EDUCATION IMPROVES NEUROLOGISTS’ KNOWLEDGE AND CLINICAL COMPETENCE REGARDING THIRD-GENERATION ANTIEPILEPTIC DRUGS

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INTRODUCTION

Epilepsy is a spectrum of neurological disorders characterized by seizures with unpredictable frequency that significantly impair quality of life. In the United States, about 830,000 new cases of epilepsy are diagnosed each year. Although highly prevalent, epilepsy remains a challenging disease to effectively manage.1,2 Never fully cured, epilepsy is a lifelong condition that affects millions of patients with acceptable responses to several previous treatments.3 However, according to the American Epilepsy Society, only half of patients with most frequent seizures were offered new treatment options.4 To better understand the system, clinicians associated with the prescription of third-generation antiepileptic drugs (AEDs), an online educational intervention was developed with the goal of improving neurologists’ knowledge and competence regarding use of third-generation AEDs for the treatment of epilepsy.

RESULTS

A total of 95 neurologists who participated in the study and completed both pre- and post-assessment questions were included in the data analysis (Figure 2). After completing the activity, there was a 25% increase in the percentage of correct responses to the control questions compared with the percentage who made those choices prior to the educational intervention. The effect size of the education was calculated to be medium (r = .18, P < .05). As a result of participating in the educational intervention, specific areas of improvement included:

- Knowledge that key metabolic difference between oxcarbazepine and eslicarbazepine is that eslicarbazepine results in a greater percentage of (S)-licarbazepine (relative pre-post percent improvement: 37%, P < .05)

- Identification of pemipropine on the AIDS that is less likely to cause hyponatremia than oxcarbazepine (50%, P = .05)

- Perceptions of Ahmed and ANT/AMPA receptor antagonist metabolites by CYP2B6 and associated with irritability and aggression (relative pre-post percent improvement: 27%, P < .05)

- Selection of an inappropriate third-generation AED for critical parameters in a patient with partial-onset seizures (36%, P < .05)

- Awareness of carbamazepine monotherapy and androgens, and currently being on oral contraceptive (relative pre-post percent improvement: 59%, P < .05)

- There was no change in the ability of neurologists to identify the most appropriate clinically relevant selection of sodium polyphosphates (relative pre-post percent change: 4%, neurologists, P = .156) (Figure 3).

ASSESSMENT METHOD

The study design compared participants’ responses to questions posed before exposure to educational content (pre-assessment measurement) with the same participants’ responses to the same questions after exposure to the educational content post-assessment measurement.

- Linking pre-assessment and post-assessment responses from individual participants allowed each learner to serve as his own control (Figure 4).

- A paired, 2-tailed t-test was used to assess whether the mean pre- and post-assessment scores for individual participants allowed each learner to serve as his own control (Figure 5).

- P-values were calculated for both t-tests and t-statistics to determine significance level (P). Values less than .05 were statistically significant.

- Cohen’s d was used to calculate the effect size of online education. Effect sizes greater than 0.3 are considered large, between 0.2 and 0.3 are medium, and between 0.16 and 0.18 are small.

FIGURE 1. Linked Learning Assessment

FIGURE 2. Percentage of Participants With Correct Response by Question and Summary Statistics

FIGURE 3. Eslicarbazepine is a second-generation AED that is approved for pediatric use only. Bravecto is a topical flea preventive. (Tell a colleague.)

FIGURE 4. Which of the following is true about AEDs? (Tell a colleague.)

FIGURE 5. Which of the following scenarios is a potential contraindication to use of CYP2B6 for a patient with a history of child abuse and associated with irritability and aggression? (Tell a colleague.)

CONCLUSIONS

The use of an online video-based lecture in a library of educational activities has demonstrated its ability to improve clinically relevant knowledge and clinical competence of neurologists effectively utilizing third-generation AEDs in clinical practice. Additionally, the study identified a need for further educational programs that address the underlying problem of propoxyphene in the treatment of epilepsy.

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References