

论著

牵拉对 α_1 受体激动剂苯肾上腺素诱发兔离体血管收缩反应的影响

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收稿日期 2002-2-22 修回日期 网络版发布日期 2009-1-16 接受日期 2002-5-22

摘要 目的 研究在 α_1 受体激动剂苯肾上腺素(Phe)诱发血管收缩反应实验中,如何确定动脉标本的最适前负荷。方法 采用兔离体肾动脉、股动脉、隐动脉、肠系膜动脉、脾动脉和耳中央动脉环标本的等长张力纪录法。结果 在1.0~5.0 g前负荷条件下,随前负荷增加,各血管环静息张力呈线性增加。KCl (120 mmol·L⁻¹)引起各动脉的收缩随前负荷的增加而增强,但除耳动脉外,在其他动脉标本上未观察到KCl最大收缩反应的最终坪值点。以Phe (0.01~100 μ mol·L⁻¹)为收缩剂时,在肠系膜动脉,脾动脉和隐动脉, Phe的EC₅₀(EC_{50·Phe})值随前负荷增加(1.0~5.0 g)而明显改变;但是,各组标本在不同前负荷下的EC_{50·Phe}值中存在一个最小值,其标准差亦很小。结论 前负荷明显影响血管的EC_{50·Phe}值测定。确定离体血管标本最适前负荷,特别是研究受体反应时,应以受体激动剂的EC₅₀值及其变异程度最小作为关键指标。

关键词 [肾上腺素 \$\alpha\$ 受体激动剂](#) [苯肾上腺素](#) [动脉](#) [牵拉](#) [血管收缩](#) [兔](#)

分类号 [R965](#)

Influence of stretch on α_1 receptor agonist phenylephrine regulated vasoconstriction in rabbit regional arteries

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Abstract

AIM To investigate how to determine the optimal preloads in the study of α_1 receptor agonist phenylephrine (Phe) regulated vasoconstriction in the rabbit isolated arteries. **METHODS** Vasoconstrictive responses to Phe were recorded in the rabbit renal, femoral, saphenous, mesenteric, splenic and ear arteries. **RESULTS** The resting tension in various arterial rings was increased with increasing preload from 1.0 g to 5.0 g in a linear manner. The vasoconstrictive responses to KCl (120 mmol·L⁻¹) in the regional arteries were increased with increasing preload, however, the final plateau of the E_{max} of KCl was not observed in these regional arteries, with the exception of the ear artery. In the experiment with Phe (0.01–100 μ mol·L⁻¹) as a vasoconstrictive agent, the EC₅₀ values of Phe (EC_{50·Phe}) in the rabbit mesenteric, splenic and saphenous arteries were changed largely by changing preload, however there was an optimal point where the EC_{50·Phe} value and its standard deviation were minimal among the five values corresponding to 1.0 g to 5.0 g preloads in each artery. **CONCLUSION** The EC₅₀ values of Phe in the rabbit isolated arteries are influenced by preloads obviously. In the determination of optimal preload in isolated arterial preparations, particularly in the study of receptor regulated function, the minimal EC₅₀ value and its standard deviation of corresponding α_1 -receptor agonist should be considered as a crucial factor.

Key words [adrenergic alpha agonists](#) [phenylephrine](#) [arteries](#) [stretch](#) [vasoconstriction](#) [rabbits](#)

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