ABSTRACTS

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05.021 Nicorandil inhibits mechanical allodynia in the model of neuropathic pain induced by paclitaxel by activating opioidergic and serotoninergic mechanisms.
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Introduction: Neuropathic pain is a chronic disorder usually associated with central or peripheral nervous system lesions or diseases. A myriad of neurochemical mechanisms may contribute to establishment of neuropathic pain, thus contributing to the refractoriness to the traditional analgesic therapies. As low as 25% of the patients exhibiting neuropathic pain get a relief greater than 50% after using the available analgesic medicines. Nicorandil, a drug that releases nitric oxide (NO) and opens ATP-sensitive potassium channels, has been approved in some countries to treat patients with angina pectoris. The activity of nicorandil in models of nociceptive and inflammatory pain has been recently demonstrated, thus justifying additional investigations in models of neuropathic pain. **Methods:** The effect induced by nicorandil (50, 100 or 150 mg/kg, *per os*-*p.o.*) on the mechanical allodynia induced by paclitaxel (2 mg/kg, 2 mL/kg, intraperitoneal-*i.p.*) in male Swiss mice (25-30 g) was evaluated. To investigate putative mechanisms mediating the antinociceptive activity of nicorandil in the model of neuropathic pain induced by paclitaxel, opioidergic (naltrexone 5 or 10 mg/kg, *i.p.*) and serotonergic (cyproheptadine 5 or 10 mg/kg, *i.p.*) antagonists and an ATP-dependent potassium channel blocker (glibenclamide, 20 or 40 mg/kg, *p.o.*) were used. Nicorandil was administered twice (8 mL/kg, *p.o.*), within a two hour interval. **Results**: Nicorandil inhibited the mechanical allodynia induced by paclitaxel when administered once or twice in the seventh or fourteenth day after first injection of paclitaxel. A greater antinociceptive effect was observed when nicorandil was administered twice within two hours interval. Naltrexone and cyproheptadine, but not glibenclamide, attenuated the antinociceptive effect induced by nicorandil. **Conclusion:** The results demonstrate that nicorandil exhibits antinociceptive activity in the model of neuropathic pain induced by paclitaxel. This activity may be mediated by activation of opioidergic and serotonergic receptors, but not ATP-sensitive potassium channels. The results indicate that nicorandil may represent a pharmacotherapeutic strategy in the treatment of patients with neuropathic pain and justify additional preclinical and clinical assays aiming to evaluate its potential use as an analgesic drug. **Financial support:** CNPq, FAPEMIG **Approval protocol number:** 339/2015
References: DUTRA, M.M.G.B. European Journal of Pharmacology, v. 768, p. 160, 2015. DUTRA, M.M.G.B. Pharmacology, Biochemistry and Behavior, v. 106, p. 85, 2013. JENSEN, T.S. Pain, v. 152, p. 2204, 2011.