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论文

盐酸小檗碱对毒蕈碱型受体的作用

王文雅;陈克敏;关永源

中国人民解放军广州医学高等专科学校药理教研室， 广州 510315;1.中山医科大学药理教研室， 广州 510089

摘要：

目的：研究盐酸小檗碱对乙酰胆碱系统的影响。 方法：采用离体血管环、离体支气管螺旋体及放射配基-受体结合实验等方法。结果：较低浓度的盐酸小檗碱（Ber）对乙酰胆碱的舒张反应有浓度依赖性的增强作用；而较高浓度的Ber可浓度依赖性地直接舒张带内皮的动脉环，此作用在去内皮或阻断M-受体后被完全抑制。在豚鼠离体气管条上，Ber可引起浓度依赖性的收缩反应，而阿托品可阻断这种作用。放射配基-受体结合实验显示盐酸小檗碱可特异性与大鼠脑组织的毒蕈碱受体结合，Ki值为1.6 μmol.L^{-1}。结论：盐酸小檗碱可激动毒蕈碱受体，从而引起血管的内皮依赖性的舒张反应及支气管的收缩。

关键词： 盐酸小檗碱 毒蕈碱受体 乙酰胆碱

EFFECT OF BERBERINE HYDROCHLORIDE ON MUSCARINIC RECEPTORS

Wang Wenya; Chen Kemin and Guan Yongyuan

Abstract:

AIM: To study the effect of berberine hydrochloride(Ber) on muscarinic receptors. METHODS: Use isolated arotic rings, isolated helical trachea strips and radioligand-receptor binding experiment. RESULTS: The inhibitory action of acetylcholine(ACh) on the contractile response of KCl in the endothelium-intact thoracic arotic rings of rats was potentiated by Ber concentration-dependently. At concentrations above 20 μmol.L^{-1}, Ber relaxed the endothelium-intact rings directly. The EC_{50} value was 31.5 μmol.L^{-1}. But such inhibitory action of Ber was totally abolished by removing the endothelium or by pretreatment with atropine 10 μmol.L^{-1}. Ber dose-dependently induced contraction on isolated helical strips of guinea pig trachea. This action was completely blocked by atropine 10 μmol.L^{-1}. In the radioligand-receptor binding experiments, Ber was shown to bind to muscarinic receptors with definite affinity in rat brain. The Ki value was 1.6 μmol.L^{-1}. CONCLUSION: Ber is an agonist of muscarinic receptor. It may release EDRF from vascular endothelia cells by exciting muscarinic receptors to relax arotic rings.

Keywords: muscarinic receptors acetylcholine berberine hydrochloride

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作者简介:

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