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论著

urantide抑制动脉粥样硬化大鼠单核细胞趋化蛋白-1的表达

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摘要 **目的** 研究urantide对动脉粥样硬化（AS）大鼠胸主动脉及血管平滑肌细胞（VSMC）中单核细胞趋化蛋白-1（MCP-1）的表达的影响。**方法** （1）在体实验：采用给予高脂饮食及ip给予维生素D_3制备AS模型。AS大鼠分别尾静脉注射urantide 30 μg·kg^{-1}·d^{-1}，分为3，7和14 d组。于各实验结束时间点测量体质量，检测血中甘油三酯（TG）、总胆固醇（TC）、高密度脂蛋白（HDL）、低密度脂蛋白（LDL）和Ca^{2+}；免疫组化法检测胸主动脉中MCP-1表达。（2）体外实验：贴块法制备的血管平滑肌细胞（VSMC）中加入尾加压素Ⅱ（UⅡ）10 μmol·L^{-1}+urantide 0.1，1，10 nmol·L^{-1}，0.1和1 μmol·L^{-1}作用48 h，ELISA法检测细胞中MCP-1含量。**结果** （1）在体实验：与AS模型组比较，只有14 d urantide给药组的体质量显著增加（P<0.05）；3 d组、7 d组及14 d组血清中Ca^{2+}，TG，TC，HDL及LDL均随给药时间的延长呈现逐渐降低的趋势（P<0.01），达到或接近阳性药氟伐他汀组水平；在大鼠胸主动脉内膜及中膜斑块内，与AS模型对照组相比，urantide 3 d组、7 d组及14 d组MCP-1阳性染色强度和范围均减少。（2）体外实验：urantide各浓度组对VSMC培养上清中MCP-1的表达均有下调趋势（P<0.05）。**结论** urantide在大鼠动脉粥样硬化中可抑制炎症因子MCP-1的表达。

关键词 urantide 尾加压素Ⅱ 单核细胞趋化蛋白-1 动脉粥样硬化 血管平滑肌细胞

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Inhibitory effect of urantide on monocyte chemotactic protein-1 in atherosclerotic rats

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Abstract

OBJECTIVE To study the effect of urantide on monocyte chemotactic protein-1 (MCP-1) expression in the vascular smooth muscle cells (VSMC) of the thoracic aorta atherosclerotic(AS) rats. **METHODS** The AS rat model was replicated by high fat diet with vitamin D_3 intraperitoneally. Urantide was injected from tail vein at 30 μg·kg^{-1}·d^{-1}, the body mass in various groups of rats were recorded and triglyceride (TG), total cholesterol (TC), high density lipoprotein (HDL), low density lipoprotein (LDL) and the concentration of calcium in serum were detected at 3, 7 and 14 d after urantide injection. The MCP- 1 protein expression was detected by immunohistochemistry. The VSMC of thoracic aorta were cultured *in vivo* in the medium containing urotensin Ⅱ (10 μmol·L^{-1}) with or without urantide 0.1, 1, 10, 100 and 1000 nmol·L^{-1}. The MCP 1 in the medium was detected by ELISA after 48 h. **RESULTS** Compared with AS model group, only the body mass of 14 d group of urantide 30 μg·kg^{-1} increased significantly (P<0.05) while Ca^{2+}, TG, TC, HDL and LDL in 3, 7 and 14 d all decreased markedly (P<0.01). The immunostaining of MCP- 1 could be seen in the intima and media of thoracic aorta, which increased significantly as well. Urantide down-regulated the expression of MCP-1 in VSMC (P<0.01). **CONCLUSION** MCP-1 can be inhibited by urantide in AS rats.

Key words urantide urotensin Ⅱ monocyte chemotactic protein-1; atherosclerosis vascular smooth muscle cells

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