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MEETING ABSTRACT Open Access

EHMTI-0140. The potential role of levetiracetam in migraine treatment: an animal study

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Introduction

Cortical spreading depression (CSD) is one of the most widely used animal models of migraine. Whether levetiracetam (LEV), like other antiepileptic drugs, has a role in the treatment of migraine remains uncertain.

Aim

To investigate the potential of LEV in the treatment of migraine using a rat model of CSD.

Method

Male Sprague-Dawley rats were used. The effects of acute (3 day) and chronic (28 days) treatment with vehicle, LEV 200mg/kg/d, and LEV 400mg/kg/d on CSD susceptibility were examined. Drugs were given as daily intraperitoneal injections. After completion of drug treatment, CSD was elicited by placing a cotton ball soaked with 1M KCl onto the occipital cortex, and was recorded for 2 hours by placing a glass microelectrode into the frontal cortex.

Results

In the acute treatment experiment, rats receiving LEV 400mg/kg/d (8.4 ± 1.0) had fewer CSDs per hour than those receiving vehicle (12.9 ± 1.7, $p < 0.001$) and LEV 200mg/kg/d (12.5 ± 1.2, $p<0.001$). In the chronic treatment experiment, rats receiving LEV 400mg/kg/d (11.4 ± 0.6) had fewer hourly CSD events than those receiving vehicle (14.3 ± 0.3, $P < 0.001$) and LEV 200mg/kg/d (13.6 ± 0.4, $p < 0.001$), and rats treated LEV 200mg/kg/d had less CSDs than those in the vehicle group ($p = 0.049$).

Conclusion

LEV had a modest effect on reducing CSD susceptibility at a dose of 400mg/kg/d, and the effects on CSD susceptibility were comparable when administered acutely or chronically.

Conflict of interest.

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