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论著

MIF对耐ADM人乳腺癌细胞MCF-7/ADM体内外耐药逆转作用

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摘要：

目的：采用动物体内外结合方法探讨米非司酮（mifepristone, MIF）对耐阿霉素（adriamycin，ADM）人乳腺癌细胞MCF-7/ADM耐药逆转作用。方法：四甲基偶氮唑蓝法检测5 μmol/L MIF对 MCF-7/ADM体外耐药逆转作用。MCF-7/ADM接种裸鼠皮下构建裸鼠移植瘤模型，空白对照组（NS组）为0.2 mL生理盐水腹腔注射+0.5 mL食用油灌胃；ADM组为5 mg/kg ADM腹腔注射+0.5 mL食用油灌胃；MIF组为30 mg/kg MIF灌胃+0.2 mL生理盐水腹腔注射；ADM+MIF组为5 mg/kg ADM腹腔注射+30 mg/kg MIF灌胃。观察各组裸鼠移植瘤情况。结果：（1）5 μmol/L MIF对MCF-7/ADM细胞的抑制率小于5%，与未用MIF组的抑制率比较差异无统计学意义（P>0.05）。（2）ADM对MCF-7/ADM细胞的半抑制率为17.21 mg/L，而对非耐药乳腺癌细胞MCF-7细胞的半抑制率为0.42 mg/L，ADM对MCF-7/ADM细胞的半抑制率明显高于MCF-7的半抑制率（P＜0.05）。（3）5 μmol/L MIF与ADM联合处理MCF-7/ADM细胞后，MCF-7/ADM半抑制率为1.96 mg/L，明显低于单用ADM组的半抑制率（P＜0.05）。逆转ADM耐药倍数为8.78。（4）ADM+MIF组瘤体积［（232.5149±309.2377）mm3］均低于NS组的瘤体积［（962.2309±261.1313 ）mm3］（均P＜0.05），也低于MIF组的瘤体积［（778.2846±42.6919）mm3］，还低于ADM组的瘤体积［（508.9648±16.2609） mm3］（均P＜0.05）。MIF+ADM组的瘤质量抑制率为78.0%。结论：MIF对耐阿霉素的人乳腺癌细胞MCF-7/ADM体内外均有逆转耐药性的作用。

关键词： 米非司酮 阿霉素 耐阿霉素人乳腺癌细胞株MCF-7 逆转 多药耐药

Reversal effect of mifepristone on adriamycin resistance in human breast cancer cell line MCF-7/ADM in vitro and in vivo

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Abstract:

ObjectiveTo explore the reversal effect of mifepristone(MIF) on adriamycin(ADM) resistance in human breast cell line MCF-7/ADM in vitro and in vivo. MethodsThe transplantable models of MCF-7 cells resisting against adriamycin were established in nude mice by subcutanceous implantation to observe the reversal effect of MIF in vivo. The mice were randomly divided into 4 groups: a control group(treated with saline water 0.2 mL intraperitoneally and edible oil 0.5 mL orally), an MIF group (treated with mifepristone 30 mg/kg orally and saline water 0.2 mL intraperitoneally), an ADM group (treated with adriamycin 5 mg/kg intraperitoneally and edible oil 0.5 mL orally) and an ADM+MIF group (treated with ADM 5mg/kg intraperitoneally and mifepristone 30mg/kg orally every 3 days). Tumor changes were investigated after different drug treatments. The reversal effect of 5μmol/L MIF in vitro on the ADM resistance cell line MCF-7/ADM and non ADM resistance cell line MCF-7 was determined by 4,5-dimethylthiazol-2-yl (MTT) assay. Results(1) The inhibitory rate of 5μmol/L of MIF for both cell lines MCF-7 and MCF-7/ADM was less than 5%, and it had no statistical difference compared with the group that was not treated with MIF(P>0.05). (2) ADM could inhibit the growth of both MCF-7 and MCF-7/ADM, but the inhibition concentration 50 (IC50) of MCF-7 (0.42 mg/L) was obviously less than that of MCF-7/ADM(17.21mg/L)(P＜0.05). (3) IC50 of MCF-7/ADM of MIF+ADM group was 1.96 mg/L in vitro, which was significantly less than that in ADM alone group(17.21 mg/L)(P＜0.05), and 5μmol/L of MIF reversed ADM resistance with fold-reversal of 8.78. (4) MIF had some effect on the inhibition of MCF-7/ADM cell growth in vivo, the xenograft volume in the MIF+ADM group［(232.5149±309.2377)mm3］ was significantly smaller than that in the control group［(962.2309±261.1313) mm3 ］ after the 4 week treatment(P＜0.05), and also smaller than that in the MIF group［(778.2846±42.6919)mm3］ and in the ADM group［(508.9648±16.2609) mm3］(P＜0.05). There was significant inhibition on xenograft weight after MIF combined with ADM treatment in vivo, and the inhibitory rate was 78.0%. ConclusionMIF can effectively reverse ADM resistance in human breast cancer cell line MCF-7/ADM both in vitro and in

vivo.

Keywords: mifepristone;adriamycin;adriamycin resistance in human breast carcinoma cell line MCF-7;reverse;multidrug resistance

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