Abstract

Data available on the role of the opioid systems of the naked mole-rat in nociception is scanty and unique compared to that of other rodents. In the current study, the effect of DAMGO, DPDPE and U-50488 and U-69593 on formalin-induced (20 µl, 10%) nociception were investigated. Nociceptive-like behaviors were quantified by scoring in blocks of 5 min the total amount of time (s) the animal spent scratching/biting the injected paw in the early (0–5 min) and in the late (25–60 min) phase of the test. In both the early and late phases, administration of 1 or 5 mg/kg of DAMGO or DPDPE caused a naloxone-attenuated decrease in the mean scratching/biting time. U-50488 and U-69593 at all the doses tested did not significantly change the mean scratching/biting time in the early phase. However, in the late phase U-50488 or U-69593 at the highest doses tested (1 or 5 mg/kg or 0.025 or 0.05 mg/kg, respectively) caused a statistically significant and naloxone-attenuated decrease in the mean scratching/biting time. The data showed that mu, delta or kappa-selective opioids causes antinociception in the formalin test in this rodent, adding novel information on the role of opioid systems of the animal on pain regulation.