

论著

氧自由基对血管内皮细胞内源性一氧化氮合酶抑制物的影响及卡托普利的作用

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收稿日期 2003-8-22 修回日期 2004-4-27 网络版发布日期 2009-9-14 接受日期 2004-4-27

摘要 目的: 观察氧自由基(OFR)对培养的人脐静脉内皮细胞(HUVECs)内源性一氧化氮合酶抑制物——不对称二甲精氨酸(ADMA)浓度的影响及卡托普利的保护作用。方法: 采用改良的Jaffe法培养原代人脐静脉内皮细胞(HUVECs), 取生长良好的3-6代HUVECs用于实验, 分为①空白对照组: 加DMEM培养液; ②OFR组: 分别加入OFR(0.01 mmol/L, 0.1 mmol/l); ③OFR+卡托普利组: 同时加入0.1 mmol/L OFR及卡托普利(50 mg/L、100 mg/L)。共孵24 h后, 分别测定上清液中ADMA、左旋精氨酸(L-arg)、一氧化氮(NO)和内皮素(ET)的浓度, 并测定血管紧张素转换酶(ACE)的活性。结果: OFR组ADMA、ET的量及ACE活性增加, 而NO的量减少。卡托普利干预后, 上清液中ADMA、ET的浓度减少, ACE活性降低, NO的量增加, 而L-arg水平无明显变化。结论: OFR通过增加ADMA导致内皮功能紊乱, 卡托普利则能通过减少ADMA减轻OFR诱导的内皮细胞代谢功能障碍。

关键词 [自由基](#); [内皮细胞](#); [精氨酸](#); [卡托普利](#)

分类号 [R363](#)

Effects of oxygen free radicals and captopril on endogenous NOS inhibitor in human vascular endothelial cells

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Abstract

AIM: To observe the effects of oxygen free radical (OFR) and captopril on the level of asymmetric NG, NG-dimethyl-L-arginine (ADMA) in human vascular endothelial cells (HUVECs).METHODS: HUVECs of 3-6 th passage, cultured with modified Jaffes' method, were used in the experiment and divided into three groups: (1)Cells cultured with equivalence of DMEM medium as control; (2)OFR intervention groups, OFR at concentrations of 0.01 mmol/L, or 0.1 mmol/L, respectively, were added to the cell culture; (3)Drug intervention groups: the cell culture was treated with 0.1 mmol/L of OFR combined with 50 mg/L or 100 mg/L of captopril, respectively. Concentrations of ADMA, L-arginine, nitric oxide(NO), endothelin(ET) and the activity of angiotensin-converting enzyme(ACE) in conditioned medium were measured after 24 h exposure. RESULTS: Concentrations of ADMA, ET and the activity of ACE were increased, while the amount of NO decreased in OFR intervention groups compared with control group. After treatment with captopril, ADMA, ET concentrations and the activity of ACE were decreased, while the amount of NO increased, but the level of L-arginine had no obvious change. CONCLUSIONS: OFR induces endothelial dysfunction through increasing ADMA concentration, while captopril relieves endothelial dysfunction induced by ox-LDL through decreasing ADMA concentration.

Key words [Free radicals](#) [Endothelial cells](#) [Arginine](#) [Captopril](#)

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