

Protective Effect of Metformin on Oxandrolone-Induced Neuroinflammation and Behavioral Changes in Rats

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Abstract

This study investigated the protective role of metformin against oxandrolone induced sickness behavioral and neuroinflammation. Twenty- four albino male rats were randomly grouped into four groups; control group (C) received only normal saline; oxandrolone group (OXA) received oxandrolone, metformin group (MET), received metformin, and oxandrolone and metformin group (OXA/MET) received simultaneously oxandrolone and metformin. These treatments were administered for fourteen consecutive days. Behavioral tests were conducted before and after treatments exposure. RT-PCR was utilized to measure the relative expression of proinflammatory and anti-inflammatory cytokines in Hippocampus and Hypothalamus. The results showed that oxandrolone induced depression like-behavioral and dysregulation of pro-/anti-inflammatory cytokines and metformin attenuated this effect. Thus, our findings suggest that metformin has anti-inflammatory and can reduce depression-like behavior and may be a potential treatment to reverse the effects induced by oxandrolone.

Keywords: Neuroinflammation, Sickness behavioral, Oxandrolone, Metformin.