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论著

氟伐他汀对大鼠血管平滑肌细胞迁移的影响及其机制

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摘要 目的：探讨氟伐他汀(Flu)对血小板源生长因子(PDGF-BB)和内皮素-1(ET-1)诱导的血管平滑肌细胞(VSMCs)迁移的影响及其机制。 方法： VSMCs源于8周龄自发性高血压大鼠(SHR)的胸主动脉，组织块外生法体外培养VSMCs，采用改良的Boyden微孔膜双槽法测定细胞迁移，荧光染料Fura-2/AM法测定细胞内游离钙离子浓度(［Ca2+］i)。 结果： (1) PDGF-BB和ET-1可诱导VSMCs迁移，作用峰值浓度分别为10 μg/L和10-7 mol/L。Flu(10-9-10-5mol/L)呈浓度依赖性抑制上述物质诱导的细胞迁移，10-5mol/L Flu对PDGF-BB和ET-1诱导的细胞迁移的抑制率达86.67％以上。 (2)PDGF-BB和ET-1促进［Ca2+］i升高(P<0.05)，峰值浓度分别为PDGF-BB 10 μg/L和ET-1 10-8mol/L。 (3) Flu明显抑制PDGF-BB和ET-1诱发的［Ca2+］i升高，峰抑制率分别为86.76％和65.32％。 结论： Flu可抑制PDGF-BB和ET-1诱导的VSMCs迁移，Flu抑制［Ca2+］i的升高可能是它抑制VSMCs迁移的机制之一。

关键词 氟伐他汀； 血小板源性生长因子； 内皮素缩血管肽1； 细胞运动； 钙

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Effect of fluvastatin on migration of vascular smooth muscle cells from rats

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Abstract

<FONT face=Verdana>AIM: To investigate the effect and mechanism of fluvastatin on the migration induced by platelet derived growth factor-BB (PDGF-BB) and endothelin-1 (ET-1) in cultured vascular smooth muscle cells (VSMCs). METHODS: Cultured VSMCs derived from spontaneously hypertensive rats (SHR) were used. Cell migration was determined by modified Boyden chamber assays. Intracellular free calcium (［Ca2+］i) was measured with fluorescent Ca2+ indicator Fura-2/AM. RESULTS: PDGF-BB and ET-1 significantly induced VSMCs migration, which was inhibited by pretreatment of VSMCs with fluvastatin (10-9-10-5 mol/L) in a dose-dependent manner, and the peak inhibition rate of migration induced by PDGF-BB and ET-1 was over 86.67%. Fluvastatin also attenuated the increase in ［Ca2+］i induced by PDGF-BB and ET-1, with a peak inhibition rate of 86.76% and 65.32%, respectively. CONCLUSION: PDGF-BB and ET-1 promote migration of VSMCs from SHR. Fluvastatin may have direct inhibitory effects on cell migration induced by PDGF-BB and ET-1. The increase in ［Ca2+］i may acts as intracellular signaling in the migration in response to PDGF-BB and ET-1 in VSMCs. </FONT>

Key words Fluvastatin Platelet-derived growth factor Endothelin-1 Cell movement Calcium

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