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论文

# 对羟吡啶甲基腺苷在大鼠输精管$A_1$与非$A_1$受体作用

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摘要:

为进一步研究对羟吡啶甲基腺苷(HPMA)受体作用特点,用离体大鼠前列腺端输精管,比较了它与A1受体特异性激动剂环己烷基腺苷(CHA)作用异同。结果表明,HPMA有非A1受体样突触后抑制作用,能剂量依赖性地降低外源性PE,NE,ACh引起的输精管收缩反应;在场刺激下它优先作用于突触前;高剂量的HPMA($10^{-5}$ mol·$L^{-1}$)不仅可完全抑制场刺激引起的输精管收缩反应,同时还使组织对外源性ACh的反应性降低,是突触前抑制和突触后抑制的共同结果。提示HPMA在大鼠输精管同时具有突触前A1受体和突触后非A1受体作用。

关键词: 对羟吡啶甲基腺苷 环己烷基腺苷 嘌呤能受体 突触前抑制 突触后抑制

## THE $A_1$ AND NON $A_1$ EFFECTS OF $N^6$-(5-HYDROXY-2-PYRIDYL)-METHYL-ADENOSINE ON RAT VAS DEFERENS

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Abstract:

$N^6$-(5-hydroxy-2-pyridyl)-methyl-adenosine (HPMA) is a novel $N^6$-substituted adenosine analogue recently obtained from *Armillaria mellea* (an edible fungus on which depends the growth of the famous Chinese traditional drug *Gastrodia elata*). It has been shown to have some characters of $A_1$ receptor agonists of purinergic nerve. In this study, we compared the effects of HPMA with that of $N^6$-Cyclohexyladenosine(CHA), an $A_1$ selective agonist, on rat vas deferens *in vitro*, and found remarkable differences between them. In our study, HPMA dose dependently decreased the contraction responses to exogenous Phenylephrine(PE), Norepinephrine(NE) and Acetylcholine(ACh) on rat vas deferens, while CHA showed no effect on these responses. 8-Cyclopentyl-1,3-dipropylxanthine(DPCPX), an $A_1$ selective antagonist, did not show any influence on these effects of HPMA, indicating that the depression effect of HPMA may be through a non $A_1$ mechanism. Using HPMA to decrease about 50% of the twitch responses evoked by field stimulation on rat vas deferens, the responsiveness to exogenous ACh seemed to be similar to that without HPMA pretreatment. These indicate that HPMA at this dosage ($IC_{50}$dosage) preferentially acted on pre-synapse (may be the $A_1$ receptor) to attenuate the release of neurotransmitters. At a high dosage($10^{-5}$ mol·$L^{-1}$), HPMA abolished the neurogenic twitch responses evoked by electrical field-stimulation, while the responsiveness of rat vas deferens to exogenous ACh was decreased showing both pre-synapse and post-synapse depression.

Keywords: Pre-synapse depression Post-synapse depression $N^6$-Cyclohexyladenosine(CHA) $N^6$-(5-hydroxy-2-pyridyl)-methyl-adenosine(HPMA) Purinergic receptor

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