

论文

苦参碱、小檗胺与胺碘酮、RP58866抗心律失常作用的比较

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摘要:

目的阐明苦参碱和小檗胺抗心律失常作用弱于胺碘酮和RP58866的分子机制。方法采用冠脉结扎、电刺激和乌头碱诱导的心律失常模型观察药物的抗心律失常作用, 采用全细胞膜片钳技术测定单个心室肌细胞的 I_{K1} , I_{Kr} , I_{Ks} 和 I_{to} 。结果苦参碱和小檗胺对冠脉结扎、乌头碱诱发的大鼠心律失常有明显对抗作用, 对家兔电刺激致颤阈(VFT)有明显提高作用, 但与胺碘酮和RP58866相比, 抗心律失常作用明显低于前者。电生理结果显示: 苦参碱和小檗胺对家兔 I_{K1} , I_{Kr} , I_{Ks} 和 I_{to} 有抑制作用, 但较胺碘酮和RP58866作用弱。结论苦参碱和小檗胺的抗心律失常作用及对 I_{K1} , I_{Kr} , I_{Ks} 和 I_{to} 的抑制作用弱于胺碘酮和RP58866。

关键词: 苦参碱; 胺碘酮; 小檗胺; RP58866; 钾通道

Comparison of the anti-arrhythmic effects of matrine and berbamine with amiodarone and RP58866

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Abstract:

AimTo clarify mechanisms that the antiarrhythmic effects of matrine and berbamine are weaker than those of amiodarone and RP58866. MethodsExperimental arrhythmic models were induced by aconitine, coronary artery ligation and electric stimulation in rats and rabbits. Whole-cell patch-clamp techniques were used to record I_{K1} , I_{Kr} , I_{Ks} and I_{to} . ResultsMatrine and berbamine significantly increased the dose of aconitine for induction of ventricular premature and ventricular tachycardia in rats, decreased the number of arrhythmias induced by coronary artery ligation in rats and increased ventricular fibrillation threshold (VFT) induced by electric stimulation in rabbits, but the anti-arrhythmic potency of matrine and berbamine was lower than that of amiodarone and RP58866. The inhibitory actions of matrine and berbamine on I_{K1} , I_{Kr} , I_{Ks} , I_{to} were lower than those of amiodarone and RP58866. The IC_{50} of matrine for I_{K1} , I_{Kr} , I_{Ks} , I_{to} were (46 ± 3) , (32.9 ± 1.2) , (37 ± 8) and (7.6 ± 0.5) mol·L⁻¹, respectively. The IC_{50} of amiodarone for I_{K1} , I_{Kr} , I_{Ks} , I_{to} were (21 ± 5) , (3.7 ± 0.7) , (5.9 ± 0.9) and (5.9 ± 0.6) mol·L⁻¹, respectively. ConclusionThe inhibitory actions of matrine and berbamine on I_{K1} , I_{Kr} , I_{Ks} , I_{to} were lower than those of amiodarone and RP58866, which might be the reason that the antiarrhythmic effects of matrine and berbamine were weaker than those of amiodarone and RP58866.

Keywords: amiodarone berbamine RP58866 potassium channel matrine

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