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论著

牛磺酸对大鼠胸主动脉的舒张作用及其机制的研究

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摘要 目的 研究牛磺酸舒血管作用的可能机制。方法 记录苯肾上腺素（PE）和KCl预收缩的离体大鼠主动脉环张力变化，观察牛磺酸的舒血管作用及不同工具药对其作用的影响。结果 牛磺酸（20~80 mmol·L^{-1}）对PE（1 μmol·L^{-1}）或KCl（60 mmol·L^{-1}）预收缩的大鼠主动脉环均有非内皮依赖的、浓度依赖性的舒张作用。在内皮完整的血管环，左旋硝基精氨酸甲酯（0.1 mmol·L^{-1}）对牛磺酸的舒血管作用无明显影响；β-丙氨酸（60 mmol·L^{-1}）在PE预收缩的血管环增强牛磺酸的舒血管作用，而在KCl预收缩的血管环则降低牛磺酸的舒血管作用；在KCl预收缩基础上，钾通道阻断剂格列本脲（10 μmol·L^{-1}）和四乙胺（10 mmol·L^{-1}）明显抑制牛磺酸的舒血管作用，而4-氨基吡啶（1 mmol·L^{-1}）和$BaCl_2$（1 mmol·L^{-1}）无影响。结论 牛磺酸有浓度依赖性的血管舒张作用，此作用不依赖血管内皮，可能与其跨细胞膜转运有关，可能有钙依赖性钾通道和ATP敏感性钾通道的参与。

关键词 牛磺酸 主动脉, 胸 血管舒张 丙氨酸 硝基精氨酸 钾通道阻滞剂

分类号

Vasodilative effect and mechanism of taurine on thoracic aorta of rats

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Abstract

AIM To investigate the vasodilative roles and the possible mechanisms of taurine on thoracic aorta of rats. METHODS Isotonic tension of thoracic aortic rings precontracted by phenylephrine (PE, 1 μmol·L^{-1}) or KCl (60 mmol·L^{-1}) was recorded. The vasorelaxing action of taurine and the influence of various drugs on it were observed in the rings with endothelium intact or endothelium denuded. RESULTS Taurine (20-80 mmol·L^{-1}) caused concentration-dependent relaxation in thoracic aortas with or without endothelium, and there was no significant difference between them. N^G-nitro-*L*-arginine methyl ester (0.1 mmol ·L^{-1}) had no effect on the vasorelaxing action of taurine on thoracic aortas precontracted by PE or KCl. β-Alanine (60 mmol·L^{-1}) diminished the vasorelaxing action of taurine in KCl- precontracted rings, but enhanced the action in PE-precontracted rings. Tetraethylamine, an antagonist of calcium activated potassium channels (KB_{Ca}), and glibenclamide, an antagonist of ATP sensitive potassium channels (K_{ATP}) attenuated the vasorelaxing effect of taurine, but 4-aminopyridine and $BaCl_2$ had no significant effect on the vasorelaxing action of taurine. CONCLUSION The vasorelaxing action of taurine is endothelium-independent and associated with taurine transmembrane transportation; KB_{Ca} and K_{ATP} may be involved in the action of taurine.

Key words taurine aorta thoracic vasodilation alanine nitroarginine potassium channels blockers

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