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基础研究

3-甲基腺嘌呤增强口腔鳞癌体外化疗药物敏感性的作用机制

全海英[1]|王民艳[2]|张桐菲[1]|高 迎[3]|白 宇[1]|赵轩一[1]|张泽兵[1]

1.吉林大学口腔医院病理科|吉林 长春 130021；2.吉林大学口腔医院儿童口腔科|吉林 长春 130021；3.吉林大学公共卫生学院流行病与卫生统计学教研室 |吉林 长春 130021

摘要：

目的：通过在口腔鳞癌Tca83细胞培养过程中加入自噬抑制剂3-甲基腺嘌呤（3-MA），观察顺铂（DDP）对口腔鳞癌Tca83细胞的杀伤作用，探讨3-MA增强口腔鳞癌化疗药物敏感性的作用机制。方法： 将对数生长期口腔鳞癌Tca83细胞分为对照组、3-MA处理组、DDP处理组、3-MA+DDP处理组和DDP+3-MA处理组，用MTT法检测细胞生存率，激光共聚焦显微镜检测自噬特异性蛋白LC3-Ⅱ的表达水平，Annexin V-FITC流式细胞术检测细胞凋亡率。结果：Tca83细胞株对顺铂IC_{50}值为5 mg/L；MTT检测，DDP组细胞生存率显著低于对照组和DDP+3-MA组 (P<0.05)，高于3-MA+ DDP组 (P<0.05)；细胞免疫荧光检测，3-MA 组平均荧光强度显著低于其他4组（P<0.05）；流式细胞术检测，DDP组细胞凋亡率显著低于3-MA+DDP组 (P<0.05)，高于DDP+3-MA组 (P<0.05)。结论：不同水平的自噬对口腔鳞癌细胞的作用不同，抑制细胞自身基础水平的自噬可增强DDP对Tca83细胞的杀伤作用，提示自噬抑制剂有望成为口腔鳞癌的化疗增敏剂。

关键词： 自噬；细胞凋亡；口腔鳞癌细胞；顺铂；3-甲基腺嘌呤

Mechanism of 3-methyladenine in promoting sensitivity of chemotherapeutics in oral squamous cell carcinoma in vitro

QUAN Hai-ying[1]|WANG Ming-yan[2]|ZHANG Tong-fei[1]|GAO Ying[3]| BAI Yu[1]| ZHAO Xuan-yi[1]|ZHANG Ze-bing[1]

1.Department of Pathology,Stomatology Hospital,Jilin University|Changchun 130021,China;2. Department of Pediatric Dentistry, Stomatology Hospital,Jilin University,Changchun 130021,China; 3.Department of Epidemiology and Statistics,School of Public Health,Jilin University,Changchun 130021,China

Abstract:

Abstract:Objective To explore the mechanism of 3-methyladenine (3-MA)in promoting the sensitivity of chemotherapeutics in oral squamous cell carcinoma by observing the kill effect of cisplatin (DDP)on oral squamous cell carcinoma Tca83 cell line.Methods The Tca83 cells at logarithmic growth phase were divided into control group,3-MA group,DDP group,3-MA+DDP group and DDP+3-MA group . The survival rate of Tca83 cells was examined by tetrazolium bromide(MTT)colorimetry; the LC3-Ⅱ expression level was detected by laser scanning confocal microscope;the apoptotic rate was detemined by flow cytometry. Results The IC_{50} of the Tca83 cells was 5 $mg.L^{-1}$ after treated with DDP; the MTT results showed that the cell survival rate in DDP group was significantly lower than those in control group and 3-MA + DDP group (P<0.05),and higher than that in DDP +3- MA group (P<0.05)；the immunofluorescence results showed that the average fluorescence intensity in 3-MA group was significantly lower than those in the other four groups (P<0.05);the flow cytometry results showed that the apoptotic rate in DDP group was significantly lower than that in 3-MA + DDP group (P<0.05),and higher than that in DDP +3-MA group (P<0.05).Conclusion The autophagy at different levels has different roles in oral squamous cell carcinoma.The inhibition of basic level autophagy of the Tca83 cells can enhance the cytotoxicity of DDP. It indicates that the autophagy inhibitor has significant potential to be a novel chemotherapeutic enhancer for oral squamous cell carcinoma therapy.

Keywords: autophagy；apoptosis；oral squamous carcinoma cell；cisplatin；3-methyladenine

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通讯作者: 张泽兵(Tel:0431-85579328，E-mail:zebing@jlu.edu.cn)

作者简介: 全海英（1987-）|女|内蒙古自治区通辽市人|医学硕士|主要从事口腔肿瘤病理学的研究。

作者Email: zebing@jlu.edu.cn

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