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论著

脂多糖及TOLL样受体4阻断剂对蜕膜细胞中孕激素受体、IL-1β及COX-2的影响

李燕, 钟淑娟, 姚若进

中南大学湘雅医院妇产科,长沙 410008

摘要： 目的:研究脂多糖(LPS)或拮抗剂TOLL样受体4阻断剂(Toll-like receptor 4 antagonist,TLR4 mAb)作用于体外培养的蜕膜细胞后其孕激素受体(progesterone receptor,PR)、IL-1β及COX-2的表达改变,以探讨LPS及其拮抗剂对蜕膜细胞中PR的影响,以及PR与炎症因子之间的关系。方法:分离培养早孕人蜕膜细胞,将细胞培养至第4代时随机分为6组,对照组:仅加培养液。研究1组:加入终质量浓度为100 ng/mL的LPS。研究2组:加入终质量浓度为1 μg/ mL TLR4 mAb。研究3组:加入终质量浓度为3 μg/mL TLR4 mAb。研究4组:终质量浓度为1 μg/mLTLR4 mAb预处理24 h,再加入质量浓度为100 ng/mL的LPS。研究5组:终质量浓度为3 μg/mL TLR4 mAb预处理24 h,再加入质量浓度为100 ng/mL的LPS。均培养24 h 后,采用RT-PCR半定量技术检测蜕膜细胞中PR,IL-1β及COX-2mRNA的表达情况。结果: LPS使蜕膜细胞中PR mRNA的表达下调(P<0.05),使IL-1β和COX-2 mRNA的表达上调(P<0.05);TLR4 mAb则使LPS作用后的蜕膜细胞中PR mRNA的表达上调(P<0.05)、IL-1βmRNA的表达下调(P<0.05);高质量浓度TLR4 mAb使COX-2 mRNA的表达下调(P<0.05)。结论:LPS作用于体外培养的人蜕膜细胞后,PR mRNA表达下调;IL-1β,COX-2的mRNA表达增加;使用TLR4 mAb后能拮抗LPS对蜕膜细胞中PR,IL-1β以及COX-2的作用。

关键词： 自然流产 脂多糖 TOLL样受体4阻断剂 孕激素受体 白介素-1β 环氧合酶2

Influence of LPS and Toll-like receptor 4 antagonist on progesterone receptor, interleukin-1β, and cyclooxygenase-2 in decidual cells

LI Yan, ZHONG Shujuan, YAO Ruojin

Department of Obstetrics and Gynecology, Xiangya Hospital, Central South University, Changsha 410008, China

Abstract: Objective: To observe the expression of progesterone receptor (PR), interleukin-1β (IL-1β), and cyclooxygenase-2 (COX-2) induced by lipopolysaccharide (LPS) or Toll-like receptor 4 antagonist (TLR4 mAb) in decidual cells in vitro, and then to explore the effect of LPS and its antagonist on PR of decidual cells and the relation between PR and inflammatory cytokines.
Methods: We isolated and cultured human decidua of early abortion in the sterile state. When the cells passaged to the 4th generation, the cells were randomly divided into 6 pore plates: A control group was added the culture medium alone; experimental group I was added 100 ng/mL of LPS; experimental group II was add 1 μg/mL of TLR4 mAb; experimental group III was added 3 μg/ mL of TLR4 mAb; experimental group IV was added 1 μg/mL of TLR4 mAb pretreatment for 24 h, and then 100 ng/mL LPS; and experimental group V was added 3 μg/mL of TLR4 mAb pretreatment for 24 h, and then 100 ng/mL LPS for 24 h culture. Subsequently, HE staining and immunofluorescence were used to observe the morphology and identify the purity of decidual cells in the 6 groups. The levels of mRNA expression of PR, IL-1β, and COX-2 were detected by reverse transcription PCR (RT-PCR).
Results: LPS reduced the mRNA expression of PR (P<0.05), increased the mRNA expression of IL-1β and COX-2 (P<0.05). TLR4 mAb increased the mRNA expression of PR (P<0.05) and reduced the mRNA expression of IL-1β (P<0.05) after LPS-stimulated decidual cells. High concentrations of TLR4 mAb reduced the mRNA expression of COX-2 (P<0.05) after LPSstimulated decidual cells.
Conclusion: The mRNA expression of PR is reduced, and the mRNA expressions of IL-1β and COX-2 are increased after LPS-stimulated decidual cells in vitro. TLR4 mAb antagonize the role of LPS on PR, IL-1β, and COX-2.

Keywords: spontaneous abortion lipopolysaccharide Toll-like receptor 4 antagonist progesterone receptor interleukin-1β cyclooxygenase-2

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通讯作者: 姚若进,Email:ruojinyao@yahoo.com.cn

作者简介: 李燕,硕士研究生,医师,主要从事流产与免疫方面的研究。

作者Email: ruojinyao@yahoo.com.cn

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