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基础医学

AIF和PARP-1在庆大霉素致前庭毛细胞凋亡中的作用

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摘要:

目的 探讨凋亡诱导因子(AIF)和聚(ADP-核糖)聚合酶1(PARP-1)在庆大霉素损伤致前庭毛细胞凋亡中的作用及机制。方法 取出生后3~4d的大鼠球囊斑和椭圆囊斑行离体前庭器官培养,经培养过夜后再用2mg/mL庆大霉素培养液继续培养72h。用流式细胞术检测前庭毛细胞凋亡,RT-PCR法检测AIF和PARP-1基因表达情况,Western blotting法分别检测AIF线粒体蛋白和胞浆蛋白的表达,Western blotting法检测PARP-1蛋白表达。结果 流式细胞术结果显示庆大霉素组前庭毛细胞凋亡率较对照组显著增加。RT-PCR显示庆大霉素损伤组AIF和PARP-1表达明显增加。Western blotting结果显示庆大霉素损伤组线粒体蛋白表达降低,而胞浆蛋白表达升高。庆大霉素损伤组PARP-1蛋白表达增加。结论 AIF介导的非Caspase依赖途径参与了庆大霉素损伤导致前庭毛细胞凋亡,PARP-1可能参与了AIF通路的激活。

关键词: 凋亡诱导因子; 前庭毛细胞; 凋亡

Apoptosis-inducing factor and PARP-1 involving in gentamicin-induced vestibular hair cell death

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Abstract:

Objective To investigate the possible involvement of AIF and PARP-1 in gentamicin-induced vestibular hair cell death. Methods Vestibular organ obtained from postnatal day (p) p3 or p4 rats were maintained in tissue culture medium and were exposed to 2 mg/mL gentamicin (GM) for up to 72 h. Apoptosis was determined by flow cytometry (FCW). Expressions of AIF and PARP-1 mRNA were determined by RT-PCR. Expressions of the mitochondrial protein and cytoplasm protein of AIF were detected by Western blotting. The expression of PARP-1 protein was detected by Western blotting. Results GM induced apoptosis in vestibular hair cells. The number of apoptotic cells increased as shown by FCW. RT-PCR showed an up-regulation of AIF and PARP-1 mRNA in the GM group. Western blotting results showed that mitochondrial protein of AIF was decreased after gentamicin exposure while cytoplasm protein of AIF was increased. Expression of protein of PARP-1 was increased after gentamicin exposure. Conclusion AIF participates in gentamicin-induced apoptosis of vestibular hair cells. PARP-1 might participate in the action of AIF pathway.

Keywords: Apoptosis inducing factor; Vestibular sensory cell; Apoptosis

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