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Combined effect of baclofen and acamprosate in experimental models of peripheral neuropathic pain in Wistar rats

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Introduction & Aim: Neuropathic pain (NP) is defined as pain associated with damage or permanent alteration of the peripheral or central nervous system. Current drug treatment for the management of neuropathic pain is associated with various adverse effects. The present study was designed to investigate the combined effect of acamprosate and baclofen in experimental model of peripheral neuropathic pain in wistar rats.

Materials & Methods: Neuropathic pain was induced by chronic constriction injury (CCI) of sciatic nerve in rats. A camprosate (100 and 200 mg/kg p.o) and baclofen (10 and 20 mg/kg p.o) was given in different groups for 14 days starting on 7th day post sciatic nerve ligation. Further combination of acamprosate (100 mg/kg p.o) and baclofen (10 mg/kg p.o) was also given to one group. On 1st, 3rd, 7th, 14th and 21st day behavioral parameters like mechanical allodynia and thermal hyperalgesia were assessed. Then animals were sacrificed on 22nd day and biochemical parameters (GSH, LPO, catalase, nitrite, SOD) were assessed.

Results: Ligation of sciatic nerve significantly induced mechanical allodynia and thermal hyperalgesia with increase in oxidative stress (increase in lpo and nitrite) and decline of anti-oxidant enzyme levels (catalase, SOD, GSH) in sciatic nerve homogenate. A camprosate (100 and 200 mg/kg p.o) and baclofen (10 and 20 mg/kg p.o) attenuated all the behavioural and biochemical parameters alone and/or combination.

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