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## Pathophysiology

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## Angiotensin converting enzyme inhibitor captopril modifies conditioned place preference induced by morphine and morphine withdrawal signs in rats

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## Abstract

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Angiotensin II and angiotensin converting enzyme (ACE) inhibitors have analgesic, anticonvulsant and antidepressive effects and in some cases they can antagonize morphine. In the present study effects of angiotensin II and ACE inhibitor captopril administered intracerebroventricularly (icv) on conditioned place preference induced by morphine as well as on morphine withdrawal signs has been evaluated in rats. Icv cannulas were implanted in anesthetized male rats. Rats were allowed to recover from the surgery and conditioned place preference was induced by morphine, and the time spent in morphine compartment was compared in saline, morphine, captopril and Ang II groups. Morphine withdrawal signs were compared in three other groups of rats: morphine alone, captopril + morphine and Ang II + morphine 4 days after morphine injections (three times in each day) with naloxone injection on 4th day. Results with rats conditioned place preference induced by morphine showed that icv captopril decreased significantly the time in morphine compartment ( $P < 0.01$ ) while Ang II had no effect. In morphine dependent rats captopril decreased some withdrawal signs after naloxone precipitation ( $P < 0.05$  and  $P < 0.01$ ). Ang II administration augmented some of withdrawal signs than in the morphine group ( $P < 0.01$  and  $P < 0.001$ ). In conclusion captopril reduced conditioned place preference induced by morphine and some withdrawal signs in morphine dependent rats. © 2007 Elsevier Ireland Ltd. All rights reserved.

## Reaxys Database Information

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## Author keywords

Angiotensin II; Captopril; CPP; Morphine; Rat; Withdrawal

## Indexed Keywords

EMTREE drug terms: angiotensin II; captopril; dipeptidyl carboxypeptidase inhibitor; morphine; naloxone; sodium chloride

EMTREE medical terms: animal experiment; animal model; animal tissue; article; cannula; controlled study; male; morphine addiction; nonhuman; place preference; priority journal; rat; renin angiotensin aldosterone system; reward; withdrawal syndrome

Chemicals and CAS Registry Numbers: angiotensin II, 11128-99-7; captopril, 62571-86-2; morphine, 52-26-6, 57-27-2; naloxone, 357-08-4, 465-65-6; sodium chloride, 7647-14-5

Manufacturers: Drug manufacturer: daroo pakhsh, Iran.

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