

论文

青藤碱对豚鼠心室乳头状肌慢反应动作电位的效应

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摘要:

用细胞内微电极技术,观察青藤碱对几种慢反应活动的影响,发现青藤碱82 μmol降低高K⁺除极化慢反应动作电位幅度(APA)和(V)_{max},同时延长APD₉₀。进一步的研究发现,青藤碱对V_{max}的抑制呈频率依赖性,频率愈高,抑制作用愈强。小剂量青藤碱抑制Ba²⁺诱发的乳头状肌自发电活动,大剂量可以取消此种自发电活动。对Mg²⁺引起的Mg²⁺/Ca²⁺混合电位,青藤碱有非选择性抑制作用。结果提示青藤碱对钙通道具有阻滞作用,其抗心律失常作用也可能与此有关。

关键词: 青藤碱 乳头状肌 动作电位 钡 频率依赖性 慢内向电流 钙通道

EFFECTS OF SINOMENINE ON SLOW RESPONSE ACTION POTENTIAL IN GUINEA PIG PAPILLARY MUSCLE

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Abstract:

Effects of sinomenine on slow response action potentials were investigated with intracellular microelectrode. In K-depolarized guinea pig papillary muscle, sinomenine at 82 μmol decreased the amplitude of slow action potential and the maximum upstroke velocity (max) and prolonged 90% repolarization (APD₉₀). The inhibition of sinomenine on max was shown to be markedly frequency-dependent. Ba²⁺-induced ventricular autorhythmicity, representing a mode of slow-channel-dependent spontaneous rhythm, was suppressed by sinomenine at 82 μmol and abolished at 0.82 mmol. Moreover, Mg²⁺-induced "mixed" Mg²⁺/Ca²⁺-carried action potential was suppressed non-selectively by sinomenine at 82 μmol. These results indicate that sinomenine may have calcium channel antagonistic action which results in the antiarrhythmic effect.

Keywords: Papillary muscle Action potential Barium Frequency-dependence Slow inward current Calcium channel Sinomenine

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