山东大学学报（医学版）
Journal of Shandong University (Health Sciences)

山东大学学报（医学版） (http://yxbwk.njournal.sdu.edu.cn) ›› 2014 (http://yxbwk.njournal.sdu.edu.cn/CN/article/showTenYearVolumnDetail.do?nian=2014), Vol. 52 (http://yxbwk.njournal.sdu.edu.cn/CN/article/showTenYearVolumnDetail.do?nian=2014) ›› Issue (10) (http://yxbwk.njournal.sdu.edu.cn/CN/volumn/volumn_122.shtml): 40-44. doi: 10.6040/j.issn.1671-7554.0.2014.306 (https://doi.org/10.6040/j.issn.1671-7554.0.2014.306)

色素上皮衍生因子对高糖状态大鼠视网膜Müller细胞NF-κB表达的影响

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Effect of PEDF on the expression of NF-κB on high glucose-stimulated rat retinal Müller cells

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PDF (PC)

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摘要/Abstract

摘要： 目的 探讨色素上皮衍生因子（PEDF）对高浓度葡萄糖作用下体外培养大鼠视网膜Müller细胞损伤的保护作用及对核因子-κB（NF-κB）表达的影响。**方法** 采用出生3~7 d的SD大鼠视网膜组织，应用酶消化法培养Müller细胞，应用免疫细胞荧光双标方法鉴定细胞。细胞随机分为正常对照组（对照组），高糖模型组（HG组）和PEDF干预高糖组（HG+PEDF组）。采用Western

boltting和免疫细胞化学染色法检测NF-κB 的表达。**结果** Western boltting结果可见，与对照组相比，HG组的NF-κB蛋白表达明显增强（*P*<0.01）；与HG组相比，HG+PEDF组NF-κB蛋白表达显著降低（*P*<0.001）。免疫细胞化学染色法结果可见，NF-κB在对照组仅有极少量在胞浆中表达，在HG组胞浆和胞核中皆呈强阳性表达，两者差异具有统计学意义（*P*<0.001）；而HG+PEDF组的NF-κB表达低于其在HG组中的表达（*P*<0.01）。**结论** 体外25 mmol·；L^{-1}高糖刺激可增加大鼠视网膜Müller细胞NF-κB的表达，从而加重Müller细胞损伤；外源给予PEDF可以显著降低NF-κB的表达从而减少Müller细胞损伤，对视网膜Müller细胞具有显著的保护作用。

关键词: 色素上皮衍生因子, 核因子-κB, Mü, ller细胞, 大鼠, 高糖刺激

Abstract: Objective To investigate the protective effect of pigment epithelium-derived factor (PEDF)on cultured rat Müller cell under high concentrations of glucose, and its effect on nuclear factor-kappa B (NF-κB) expression. **Methods** Müller cells were cultured with retinal tissues of SD rats postnatal 3 to 7 days by enzyme digestion. The cells were identified by double-labeled immunofluorescence staining. The cells were randomly divided into normal control group (control group), high glucose model group (HG group) and PEDF-intervention high glucose group (HG+PEDF group). Western boltting method and immunocytochemical staining were used to detect the expression of NF-κB. **Results** Western boltting method showed the expression of NF-κB in HG group increased significantly compared with control group (*P*<0.01). NF-κB protein expression in HG+PEDF group decreased obviously compared with HG group(*P*<0.001). Immunocytochemical staining showed that only a few expressions of NF-κB in control group, while highly strong expression in cytoplasm and nucleus in HG group (*P*<0.001). Compared with HG group, NF-κB protein expression in HG+PEDF group decreased significantly (*P*<0.01). **Conclusion** 25 mmol·L^{-1} high glucose increases the expression of NF-κB *in vitro*, and lead to the injury of Müller cells. Exogenous PEDF can decrease the expression of NF-κB on retinal Müller cells and decrease cells' injury significantly. So PEDF has a significant protective effect on retinal Müller cells.

Key words: Pigment epithelium-derived factor, Mü, ller cells, Rat, High glucose-stimulatioin, Nuclear factor-kappa B

中图分类号:

R774.1

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