Effects of lamotrigine on attention-deficit hyperactivity disorder in pediatric epilepsy patients

Seung-A Han, Eu Jeen Yang, Mi-Kyoung Song, Sun Jun Kim

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Purpose:
The purpose of this study was to investigate the effects of lamotrigine for the treatment of attention-deficit hyperactivity disorder (ADHD) symptoms in children with epilepsy.

Methods:
Pediatric patients newly diagnosed with epilepsy (n=90 [61 boys and 29 girls]; mean age, 9.1±3.4 years) were enrolled. All patients were evaluated with the Korean ADHD rating scale (K-ARS)-IV before treatment with lamotrigine and after doses had been administered. The mean interval of ADHD testing was approximately 12.3 months. The initial dosage of lamotrigine was 1 mg/kg/day (maximum 25 mg/day for the first 2 weeks), and increased by 1 mg/kg every 2 weeks until titrated up to 7 mg/kg/day (or maximum 200 mg/day).

Results:
The mean ADHD test score of the 90 subjects was 17.0±1.8 at baseline. It was slightly reduced to 15.6±1.7 after lamotrigine monotherapy (P>0.01). Prior to treatment, a total of 31 patients (34.4%) met the diagnostic criteria for ADHD according to Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision, Of these 31 patients, 27 (87.1%) had significantly improved ADHD scores with lamotrigine monotherapy (28.0±1.6 reduced to 18.1±2.6, P<0.001). Among these 27 patients, 25 (92.6%) showed normalized electroencephalogram (EEG) and 26 (96.3%) achieved total freedom from seizures within 12 months of the initiation of lamotrigine monotherapy.

Conclusion:
The results of our study show that lamotrigine had a positive effect in pediatric epilepsy patients by reducing ADHD symptoms, preventing seizures, and normalizing EEG. However, further research is required to determine whether lamotrigine is efficacious against ADHD symptoms independent of its effects on epileptic seizures.