

Abstract

BACKGROUND:

The role of noradrenergic system in the control of nociception is documented in some vertebrate animals. However, there are no data showing the role of this system on nociception in the marsh terrapins.

METHODOLOGY:

In this study, the antinociceptive action of intrathecal administration of the α_2 -adrenoreceptor agonist clonidine and α_2 -adrenoreceptor antagonist yohimbine was evaluated in the African marsh terrapin using the formalin test. The interaction of clonidine and yohimbine was also evaluated.

RESULTS:

Intrathecal administration of clonidine (37.5 or 65 $\mu\text{g}/\text{kg}$) caused a significant reduction in the mean time spent in pain-related behavior. Yohimbine, at a dose of 25 $\mu\text{g}/\text{kg}$, significantly blocked the effect of clonidine (65 $\mu\text{g}/\text{kg}$). However, administration of yohimbine (40 or 53 $\mu\text{g}/\text{kg}$) caused a significant reduction in the mean time spent in pain-related behavior. Intrathecal administration of yohimbine (53 $\mu\text{g}/\text{kg}$) followed immediately by intrathecal injection of the serotonergic methysergide maleate (20 $\mu\text{g}/\text{kg}$) resulted in a significant reversal of the antinociceptive effect of yohimbine.

CONCLUSION:

The present study documented the intrathecal administration of drugs in the marsh terrapin, a technique that can be applied in future studies on these animals. The data also suggest the involvement of both α_2 -adrenoreceptors and 5HT receptors in the modulation of nociception in testudines.

KEYWORDS:

Antinociception; nociception; testudines; α_2 -adrenergic receptors