

论著

LW-AFC对环磷酰胺处理小鼠免疫功能的影响

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摘要 目的 探讨LW-AFC对免疫功能低下小鼠是否有改善作用。方法 昆明小鼠ip给予环磷酰胺 (CTX) 0.02 g·kg⁻¹, 连续10 d, 制备免疫功能低下小鼠模型。六味地黄(LW)浓缩丸 (1.4 g·kg⁻¹) 和LW-AFC (0.2, 0.4和0.8 g·kg⁻¹) 组小鼠在每次给予CTX后ig给予相应药物, 连续10 d。监测小鼠体重, 以及胸腺和脾脏重量变化, 并计算胸腺和脾脏系数; [³H] TdR掺入法检测脾淋巴细胞增殖反应, MTT法检测脾脏自然杀伤(NK)细胞杀伤活性, 流式细胞术检测脾淋巴细胞中CD4⁺CD8⁻和CD4⁻CD8⁺ T细胞亚群百分率, 并计算CD4⁺/CD8⁺ T细胞亚群比值。结果与正常对照组比较, 模型组小鼠胸腺和脾重量及其系数明显降低, 体重增长显著缓慢; LW和LW-AFC对小鼠体重增长缓慢、胸腺重量及其系数降低无明显改善作用; LW-AFC 0.2 g·kg⁻¹对CTX导致的脾重及系数降低有明显改善(P<0.05)。模型组小鼠脾淋巴细胞自发增殖反应、刀豆蛋白A (Con A) 和脂多糖 (LPS) 诱导的脾细胞增殖反应与正常对照组比较均明显降低, [³H] TdR掺入值由正常对照组的6115±441, 19 432±1778和(23 345±7296) cpm分别降低为2741±340, 9210±1387和(3983±263) cpm; 与模型组比较, LW-AFC 0.8 g·kg⁻¹对脾淋巴细胞自发增殖反应有明显的改善作用; LW浓缩丸和LW-AFC对Con A诱导的脾细胞增殖反应均具有明显的促进作用, [³H] TdR掺入值分别为13 996±5161, 27 550±2356, 15 427±1444和(27 333±1701) cpm; 对LPS诱导的脾细胞增殖降低无改善作用, 甚至低于CTX模型组(P<0.01)。模型组小鼠NK细胞杀伤活性由正常对照组的(39.5±0.5)%降低为(37.0±1.0)%, LW和LW-AFC明显促进小鼠NK细胞杀伤活性, 杀伤率分别为(40.9±0.6)%, (39.7±0.8)%, (42.4±0.5)%和(39.8±0.9)%。与正常对照组比较, 模型组小鼠脾脏CD3⁺, CD4⁺CD8⁻和CD4⁻CD8⁺ T细胞百分率明显增加, CD4⁺/CD8⁺比值无明显变化; LW浓缩丸和LW-AFC可使CTX导致的升高的CD3⁺, CD4⁺CD8⁻和CD4⁻CD8⁺ T细胞百分率明显降低, 并可明显降低CD4⁺/CD8⁺比值。结论 LW-AFC对CTX所致小鼠免疫功能低下具有一定的改善作用。

关键词 LW-AFC 六味地黄丸 环磷酰胺 免疫功能

分类号 R285, R967

扩展功能

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Effect of LW- AFC on immune function in cyclophosphamide treated mice

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Abstract

OBJECTIVE To investigate the improvement of LW-AFC on immunodeficiency. **METHODS** An immunodeficiency model of Kunming mice was established after mice were ip given CTX 0.02 g·kg⁻¹, once a day, for 10 d. Liuwei Dihuang concentrated pills (LW) 1.4 g·kg⁻¹ and LW-AFC 0.2, 0.4 and 0.8 g·kg⁻¹ were ig given in LW and LW-AFC groups, respectively, followed by daily administration of CTX for 10 d. The body weight of mice was measured, once every 2 d. On the 11th day the mice were sacrificed, the thymus and spleen were taken and weighed, and their indexes were calculated. The splenocyte proliferation was measured by [³H] TdR incorporation assay, the natural killer (NK) cell activity was measured by MTT assay, and CD4⁺CD8⁻ and CD4⁻CD8⁺ T lymphocyte subsets were measured by flow cytometry. **RESULTS** Compared with normal control group, the weight and index of the thymus, and weight gain in CTX treated mice were significantly reduced. LW and LW-AFC had no obvious effect on these changes. The weight index of the spleen in LW-AFC 0.2 g·kg⁻¹ group was significantly improved. The spontaneous, Con A induced and LPS induced proliferation of splenocytes of CTX treated mice was significantly decreased compared with normal control group. The [³H] TdR incorporation decreased from 6115±441, 19 432±1778 and (23 345±7296) cpm to 2741±340, 9210±1387 and (3983±263) cpm, respectively. LW-AFC 0.8 g·kg⁻¹ could significantly improve the spontaneous proliferation of splenocytes while LW and LW-AFC 0.2, 0.4 and 0.8 g·kg⁻¹ could significantly promote the Con A induced splenocyte proliferation. The [³H] TdR incorporation was 13 996±5161, 27 550±2356, 15 427±1444 and (27 333±1701) cpm, respectively. LW and LW-AFC had no significant effect on the LPS induced splenocyte proliferation. The NK cell activity in CTX treated mice was decreased from (39.5±0.5)% of normal control group to (37.0±1.0)%, but could be greatly improved by LW and LW-AFC

0.2, 0.4 and 0.8 g·kg⁻¹. The NK cell activity was (40.9±0.6)%, (39.7±0.8)%, (42.4±0.5)% and (39.8±0.9)%, respectively. The percentages of CD3⁺, CD4⁺CD8⁻ and CD4⁻CD8⁺ T cells of CTX treated mice was significantly increased, compared with normal control group, but CD4⁺/CD8⁺ ratio was not obviously changed. LW and LW-AFC could significantly decrease the percentage of CD3⁺, CD4⁺CD8⁻ and CD4⁻CD8⁺ T cells and CD4⁺/CD8⁺ ratio. **CONCLUSION** LW-AFC can make remarkable improvement on immunodeficiency induced by CTX.

Key words [LW-AFC](#) [Liuwei Dihuang concentrated pills](#) [cyclophosphamide](#) [immunodeficiency](#)

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