6° CONGRESSO INTERNACIONAL EM SAÚDE CISaúde
Vigilância em Saúde: Ações de Promoção, Prevenção, Diagnóstico e Tratamento

Tipo de trabalho: RESUMO SIMPLES (MÁXIMO 2 PÁGINAS)

ROLE OF KININ RECEPTORS IN THE FIBROMYALGIA-ASSOCIATED PAIN[1]

Indiara Brusco[2], Sara Marchesan Oliveira[3]

[1] Trabalho de Tese de Doutorado
[2] Graduate Program in Biological Sciences: Biochemistry Toxicology, Federal University of Santa Maria, Santa Maria, RS, Brazil
[3] Professor of the Department of Biochemistry and Molecular Biology, Federal University of Santa Maria, Santa Maria, RS, Brazil

Introduction

The fibromyalgia is a chronic disease characterized as generalized chronic primary pain that causes functional disability and reduction of patients' quality of life since it does not have specific pathophysiology, diagnostic or appropriate treatment. In this way, it is important to elucidate the mechanisms involved with this disease. Evidence has shown the contribution of kinins and their B_1 and B_2 receptors in acute and chronic painful conditions.

Objective

Investigate the involvement of the kinins and its B_1 and B_2 receptors in a fibromyalgia-associated pain model reserpine-induced in mice.

Methods

The fibromyalgia model was induced by subcutaneous (s.c.) administration of reserpine (1 mg/kg, s.c.) once a day for three consecutive days. Nociceptive parameters as mechanical and cold allodynia and spontaneous nociception were evaluated after the reserpine administration in adult male Swiss mice (CEUA: 2770030516/2016/UFSM). The role of kinin B_1 and B_2 receptors was investigated on these parameters using pharmacological antagonism. Moreover, the mechanical allodynia also was evaluated in wild type C57BL/6 mice and kinin B_1 and B_2 receptor knockout mice (208/2014/USP).

Results

The B_1 (DALBk) and B_2 (Icatibant) receptor peptide antagonists reduced the mechanical allodynia induced by reserpine from 0.5 up to 2 h (I_{max}=46±7% at 1 h) or from 0.5 up to 1 h (I_{max}=51±8% at 1 h) after its administrations, respectively. Likewise, B_1 (SSR240612) and B_2 (FR173657) receptor

non-peptide antagonists also reduced the mechanical allodynia from 0.5 up to 6 h (I_{max} of 87±13% at 1 h) and from 1 up to 2 h (I_{max} of 56±16% at 1 h) after its administrations, respectively. Moreover, B_1 (DALBk) or B_2 (Icatibant) receptor peptide antagonists reduced the reserpine-induced cold allodynia at 1 h after its administration with I_{max} of 57±20% and 50±18%, respectively. Likewise, B_1 (SSR240612) or B_2 (FR173657) receptor non-peptide antagonists also reduced the cold allodynia with I_{max} of 81±10% and 86±18% at 1 h after treatments, respectively. Low doses of kinin B_1 and B_2 receptor agonists caused spontaneous nociception in animals previously treated with reserpine which was prevented by the B_1 antagonist (DALBk; I_{max}=59±9%) or by the B_2 antagonist (Icatibant; I_{max}=64±8%), respectively. The kinin B_1 and B_2 receptor gene deletion also reduced the reserpine-induced mechanical allodynia with maximal inhibitions of 94±6% and 88±7% at 1 day or 3 days in kinin B_1 and B_2 receptor knockout, respectively.

Conclusion

Kinins B_1 and B_2 receptors are involved in the fibromyalgia-associated pain. Our results suggested that the B_1 or B_2 receptors might represent a potential target for the treatment of fibromyalgia-associated pain symptoms.

Keywords: Reserpine; Mechanical Allodynia; Cold Allodynia; Spontaneous Nociception.

Acknowledgment: CAPES/PROEX (Grant #23038.005848/2018-3) and IB is recipient of fellowship from CAPES/PROEX [process #88882.182148/2018-01]. CNPq (Grant #406098/2018-2); FAPERGS (Grant #16/2551-0000281-9 and #17/2551-0001082-5); Programa de Pós-graduação em Ciências Biológicas: Bioquímica Toxicológica UFSM.