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长期铅暴露对小鼠胸腺微环境阳性选择相关分子表达的影响

Influence of long-term lead exposure on the development of thymus cells subsets in mice

关键词：重金属 铅 胸腺细胞 阳性选择

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摘要：为探讨铅暴露对小鼠胸腺微环境阳性选择相关分子表达的影响,将24只健康初断乳21日龄清洁级雄性KM小鼠随机分为4组,分别为对照(蒸馏水)组和低(200 mg·L^{-1})、中(400 mg·L^{-1})、高(800 mg·L^{-1})剂量乙酸铅染毒组,每组6只.采用自由饮水方式进行染毒,连续染毒12周.染毒结束后,采用流式细胞技术检测小鼠胸腺细胞和胸腺上皮细胞阳性选择相关膜分子的表达.结果发现,与对照组比较,各剂量乙酸铅染毒组小鼠胸腺细胞膜分子CD4、CD8、CD28和LFA-1及胸腺上皮细胞H2-A、H2-K、B7和ICAM-1的表达均明显下降,差异显著(p<0.05);且随着乙酸铅染毒剂量的升高,小鼠胸腺细胞膜分子CD4、CD8、CD28、LFA-1的表达及胸腺上皮细胞膜分子H2-A、H2-K、B7、ICAM-1的表达均呈下降趋势.

Abstract: This study investigated the effect of long-term lead exposure on expression of positive selection associated molecules in the mouse thymus micro-environment. A total of 24 healthy 21-day-old male KM mice were randomly and evenly divided into four groups, labeled as control group (distilled water), low (200 mg·L^{-1}), medium (400 mg·L^{-1}), and high (800 mg·L^{-1}) doses of lead acetate exposure group. Mice were continuously exposed to lead acetate in drinking water for 12 weeks. At the end of the exposure, the expression of positive selection associated membrane molecules on mouse thymocytes and thymic epithelial cells were assessed by flow cytometry. The results showed that the expression of CD4, CD8, CD28 and LFA-1 in mouse thymus cell from each dose of lead acetate exposure group significantly decreased in comparisonwith control group. Similarly, the expressions of H2-A, H2-K, B7 and ICAM-1 in thymic epithelial cells decreased significantly (p<0.05). Along with increasing doses of lead acetate, the expression of thymus cell membrane molecules CD4 and CD8, CD28, LFA-1 displayed a downward trend, and the expression of thymic epithelial cell membrane molecule H2-A, H2-K, B7 and ICAM-1 showed similar patterns.

Key words: heavy metal lead thymus cells positive selection

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