

Abstract

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Neuropharmacological effects of oleamide in male and female mice.

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OBJECTIVE: Oleamide, a fatty acid amide accumulates selectively in the cerebrospinal fluid of sleep deprived cats and rats. Oleamide has been reported to have effects on a wide range of receptors and neurotransmitter systems especially the centrally acting ones for example, dopamine acetylcholine, serotonin, gamma aminobutyric acid (GABA), cannabinoid and vanilloid among others. This suggests a wide range of central nervous system effects of the compound.

METHODS: The effects of intraperitoneal administered oleamide on Novelty-induced behaviours, learning and memory and forced swimming-induced depression were studied. The relative effects of the compound on the male and female mice were also noted.

RESULTS: Oleamide dose-dependently reduced ($p < 0.05$) novelty induced rearing, grooming and locomotion. The effects on the all NIBs started within the first 10 min of the test and the peak of the effects was observed during the third 10 min period of the test. Effect of oleamide on short-term working memory was significantly ($p < 0.05$) affected only with the dose of 5mg/kg while the other dose of 10mg/kg had no effect. In the forced swimming test, acute triple intraperitoneal administration of oleamide at 10mg/kg induced a significant reduction in the immobility duration in mice signifying an antidepressant effect. Sex differences in the effects of oleamide (10mg/kg, i.p.) were clearly evident in active behaviours in FST.

CONCLUSION: These results confirm the multiplicity of central nervous system receptors and neurotransmitters that oleamide interacts with hence its numerous and diverse neuropharmacological effects. Most importantly, the present study suggests that oleamide has antidepressant-like property.

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