Azam Bakhtiarian, J Neurol Neurophysiol 2016, 8:1(Suppl)
http://dx.doi.org/10.4172/2155-9562.C1.043

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10th International Conference on
Neuroscience and Neurochemistry
&
6th International Conference on Vascular Dementia February 27-March 01, 2017

The effect of nitrazepam on depression and curiosity in behavioral tests in mice: The role of potassium channels

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Evidence show that gamma-aminobutyric acid (GABA) receptors are involved in depression, so the aim of this study was to investigate the effect of nitrazepam as agonist of GABAA receptors on depression and curiosity in male mice and the role of potassium channel in antidepressant-like response. For this purpose, we studied the antidepressant-like properties of fluoxetine, nitrazepam, glibenclamide, and cromakalim by both forced swimming test (FST) and tail suspension test (TST). Animals were injected by various doses of nitrazepam (0.05, 0.1, and 0.5 mg/kg). Nitrazepam at dose of 0.5 mg/kg significantly decreased the immobility time compared to control group in both FST and TST. Fluoxetine also showed such a response. Co-administration of nitrazepam (0.05 mg/kg) with glibenclamide in TST (1 mg/kg) and in FST (0.3, 1 mg/kg) also showed antidepressant-like response. Beside, cromakalim (0.1 mg/kg) could reverse the antidepressant-like effect of nitrazepam (0.5 mg/kg) in both FST and TST, while cromakalim and glibenclamide alone could not change the immobility time compared to control group ($P>0.05$). The hole-board test revealed that nitrazepam at doses of 0.5 and 0.1 mg/kg could increase the activity of the animal's head-dipping and boost the curiosity and exploration behavior of mice. The results of this study revealed that nitrazepam may possess antidepressant-like properties and this effect is dependent to potassium channels in both FST and TST.

Biography

Azam Bakhtiarian has her expertise in Pharmacology. Her main research focus is on "Characterizing effect of different drugs on both *in vitro* and *in vivo* models. She has completed her PhD at University of California in Irvine and she is currently an Associate Professor of Pharmacology at Tehran University of Medical Sciences.

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