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Anti-inflammatory effects of Morphine on Carrageenan induced Hind Paw edema in mice model of acute inflammation

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Abstract:

Background: Using the systemic opioids in pain relief has been known during the history. Several evidences indicate that exogenous opioids such as morphine can produce anti-nociceptive effects by interacting with local opioid receptors in peripheral inflamed tissues; in addition to analgesic effects of morphine, less clear is potential anti-inflammatory effects of it. Materials and Methods: In the present study we examined effects of intra-peritoneal (i.p.) injection of morphine (7 mg/kg) on carrageenan (0.05 ml, 3% W/V in saline) induced paw edema in mice. Results: Carrageenan induced paw edema were measured by mercury plethysmometer and was maximal at hour 3 and pretreatment with morphine could reduce the edema significantly. At the same time the serum levels of interleukin-1 alpha (IL-1 α) were increased. Pretreatment with naloxone (2&10 mg/kg, i.p.) at 45 min before and 165 min after carrageenan, respectively, blocked the effects of morphine sulfate on edema in each groups. Pretreatment with naloxone abolished morphine anti-inflammatory while decreased IL-1 α serum levels, significantly. Although, administration of anti mouse IL-1 α (7, 14 & 28 μ g/mice, i.p.) abolished morphine anti-inflammatory effects. Conclusion: These findings showed that increase in serum levels of IL-1 α play important roles in anti-inflammatory effect of morphine. The results indicated that morphine exert significant anti-inflammatory activity. Presumably, the anti-inflammatory action of morphine may be due to change on the cytokine production and/or release by host immune system.

Keywords:

[Carrageenan](#) , [Acute inflammation](#)

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