同位素 2009 22 (1): ISSN: 1000-7512 CN: 11-2566/TL

研究报告

用$^{99}Tc^{m}$-MIBI在体外评价肿瘤细胞多药耐药逆转剂逆转细胞多药耐药的效果

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收稿日期 2008-9-24 修回日期 2008-12-22 网络版发布日期: 2009-2-20

摘要 摘要 目的 通过99Tcm-MIBI细胞内摄取变化为手段探讨单独或低剂量联合应用多药耐药逆转剂逆转肿瘤细胞多药耐药的效果，期望为进一步解决临床恶性肿瘤化疗面临的问题提供实验依据。方法 人类髓系白血病K562细胞及其耐药细胞系K562/D(高度表达Pgp)各2×106个，分别加入99Tcm-MIBI 8MBq，观察不同时间不同浓度多药耐药逆转剂环孢菌素A(CsA 0.1～0.4μg/ml)和/或维拉帕米（Ver 2.5～10μg/ml）存在时，K562细胞及K562/D细胞对99Tcm-MIBI摄取变化。两种细胞系间及逆转剂前后间比较采用t检验，组间比较采用q检验。结果①不同浓度Ver或CsA存在时，K562细胞99Tcm-MIBI摄取略有增加，但差异无显著性（P＞0.05）。K562/D细胞加入不同浓度Ver及CsA后99Tcm-MIBI摄取均明显增加。但不同浓度Ver间及不同浓度CsA间，摄取增加的差异没有显著性（P＞0.05）。②2.5μg/ml Ver及0.1μg/ml CsA同时加入K562细胞系中，60min时99Tcm-MIBI摄取率为0.303±0.076，增加率为183%。接近单独应用Ver（10μg/ml）或单独应用CsA（0.4μg/ml）。结论 99Tcm-MIBI细胞内摄取变化可评价逆转剂作用下Pgp的功能变化，低剂量逆转剂联合应用能达到与单一较大剂量应用逆转剂相似的效果，为临床逆转Pgp介导的多药耐药提示新的信息。

关键词 多药耐药 P-糖蛋白 多药耐药逆转剂 MIBI

分类号 R817.4

In vitro nuclear analysis of MDR mediated by Pgp and usage of MDR reversing agents

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Abstract Abstract: Objective Aim at finding simple but effect methods to estimate the MDR of tumor cells and the effect of reversing agents to provide useful message to problems encountered in clinical chemotherapy. Method 2×106 cells of human myelogeneous leukemia cell line K562 and its resistant subline (K562/D)were incubated with 8MBq 99Tcm-MIBI, observed the 99Tcm-MIBI accumulation with presence of reversal agents cyclosporin A(0.1～0.4μg/ml) and/or verapamil(2.5～10μg/ml) at various time intervals. Results ①Different concentration of verapamil or cyclosporin A significantly increased the 99Tcm-MIBI uptake of K562 resistant subline, while the uptake of K562 cell line expressing nondetectable Pgp was not affected. ②combination of low dose verapamil (2.5μg/ml) and cycolsporin A (0.1μg/ml) had similar effect on 99Tcm-MIBI accumulation with higher dose of inhibitor lonely. Conclutions Increase of 99Tcm-MIBI uptake may indirectly reflect the effect of the MDR reversal agents. Combination of lower dosages of modulators may play same reverse effect with less side effects, this provide new useful message to clinical chemotherapy.

Key words Multidrug resistance P-glycoprotein Multidrug resistance reversing agents MIBI

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