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**Local antinociceptive action of fluoxetine in the rat formalin assay: Role of L arginine/nitric oxide/cGMP/KATP channel pathway**Behnam Ghorbanzadeh<sup>1</sup>, Mohammad Taghi Mansouri<sup>2</sup>, Bahareh Naghizadeh<sup>2</sup> and Soheila Alboghobeish<sup>2</sup><sup>1</sup>Dezful University of Medical Sciences, Iran<sup>2</sup>Ahvaz Jundishapur University of Medical Sciences, Iran

The present study was conducted to evaluate the local antinociceptive actions of fluoxetine, a selective serotonin reuptake inhibitor, and the possible involvement of the L-arginine/NO/cGMP/K<sub>ATP</sub> channel pathway in this effect using the formalin test in rats. To elucidate the underlying mechanisms, animals were pre-treated with L-NAME, aminoguanidine, methylene blue, glibenclamide, L arginine, sodium nitroprusside, or diazoxide. Local ipsilateral, but not contralateral, administration of fluoxetine (10–300 mcg/paw) dose-dependently suppressed flinching number during both early and late phases of the test, and this was comparable with morphine, also given peripherally. Pre-treatment with L-NAME, aminoguanidine, methylene blue, or glibenclamide dose-dependently prevented fluoxetine (100 mcg/paw)-induced antinociception in the late phase. In contrast, administration of L-arginine, sodium nitroprusside, and diazoxide significantly enhanced the antinociception caused by fluoxetine in the late phase of the test. However, these treatments had no significant effect on the antinociceptive response of fluoxetine in the early phase of the formalin test. Our data demonstrates that local peripheral antinociception of fluoxetine during the late phase of the formalin test could be due to activation of L-arginine/NO/cGMP/KATP channel pathway. The peripheral action of fluoxetine raises the possibility that topical application of this drug (e.g., as a cream, ointment, or jelly) may be a useful method for relieving the inflammatory pain states.

**Biography**

Behnam Ghorbanzadeh completed his PhD in Pharmacology at Ahvaz Jundishapur University of Medical Sciences in Iran. He started Research in Pharmacology in 2010 and has a strong research focus on Neuropharmacology and behavior in animal models. He currently works as an Assistant Professor in Pharmacology at the Department of Pharmacology, School of Medicine, Dezful University of Medical Sciences, Dezful, Iran.

B\_ghorbanzadeh82@yahoo.com