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论著

TNF-α介导的11-β羟类固醇脱氢酶1表达和活性变化对3T3-L1脂肪细胞胰岛素敏感性的影响

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摘要 目的：观察肿瘤坏死因子α（TNF-α）介导的11-β羟类固醇脱氢酶1（11-β HSD-1）表达和活性变化对3T3-L1脂肪细胞胰岛素敏感性的影响。方法:以TNF-α以及TNF-α分别与阿司匹林、2′-hydroxyflavanone和RU486联合作用3T3-L1脂肪细胞，然后检测细胞11-β HSD-1 mRNA表达和活性以及胰岛素刺激的葡萄糖摄取能力。 结果:TNF-α增加3T3-L1脂肪细胞11-β HSD-1 mRNA表达和活性，同时降低细胞胰岛素刺激的葡萄糖摄取。阿司匹林减轻了TNF-α对11-β HSD-1 mRNA表达和活性的上调作用，并减轻TNF-α对胰岛素刺激的葡萄糖摄取的抑制作用；11-β HSD-1活性特异抑制剂2′-hydroxyflavanone和皮质醇受体拮抗剂RU486也可减轻TNF-α对胰岛素刺激的葡萄糖摄取的抑制作用。结论:TNF-α可通过提高3T3-L1脂肪细胞11-β HSD-1的表达和活性而降低细胞对胰岛素的敏感性。

关键词 肿瘤坏死因子； 羟甾类脱氢酶类； 胰岛素敏感性

分类号 R58

Effects of TNF-α-induced changes of expression and activity of 11-β HSD-1 on the insulin sensitivity in 3T3-L1 adipocytes

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Abstract

<FONT face=Verdana>AIM: To observe the effects of tumor necrosis factor-α（TNF-α）-induced changes of expression and activity of 11-beta-hydroxysteroid dehydrogenase type1(11-β HSD-1) on the insulin sensitivity in 3T3-L1 adipocytes.
METHODS: 3T3-L1 adipocytes were treated with TNF-α and TNF-α combined with aspirin, 2′-hydroxyflavanone or RU486, then mRNA expression and activity of 11-β HSD-1 and insulin-stimulated glucose uptake were examined.
RESULTS: TNF-α increased expression and activity of 11-β HSD-1 in 3T3-L1 adipocytes, and decreased insulin-stimulated glucose uptake. Aspirin decreased expression and activity of 11-β HSD-1 induced by TNF-α, and alleviated the inhibiting effect of TNF-α on insulin-stimulated glucose uptake. 11-β HSD-1 specific inhibitor 2′-hydroxyflavanone and cortisol-receptor antagonist RU486 also alleviated the inhibiting effect of TNF-α on insulin-stimulated glucose uptake.
CONCLUSION: TNF-α may decrease the insulin sensitivity in 3T3-L1 adipocytes through increasing expression and activity of 11-β HSD-1.</FONT>

Key words Tumor necrosis factor Hydroxysteroid dehydrogenases Insulin sensitivity

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