

论文

IHC-66对犬心室肌和浦顷野纤维的电生理作用

高明堂;刘青

兰州医学院药理教研室, 兰州 730000;1.甘肃省妇幼保健院, 兰州 730050

摘要:

目的: 观察IHC-66(3,6-dimethylamino-dibenzopyridonium of ferric EDTA) 对离体犬心室肌与浦顷野纤维的电生理影响。方法: 采用心肌细胞内玻璃微电极技术。结果: IHC-66可缩短犬心室肌动作电位复极20%和50%的时程,降低动作电位零相最大除极速率、缩短浦顷野纤维APD₅₀。在较高浓度时, IHC-66还降低犬心室肌与浦顷野纤维动作电位振幅和延长动作电位APD₉₀。结论: IHC-66对犬心室肌细胞APD₂₀和Vmax的抑制作用明显较浦顷野纤维强,对浦顷野纤维动作电位Vmax呈现频率依赖性抑制作用。

关键词: IHC-66 心肌 浦顷野纤维 动作电位

ELECTROPHYSIOLOGICAL EFFECT OF IHC-66 ON ISOLATED CANINE VENTRICULAR MUSCLES AND PURKINJE FIBERS

Gao Mingtang and Liu Qing

Abstract:

AIM: To observe the cellular electrophysiological effect of 3,6-dimethylamino-dibenzopyridonium of ferric EDTA(IHC-66, 1~50 μmol. L⁻¹). METHODS: Using myocardium intracellular microelectrode techniques in isolated canine cardiac Purkinje fibers and ventricular muscles. RESULTS: The initial effects of IHC-66 consisted of shortening of the duration of action potential measured at 20%(APD₂₀) and 50% (APD₅₀) of repolarization while the maximal depolarization rate of action potential of phase 0 (Vmax) was decreased in isolated ventricular muscles and APD₅₀ was shortened in isolated canine cardiac Purkinje fibers when the preparation was superfused with bath solution containing IHC-66 5 μmol. L⁻¹ for 15 min. The inhibition effects of APD₂₀ and Vmax were also observed in Purkinje fibers with increasing drug concentration (10 and 30 μmol. L⁻¹). At higher concentration (30 μmol. L⁻¹ and above), IHC-66 decreased the amplitude of action potential and prolonged the duration of action potential measured at 90%(APD₉₀) of repolarization in isolated ventricular muscles of canine cardiac Purkinje fibers but without any significant effect on the resting potential. IHC-66 30 μmol. L⁻¹ produced a frequency-dependent depression of Vmax while altering stimulating frequency between 0.3~5 Hz in isolated Purkinje fibers. CONCLUSION: The inhibition effects of IHC-66 on action potentials in isolated canine cardiac muscles were more powerful than that in isolated canine cardiac Purkinje fibers. IHC-66 (30 μmol. L⁻¹) produced a frequency- dependent depression of Vmax.

Keywords: myocardium Purkinje fibers action potentials IHC-66

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