

论著

Urocortin对大鼠和兔离体心肌组织的选择性正性肌力效应

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摘要 目的 研究urocortin对心脏的作用。方法 采用大鼠及兔离体右心房肌, 左(大鼠), 右(兔)心室乳头肌和大鼠离体右心室肌条标本, 观察urocortin对心肌收缩力及心率的影响; 采用细胞内微电极技术观察urocortin对大鼠离体乳头肌和左心房肌细胞动作电位的影响。结果 Urocortin $1\sim 30\text{ nmol}\cdot\text{L}^{-1}$ 浓度依赖性地增强大鼠右心室心肌收缩力, urocortin 10 和 $30\text{ nmol}\cdot\text{L}^{-1}$ 使收缩力分别增加 $(38\pm 16)\%$ 和 $(61\pm 17)\%$; urocortin的正性肌力作用明显强于同等浓度去甲肾上腺素的正性肌力作用。Urocortin不影响大鼠离体右心房的心率, 左室乳头肌和右心室肌条的收缩力, 对兔离体右心房和右室乳头肌亦无明显作用; β 受体激动剂对上述标本则产生明显的正性频率作用和正性肌力作用。Urocortin $30\sim 300\text{ nmol}\cdot\text{L}^{-1}$ 明显升高大鼠左心室乳头肌的动作电位幅值和超射值; urocortin $30\sim 100\text{ nmol}\cdot\text{L}^{-1}$ 明显升高大鼠左心房肌的动作电位幅值和超射值。结论 Urocortin对大鼠离体心房具有很强的正性肌力作用。Urocortin的正性肌力作用具有明显的种属差异和组织学差异。

关键词 [强心药](#) [urocortin](#) [心肌](#) [心肌收缩](#) [乳头肌](#)

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Selective positive inotropic action of urocortin on rat and rabbit isolated heart tissues

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Abstract

AIM To study effects of urocortin (Ucn) on the heart. **METHODS** Effects of Ucn on contractile force and heart rate were observed in rat and rabbit right atrium, papillary muscles, and rat right ventricle strip; and effects of Ucn on action potentials were observed in rat papillary muscles and left atrium using intracellular microelectrode technique. **RESULTS** Ucn ($1\sim 30\text{ nmol}\cdot\text{L}^{-1}$) concentration-dependently increased the contractile force in rat isolated right atrium. Ucn increased the contractile force by $(38\pm 16)\%$ at $10\text{ nmol}\cdot\text{L}^{-1}$ and by $(61\pm 17)\%$ at $30\text{ nmol}\cdot\text{L}^{-1}$, and its inotropic effect was significantly greater than that produced by norepinephrine at the same concentration. Ucn had no effects on the heart rate of isolated rat right atrium, on the contractile force of isolated rat and rabbit papillary muscles and isolated rat right ventricle strip. Ucn did not affect the function of isolated rabbit right atrium. β -Adrenergic receptor agonists, however, produced significant positive inotropic and chronotropic effects obviously on those tissues. Ucn significantly increased amplitude of action potential and overshoot in rat isolated papillary muscles at $30\sim 300\text{ nmol}\cdot\text{L}^{-1}$ and left atrium at $30\sim 100\text{ nmol}\cdot\text{L}^{-1}$. **CONCLUSION** Ucn has a potent positive inotropic effect on rat isolated atrium with characteristics of species difference and histology difference.

Key words [cardiotonic agents](#) [urocortin](#) [myocardium](#) [myocardial contraction](#) [papillary muscles](#)

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