

# Oxycodone enhances the effects of Metformin therapy in mice with painful diabetic neuropathy induced by Alloxan

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## Abstract

**Background:** DN (diabetic neuropathy) is a common disorder and two thirds of diabetic patients have clinical or subclinical neuropathy. Pain in DN can be spontaneous or stimulus induced and aggravate in nights.  $\mu$ -opioid receptor makes weak-reply to an ant nociceptive effect of opioid agonist but  $\mu$ -opioid receptors create ant nociceptive response appropriately.

**Methods:** Diabetic animals were treated intraperitoneally for 3weeks in 9 groups including different doses of oxycodone and co-deine with constant dose of metformin (200mg/kg). The normal saline group was considered as a negative control group and diabetic group as positive control. After 3 weeks Hot plate and tail flic test were done and fasting blood glucose was measured. After that Animals were sacrificed and oxidative stress biomarkers including lipid peroxidation, protein carbonyl content, and glutathione content were measured in brain and liver isolated mitochondria.

**Results:** In this study finding demonstrated that Oxycodone (high dose 8mg/kg) with effect on both  $\mu$ -opioid receptor and  $\kappa$ -opioid receptor significantly enhances the effects of metformin therapy in mice with painful diabetic neuropathy. In addition, opioid drug induced stress oxidative and MDA formation in brain and liver. As well as, in diabetic mice, glucose level in all drug groups significantly decreased in compared to positive diabetic group.

**Conclusion:** According to present study, Oxycodone had antidiabetic effect and could have increased ant-neuropathy and anti-diabetic effect of metformin and can be considered for anti-diabetic regime .

## Biography

Ramin Atae is PharmD,PhD in pharmacology from Tehran University of Medical Sciences in 2009 as followings with H-index 7 ,They are some of his qualifications and short C.V Researcher of Institute Pasteur,Amol Branch 2000-2012Assistant Prof of Pharmacology MUMS 2012-no, 6 months scholarship QIMR,Brisbane Australia 2009 3 months grant, trainee ship, Armand Frappier Institute, Montreal Canada, Editorial board of sciafrijournal ,Editorial board of International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS),Published Articles :46,Articles in ISI or PubMed:15,Research projects:30,PharmD or Bsc Thesis supervisor:30,Published books:2,Iranian Pharmacy council member, Iranian Medical council member