

Effect of L-Arginine, the nitric oxide precursor, on morphine tolerance in ovariectomized rats

Hosseini, M.^a, Haedari, R.^b, Karimooy, H.A.N.^a, Khoshnood, E.^a, Rakhshandeh, H.^c, Tairani, Z.^a

^a Dept. of Physiology, **Mashhad University of Medical Sciences, Mashhad, Iran**

^b Dept. of Biology, Faculty of Science, Tarbiat Moallem **University of Tehran, Iran**

^c Dept. of Pharmacology and Pharmacological Research Center of Medicinal Plants, **Mashhad University of Medical Sciences, Mashhad, Iran**

[View references \(5\)](#)

Abstract

In present study probable effects of L- arginine on morphine tolerance in ovariectomized rats was investigated. 4 weeks after ovariectomy, rats were divided into test groups, including Tolerant and Tolerant+ L-Arginine (10, 20 and 40 mg/kg) groups. Morphine tolerance was induced by daily injection of 10 mg/kg morphine during 4 consecutive days. Animals of groups 1, 2 and 3 were simultaneously treated with 10, 20 and 40 mg/kg L-Arginine, respectively. Hotplate test was carried out in 5th day as a base record, then the animals received 20 mg/kg morphine and antinociceptive effect was evaluated every 10 min. The base time of Tolerant group was lower than Tolerant + L-Arginine 10, 20 and 40 mg/kg groups. Analyzing by repeated measure ANOVA showed that reaction time after last injection of 20 mg/kg morphine in tolerant group was lower than all 3 Tolerant + L-Arginine groups. This implies that L-Arginine reduces morphine tolerance in ovariectomized rats.

Reaxys Database Information

Author keywords

L- Arginine; Morphine; Ovariectomized rat; Tolerance

Indexed Keywords

EMTREE drug terms: arginine; ketamine; morphine sulfate; nitric oxide synthase

EMTREE medical terms: animal experiment; antinociception; article; controlled study; experimental rat; female; hot plate test; morphine tolerance; nonhuman; ovariectomy; rat; reaction time

Chemicals and CAS Registry Numbers: arginine, 1119-34-2, 10090-30-4, 7004-12-8, 74-79-3; ketamine, 1877-77-9, 7440-88-1, 81771-21-3; morphine sulfate, 23090-84-3, 30764-00-7, 74-31-3; nitric oxide synthase, 120978-90-2

Manufacturers:Drug manufacturer: Temad, Iran.

ISSN: 1827862 • **Source Type:** Journal **Original language:** English

Document Type: Article