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去甲斑蝥素增强IL-15活化的PBMC对白血病KG1a细胞的杀伤作用

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摘要：

目的：探讨去甲斑蝥素（norcantharidin，NCTD）是否能增强IL-15活化的人外周血单个核细胞（peripheral blood mononuclear cell, PBMC）对人急性髓系白血病KG1a细胞的杀伤作用及其可能机制。方法：锥虫蓝拒染法、CCK-8法检测NCTD对KG1a细胞增殖的影响，流式细胞术检测NCTD对KG1a细胞周期的影响，LDH释放法检测IL-15活化的PBMC（IL-15-PBMC）对NCTD处理后KG1a细胞的细胞毒活性，流式细胞术检测KG1a细胞表面NKG2D（natural killer group 2 member D）配体的表达。结果：NCTD有效抑制白血病KG1a细胞的增殖，呈时间（r=0.398，P=0.000）和剂量依赖性（r=0.861，P=0 000），并阻滞KG1a细胞周期于G 2/M期；4 μg/ml 以下的NCTD对IL-15-PBMC没有明显的增殖抑制作用（P>0.05）。当效靶比为10 ：1和20 ：1时，IL-15-PBMC对0.125 μg/ml NCTD处理后KG1a细胞的杀伤率较对照组明显增加\[志愿者A：（37.44±5.78）% vs （9.33±1.69） %，（38.33±3.07）% vs （16.75±1.20）%；P<0.05\]。NCTD不影响KG1a细胞表面NKG2D配体蛋白的表达（P>0.05）。结论：NCTD能增强IL-15-PBMC对白血病KG1a细胞的杀伤作用，可能与抑制细胞增殖、阻滞细胞周期于G 2/M期有关。

关键词：去甲斑蝥素 白血病 KG1a细胞 IL-15 外周血单个核细胞 NKG2D配体

Norcantharidin enhances cytotoxicity of IL-15 activated PBMCs on leukemic KG1a cells

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Abstract:

Objective: To explore whether norcantharidin (NCTD) can enhance the cytotoxicity of IL-15 activated peripheral blood mononuclear cells (PBMCs) on human acute myeloblastic leukemic KG1a cells and its underlying mechanism. Methods: The effect of NCTD on the proliferation of KG1a cells was detected by typan blue assay and CCK-8 assay. The effect of NCTD on the cell cycle of KG1a cells was examined by flow cytometry. The cytotoxicity of IL-15 activated PBMCs (IL-15-PBMCs) against NCTD treated-KG1a cells was detected by LDH releasing assay. The expressions of NKG2D (natural killer group 2 member D) ligands on KG1a cells were detected by flow cytometry. Results: NCTD effectively inhibited the proliferation of leukemic KG1a cells, in a time- (r=0.398, P=0.000) and dose-dependent manner (r=0.861, P=0.000), and arrested KG1a cell cycle at G 2/M phase. NCTD within a concentration of 4.00 μg/ml has no obvious cytotoxicity on the IL-15 activated PBMCs (IL-15-PBMCs) (P>0.05). Compared with the control group, the cytotoxic rate of IL-15-PBMCs on 0.125 μg/ml NCTD treated-KG1a cells was significantly increased (donor A: \[37.44±5.78\]% vs \[9.33±1.69\]%, \[38.33±3.07\]% vs \[16.75±1.20\]%, P<0.05). NCTD treatment showed no effect on expressions level of NKG2D ligands on KG1a cell surface (P>0.05). Conclusion: NCTD can enhance the cytotoxicity of IL-15-PBMCs on leukemic KG1a cells, which is possibly related to the inhibition of proliferation of KG1a cells and cell cycle arrest in G 2/M phase.

Keywords:norcantharidin leukemia KG1a cell IL-15 peripheral blood mononuclear cell NKG2D ligand

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