

عنوان مقاله:

Effect of curcumin on formalin-induced muscle pain in male rats : role of local cyclooxygenase system

محل انتشار:

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خلاصه مقاله:

Investigating the mechanisms responsible for pain processing of natural and synthetic chemical compounds is necessary to optimize pain management. Curcumin (Cur), the active ingredient of turmeric, exhibits potent analgesic and anti-inflammatory properties by employing multiple mechanisms at the local peripheral, spinal and supra-spinal levels. This study was aimed to investigate the effect of oral administration of Cur on muscle pain induced by intramuscular (IM) injection of formalin. To explore the possible local mechanisms, a cyclooxygenase (COX) inhibitor, diclofenac (Dic) and a COX product, prostaglandin E₂ (PGE₂), were applied. The IM injection of formalin (۲۵.۰۰ μL, ۲.۵۰%) into the gastrocnemius muscle induced two distinct phases of hind leg flinching. A short-lasting (۱۰ min) hind leg lifting was observed following IM injection of PGE₂ (۲ μg kg⁻¹, ۲۵.۰۰ μL). Oral administration of Cur (۲۵.۰۰ and ۱۰۰ mg kg⁻¹) and IM injection of ۴۰.۰۰ μg kg⁻¹ Dic attenuated formalin and PGE₂ induced nociceptive behaviors. Contra-lateral IM injection of Dic did not change muscle pain induced by ipsilateral IM injection of formalin and PGE₂. The second phase of formalin induced flinching as well as PGE₂ evoked lifting were more suppressed when ۴۰.۰۰ μg kg⁻¹ Dic and ۱۰۰ mg kg⁻¹ Cur were used together. Locomotor activity was not changed by the above-mentioned treatments. It was concluded that the reducing effect of muscle pain of Cur might be related to the local inhibition of COX

کلمات کلیدی:

curcumin, Cyclooxygenase, Diclofenac, Muscle pain, Prostaglandin E₂

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