NOCICEPTIVE EFFECT OF PERIPERAL POLYAMINES IN MICE

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Introduction and objectives: The polyamines (spermine, spermidine and putrescine) are important endogenous regulators of ion channels. It has been demonstrated that polyamines *in vitro*, modulate the vanilloid receptor (TRPV1), a molecular integrator of noxious stimuli. In the present study, we have investigated the possible nociceptive effect induced by polyamines and the mechanisms involved this nociceptive action *in vivo.* **Results and conclusions:** Intraplantar injection of capsaicin (0.01-1 nmol/paw), spemine, spermidine or putrescine into mice hind-paw produced nociception with DE_{50} of 0.12 (0.03-0.41) nmol/paw, 0.5 (0.2-1.5), 0.6 (0.2-1.3) and 0.7 (0.6-1.3) µmol/paw, respectively. The TRPV1 antagonists capsazepine and SB366791 (1 nmol/paw) inhibited spermine- or capsaicin-induced nociception, with inhibition of 81±10 and 40±18% or 81±6 and 76±8%, respectively. The antagonists of NMDA (MK801, 1 nmol/paw) or AMPA/kainate receptors (DNQX, 1 nmol/paw) reduced the nociception caused by glutamate (10 µmol/paw), but not that produced by spermine. Intraplantar pre-injection of DFMO (100 nmol/paw), an inhibitor of ornithine decaboxylase, reduced the nociception in first and second phase in formalin test with inhibition of 85,8±6,9% and 72,8±14,9%, respectively. Taken together, exogenous and endogenous polyamines produce spontaneous nociceptive effect mediated by stimulation of TRPV1, but not ionotropic glutamate receptors. Thus, polyamines could be important peripheral modulators of pain, especially during inflammatory process when local polyamines levels seem to be increased. **Acknowledgements:** CAPES, CNPq, FAPERGS. **Key words**: polyamines, analgesic, ion channels.