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兔甲亢性心肌病不同左心室构型血管内皮功能与左心室舒张功能的变化

Changes of vascular endothelial function and left ventricular diastolic function of different geometric patterns with hyperthyroid cardiomyopathy in rabbits

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中文摘要:

目的 探讨兔甲亢性心肌病不同左心室构型血管内皮功能与左心室舒张功能的变化。方法 纯种新西兰大白兔30只,分为实验组(20只)和对照组(10只)。对实验组兔每日经腹腔注射左旋甲状腺素(45 μg/kg体重)建立兔甲亢动物模型,依超声参数分为向心性肥厚(CH)亚组和离心性肥厚(EH)亚组,超声检测各组兔的血管内皮依赖性舒张功能(EDD)和血管内皮非依赖性舒张功能(NEDD),在QTVI条件下测量二尖瓣环平均舒张期峰值速度(Ve)、计算两个位点平均峰值速度及E/Ve。结果 与对照组比较,CH亚组、EH亚组的EDD显著减小,且EH亚组更明显($P < 0.01$)。与对照组及CH亚组比较,EH亚组NEDD显著减小($P < 0.01$)。与对照组比较,CH亚组、EH亚组的Ve显著减低($P < 0.01$),且EH亚组Ve较CH亚组减低更显著($P < 0.01$);CH亚组、EH亚组的E/Ve显著增高($P < 0.01$),且EH亚组E/Ve较CH亚组增高更显著($P < 0.01$)。实验组EDD和NEDD与Ve呈正相关($P < 0.05$),与E/Ve呈负相关($P < 0.05$)。结论 兔甲亢性心肌病血管内皮功能变化与左心室舒张功能的改变密切相关。

英文摘要:

Objective To explore the changes between vascular endothelial function and left ventricular diastolic function of different geometric patterns with hyperthyroid cardiomyopathy in rabbits. **Methods** Thirty purebred New Zealand rabbits were divided into experimental group ($n=20$) and control group ($n=10$). Hyperthyroidism animal model was established with peritoneal injection of levothyroxine (L-Thy) in experimental group. According to ultrasound parameter changes, the ventricular geometries of experimental group were divided into concentric hypertrophy (CH) subgroup and eccentric hypertrophy (EH) subgroup. Endothelial dependent dilation (EDD) and non-endothelial dependent dilation (NEDD) were measured with high frequency sonography. The peak diastolic velocity (Ve) at the mitral annulus were measured by QTVI, the average peak velocity of two sites and E/Ve were calculated. **Results** EDD was significantly lower in CH subgroup and EH subgroup than that of the control group, lower in the EH subgroup than that of the CH subgroup (all $P < 0.01$). NEDD was significantly lower in EH subgroup than that of the CH subgroup and control group (both $P < 0.01$). Ve was significantly lower in CH and EH subgroups than that of the control group (both $P < 0.01$), lower in EH subgroup than that of the CH subgroup ($P < 0.01$). E/Ve was significantly higher in CH and EH subgroups than that of the control group (both $P < 0.01$), higher in EH subgroup than that of CH subgroup (both $P < 0.01$). Ve was positively correlated with EDD and NEDD ($P < 0.05$), while E/Ve was negatively correlated with EDD and NEDD in experimental group ($P < 0.05$). **Conclusion** The changes between vascular endothelial function and left ventricular diastolic function are closely related in rabbits with hyperthyroid cardiomyopathy.

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