Improving Diagnostic Accuracy in Epilepsy: Effect of Online Medical Education on EEG Interpretation Among Neurologists

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BACKGROUND

The electroencephalogram (EEG) is an integral part of the diagnostic process in epilepsy, not only providing information regarding the presence of seizures while ruling out other conditions, but also assisting the physician in determining the type of seizure. Unfortunately, the greatest source of error associated with the EEG is due to physician misinterpretation. A study was undertaken to evaluate the effectiveness of an online educational intervention to improve knowledge of the use and interpretation of EEG for seizure detection among neurologists.

METHODS

A study was undertaken to evaluate the effectiveness of an online educational intervention to improve knowledge of the use and interpretation of EEG for seizure detection among neurologists. This online educational activity was presented in a 30-minute video-based panel discussion format involving 3 expert faculty. The educational activity and outcome analysis was funded through an independent educational grant from Eisai, Inc.

RESULTS

% CORRECT PRE/POST RESPONSES TO ALL QUESTIONS

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-Assessment</th>
<th>Post-Assessment</th>
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<tbody>
<tr>
<td>1. Which is the most important time to obtain a routine EEG?</td>
<td>27%</td>
<td>77%</td>
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<tr>
<td>2. What is the most important time to obtain an EEG following a patient's first seizure?</td>
<td>27%</td>
<td>79%</td>
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<td>3. In what region of the brain are normal variants on an EEG more likely experienced at reading EEGs?</td>
<td>27%</td>
<td>79%</td>
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Significant improvement in identifying the most important time to obtain an EEG in patients with epilepsy

Significant improvement in linking a specific EEG pattern with a particular seizure disorder

Significant improvement in recognizing common errors in EEG interpretation

Improved confidence in the interpretation of an EEG following a patient’s first seizure

REFERENCES


ACKNOWLEDGMENTS

The EEG is an important tool for the care of patients with epilepsy. Used correctly, it can diagnose a seizure disorder and also help assess efficacy of treatment. We demonstrated the success of an online CME-certified 30-minute video-based panel discussion in the following domains:

- When to obtain an EEG in patients with epilepsy
- Translating knowledge of EEG wave patterns to specific seizure diagnoses
- Common errors in interpretation of EEGs
- Confidence in using EEGs to diagnose seizure disorders

Future education should continue to address the use of EEGs for recognition, diagnosis, and assessment of efficacy of therapies for epilepsy.

CONCLUSION