

## Evaluation of antinociceptive effect of pregabalin in mice and its combination with tramadol using tail-flick test

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**Background and Aims:** The development of combination therapy is a coherent approach in severe pain treatment. The present study investigated the antinociceptive effect of pregabalin alone and in combination with tramadol in acute pain modeling.

**Methods:** Three groups of male mice received either pregabalin (1 to 400 mg/kg), tramadol (10 to 80 mg/kg) or combination of them intraperitoneally. Then latency time, maximum possible effect (%MPE) and area under curve (AUC) were calculated in tail-flick test.

**Results:** The antinociceptive indexes showed significant increase for pregabalin from 10 to 200 and for tramadol from 10 to 80 mg/kg while dose-dependent relationship was observed only for tramadol (effective dose 50% was 54 to 79 mg/kg). The antinociceptive effect of 100 mg/kg of pregabalin was similar to that of 50 mg/kg of tramadol. The combination of sub-analgesic doses of tramadol and pregabalin (10 mg/kg) did not increase %MPE and AUC, but the co-administration of 30 mg/kg of tramadol with pregabalin (10 mg/kg) increased all antinociceptive indexes significantly.

**Conclusions:** In conclusion, pregabalin indicated a comparable antinociceptive effect to tramadol. The increase in analgesic effect was observed at some specific dose combination. Therefore in pain management, solely right proportion of this combination may increase analgesic effect and deal with adverse effects.

**Keywords:** Pregabalin; Tramadol; Combination; Antinociception; Tail flick