

论著

结扎犬冠脉左前降支后局部血管及心肌的病理生理变化

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摘要 目的: 探讨结扎犬冠状动脉左前降支(LAD)方法制作典型局部冠状动脉狭窄及急性心梗模型的合理性、安全性。方法: 将30只老龄健康杂交犬随机分为A、B、C 3组, 结扎LAD, 分别阻断25%、50%、75%的血流。测定结扎前及结扎后各时段内皮因子一氧化氮(NO)、内皮素-1(ET-1)、肌钙蛋白T(CTnT)及P-选择素(P-selectin)的含量变化, Western blotting方法检测心肌组织P-selectin基因表达情况, 两周后切取结扎处远段动脉及局部供血区心肌行电镜观察。结果: 与结扎前对比, A组4种检测指标含量变化不显著, B、C两组NO、ET-1、CTnT及P-selectin含量均有显著变化, 3组组间差异显著, P-selectin基因表达增加, 以C组最为显著, 所有犬均无因心梗发生死亡; 电镜观察: A组冠脉内膜及心肌损伤较轻, B、C两组损伤严重, C组呈典型冠状动脉狭窄及心肌缺血梗死及纤维化病变。结论: 结扎LAD阻断血流75%后损伤显著, 形成典型的局部LAD狭窄及急性心梗病变, 是适合CABG术外科研究安全、合理的模型方法。

关键词 [冠状动脉狭窄](#); [内皮细胞](#); [心肌梗死](#); [模型,动物](#); [冠状动脉分流术](#)

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Pathophysiologic changes of local ischemic coronary artery and cardiac muscle after ligating canine LAD

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Abstract

AIM: To evaluate the reliability of making a research model of coronary artery stenosis and local myocardial infarction reproduced in dog by ligating canine LAD. METHODS: We disparted 30 aged healthy cross-breed dogs [(18.5±6.7) kg] into three groups. The near part of the LAD through left minimal thoracic incision was ligated to interdict 25% (group A), 50% (group B), 75% (group C) of the flux, respectively. The changes of plasma endothelium-derived factors NO, ET-1, sP-selectin and CTnT were measured before ligation and at different time points after ligation. The expression of P-selectin gene in cardiac muscle was detected by Western blotting. The segments of distal parts of the ligated LAD were cut and pathological changes of the patches of topical cardiac muscle were observed by electronic microscope. RESULTS: After ligation, NO/ET-1, P-selectin and CTnT had significant changes in group B (P<0.05) and group C (P<0.01). The expression of P-selectin of cardiac muscle was highly up-regulated after ligating in B (50%) and C (75%) group, In C group animals, a typical far more intense expression pattern was found. Under electronic microscope, the endothelium and other structures of the LAD wall and ultrastructure of myocardial cells had obvious changes in later two groups, especially in group C. There were a typical stenosis of LAD and myocardial infarction. CONCLUSIONS: Ligating the LAD 75% severely damages the endothelial cell and cardiac muscle cells of local ischemic vessel and cardiac muscle, thus forms the typical local stenosis of coronary artery and myocardial infarction, such method is a safe and reasonable way for making a disease model for studying CABG in surgery.

Key words [Coronary stenosis](#) [Endothelial cells](#) [Myocardial infarction](#) [Models](#) [animal](#) [Coronary artery bypass](#)

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