The involvement of L-arginine-nitric ox-ide-cGMP-ATP-sensitive K+ channel pathway in antinocicep-tion of BBHC, a novel diarylpentanoid analogue, in mice model

ABSTRACT

The present study focuses on the possible involvement of l-arginine-nitric oxide-cGMP-ATP-sensitive K+ channel pathway in the antinociceptive activity of a novel diarylpentanoid analogue, 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol (BBHC) via a chemical nociceptive model in mice. The antinociceptive action of BBHC (1 mg/kg, i.p.) was attenuated by the intraperitoneal pre-treatment of l-arginine (a nitric oxide synthase precursor) and glibenclamide (an ATP-sensitive K+ channel blocker) in acetic acid-induced abdominal constriction tests. Interestingly, BBHC's antinociception was significantly enhanced by the i.p. pre-treatment of 1H-[1,2,4]oxadiazolo[4,3-a]quinoxalin-1-one (ODQ), a selective inhibitor of soluble guanylyl cyclase ($p < 0.05$). Altogether, these findings suggest that the systemic administration of BBHC is able to establish a significant antinociceptive effect in a mice model of chemically induced pain. BBHC's antinociception is shown to be mediated by the involvement of l-arginine-nitric oxide-cGMP-ATP-sensitive K+ channel pathway, without any potential sedative or muscle relaxant concerns.

Keyword: Antinociceptive; BBHC; cGMP; Diarylpentanoid; Nitric oxide; ATP-sensitive potassium channel