an obvious bias in ordering a 30-minute EEG in patients having an altered mental state. The abnormal detection rate was similar between the two groups, even in patients who didn't have any AMS.

Conclusion:
The abnormal detection rates between 30-minute and 2-hour EEGs was not different in patients with or without AMS.