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论文

糖基化终产物对小胶质细胞分泌IL-1β和TNF-α的影响

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摘要：

目的 研究糖基化终产物（AGEs-BSA）对原代培养的小胶质细胞分泌白细胞介素1β（IL-1β）和肿瘤坏死因子α（TNF-α）的影响，在细胞水平探讨AGEs-BSA在阿尔茨海默病（AD）发生中的作用及其可能机制。方法 体外培养小胶质细胞，用AGEs BSA干预，用免疫细胞化学方法，进行鉴定并观察其形态变化；用AGEs-BSA 300μg/mL激活和抗RAGE中和抗体阻断的方法对原代培养的小胶质细胞进行处理，用酶联免疫吸附法（ELISA）检测细胞上清液中IL-1β和TNF-α的水平。结果 AGEs BSA干预后小胶质细胞胞体变大，形态不规则，呈“阿米巴样”，细胞上清液中IL-1β、TNF-α浓度均明显升高（P＜0.001），抗RAGE中和抗体+AGEs BSA组细胞上清液IL-1β、TNF-α浓度较AGEs BSA组呈下降趋势（P＜0.01），但仍高于正常对照组（P＜0.01）。结论 AGEs-BSA可激活小胶质细胞,诱导其释放IL-1β和TNF-α，并呈时间依赖性。提示糖基化终产物能直接或通过作用其受体激活小胶质细胞介导的免疫炎性反应。

关键词： 阿尔茨海默病；糖基化终产物，高级；白细胞介素1；肿瘤坏死因子；小神经胶质细胞；大鼠，Wistar

Effect of advanced glycation end products on interleukin-1β and tumor necrosis factor α secretion from microglial cells

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Abstract:

Objective To research the effect of advanced glycation end products (AGEs) on the levels of interleukin 1β(IL-1β) and tumor necrosis factor α(TNF-α)in primary rat microglial cells, and to further explore the effect of AGEs-BSA on Alzheimer′s disease(AD) and the possible mechanism at the cell ular level. Methods Cultured microglial cells were intervened by AGEs-BSA and then identified with the immunocytochemistry method, and morphological changes of the cells were observed. After primary rat microglial cells were treated with 300μg/mL of AGEs-BSA and the RAGE neutralizing antibody, the levels of IL-1β and TNF-α extracted from the supernatant liquid of microglia were measured by enzyme-linked immunosobent assay(ELISA). Results After the intervention of AGEs BSA, the cell body became bigger and the shape showed as an “Ameba”, and the levels of IL-1β and TNF-α were significantly increased（P＜0.001）. Compared with the AGEs BSA group, the levels of IL-1β and TNF-α were lower in cells exposed to the RAGE neutralizing antibody before treatment with AGEs-BSA （P＜0.01）, while they were higher than those in the normal control group（P＜0.01）. Conclusion AGEs-BSA could activate microglia and induce the release of IL-1β and TNF-α in a time-dependent manner, which suggested that AGEs act directly or through the receptor activated microglia-mediated immune inflammatory responses.

Keywords: Alzheimer disease; Glycosylation end products, advanced; Interleukin-1; Tumor necrosis factor; Microglia; Rats, Wistar

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