



Short communication

Dose-response relationship analysis of vigabatrin doses and their antinociceptive effects in the hot-plate test in mice

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Abstract:

This study was aimed at determining the analgesic effects of vigabatrin (VGB, a newer antiepileptic drug) in the acute thermal pain model (hot-plate test) in mice.

Linear regression analysis was used to evaluate a dose-response relationship between logarithms of VGB doses and their resultant maximum possible antinociceptive effects (MPAE) in the hot-plate test in mice. From the linear equation of dose-response relationship, doses of VGB that increased the antinociceptive effect by 15%, 20% and 25% were calculated and amounted in this study to 144, 383 and 1016 mg/kg, respectively.

In conclusion, VGB in a dose-dependent manner produces the analgesic effects in mice in the hot-plate test. The method allowing for the calculation of doses of VGB increasing the antinociceptive effects by 15%, 20% and 25% can be readily adapted to preclinical studies because these values perfectly characterize the potency of antiepileptic drugs with respect to suppression of acute thermal pain in mice.

Key words:

acute thermal pain, dose-response relationship, hot-plate test, linear regression analysis, maximum possible antinociceptive effect, vigabatrin
