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ABSTRACT

Role of kinin B2 receptor after capsaicin treatment in rat bulb

Función del receptor de quinina B2 tras el tratamiento con capsaicina en bulbo de rata

Papel do receptor B2 de cininas após tratamento com capsaicina no bulbo de ratos

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Introduction: Kinins are neuropeptides involved in the process of pain and inflammation. They are released through the activation of two receptors B1 and B2. The B2 receptor is considered a constitutive receptor in central and peripheral tissues, and the B1 receptor is rarely expressed in normal tissues but may be expressed after infection, and tissue injury plasma leakage, cell migration, pain and hyperalgesia, although many studies have revealed the presence of this receptor constitutively in the canine cardiovascular system. Capsaicin, a vanilloid receptor type 1 (TRV1), a component of red pepper, participates in the thermal transduction of pain and inflammation. TRV1 causes degeneration of primary afferent fibers (C (Aδ)), which are sensory fibers that mediate pain[1-5].

Objective: Demonstrate and locate the expression of the kinin B2 receptor protein in the central and peripheral nervous system of neonatal and adult rats, determine whether these receptors originate from primary sensory C fibers, and analyze the gene expression of this receptor after capsaicin administration.

Methodology: Rats were treated with capsaicin on day 2 of life (50 mg/kg, subcutaneously (s.c.) or 2 weeks before sacrifice (125 mg/kg for 3 days, s.c.). Receptor expression at isotopically labeled radioligand sites was measured in 125IHPPHoe 140 radioligand-labeled tissue sections (B2R) in the medulla, spinal cord, and aorta. B2R mRNA levels were measured by qualitative RT-PCR in the paratrigeminal nucleus (Pa5), nucleus tractus solitarius (NTS), medulla, liver, and hypothalamus.

Results and Discussion: After treatment of the animals with capsaicin, the location and expression of the B2 receptor in the Pa5 and NTS nuclei, as well as in the aorta and spinal cord, were observed through autoradiographic and gene expression analyses. Genomic processing was also observed in the hypothalamus and liver. The expression levels of the B2 receptor expressed in several tissues were not altered by capsaicin treatment in neonates, when compared with controls in autoradiography, real-time, and qualitative PCR.

Conclusion: It is suggested that the synthesis of the kinin B2 receptor is not influenced by capsaicin-sensitive afferent fibers; distinct mechanisms may occur for its modulation.

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