

## O-49 - EFFECTS OF LEVETIRACETAM ON THE DEVELOPMENT AND EXPRESSION OF TOLERANCE TO MORPHINE-INDUCED ANTINOCICEPTION IN MICE

R.Vesali<sup>1</sup>, M.Saberi<sup>2,3</sup>, M.H.Hassantash<sup>1</sup>, S.P.Tehrani<sup>1</sup>

<sup>1</sup>Department of Psychology, Faculty of Psychology and Education, University of Tehran, <sup>2</sup>Pharmacology & Toxicology, Bagqiyatallah University of Medical Sciences, <sup>3</sup>Neuroscience Research Center, Shahid Beheshti University, Tehran, Iran

**Aims:** In the present study, the effects of Levetiracetam on the development and expression of tolerance to the morphine-induced antinociception was evaluated using tail-flick test.

**Methods:** To assess the Levetiracetam effects on tolerance development, the animals received Levetiracetam (60, 300 or 900 mg/kg; i.p.), 30 min prior to morphine (50 mg/kg; s.c.) administration during tolerance induction period once daily for 3 days. Also, to evaluate the effects of Levetiracetam on tolerance expression, different doses of Levetiracetam was administered 30 min before challenge dose of morphine (5 mg/kg; s.c.) following morphine-induced tolerance. In each experiment the antinociceptive response to the challenge dose of morphine was evaluated after 30-min interval by tail-flick test. Furthermore, the analgesic effect of various doses of Levetiracetam alone was evaluated as well.

**Results:** The results showed that Levetiracetam at the doses of 300 and 900 mg/kg could inhibit the development of tolerance. Also, Levetiracetam at the dose of 900 mg/kg attenuated the expression of morphine-induced tolerance. Levetiracetam injection was associated significantly with higher latency period when compared to the control group. Moreover, Levetiracetam (900 mg/kg) significantly enhanced antinociceptive effect of morphine in a dose-dependent manner.

**Conclusions:** These data indicated that, while Levetiracetam can attenuate both development and expression of morphine-induced tolerance, it can enhance morphine-induced antinociception. These effects may have important clinical implications.