癌变.畸变.突变 ISSN: 1004-616x CN:44-1063/R 2004; 16(2) :94-97

论著

汞、镉对小鼠离体骨髓细胞和睾丸生殖细胞的DNA损伤作用

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收稿日期 2003-12-15 修回日期 2004-1-6 网络版发布日期:

摘要 背景与目的: 研究氯化汞、氯化镉对小鼠离体骨髓细胞和睾丸生殖细胞的DNA损伤作用，比较两种细胞DNA损伤的敏感性差异。材料与方法: 分别以0、0.01、0.1、1 mmol/L剂量氯化汞和0、0.04、0.2、1、5 mmol/L剂量氯化镉处理离体小鼠骨髓细胞和睾丸生殖细胞1h，应用单细胞凝胶电泳(single cell gel electrophoresis, SCGE)技术检测氯化汞和氯化镉对细胞DNA的损伤率和细胞DNA迁移距离的影响。结果： 氯化汞、氯化镉处理组两种细胞DNA损伤率增高， DNA迁移距离增加。DNA损伤率和迁移距离存在明显的剂量效应关系。0.01 mmol/L剂量氯化汞、1 mmol/L氯化镉及以下剂量处理两种细胞引起睾丸生殖细胞DNA的损伤率高于骨髓细胞的DNA损伤率。结论： 氯化汞和氯化镉可引起小鼠骨髓细胞和睾丸生殖细胞DNA损伤，且睾丸生殖细胞DNA受氯化汞和氯化镉损伤更敏感。

关键词 氯化汞；氯化镉；DNA损伤；单细胞凝胶电泳

Effects of Cadmium and Mercury on DNA Damage of Mice Bone Marrow Cell and Testicle Germ Cell in vitro

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Abstract BACKGROUND & AIM: To study the effects of mercury chloride and cadmium chloride on DNA damage of mice bone marrow cell and testicle germ cell in vitro.To compare sensitivity of DNA damage on bone marrow cell with that on testicle germ cell in vitro. MATERIAL AND METHODS: Isolated mice bone marrow,cells and testicle germ cell were exposed to mercuric chloride(respective concentration:0, 0.01,0.1,1 mmol/L)or cadmium chloride(respective concentration:0,0.04,0.2,1,5 mmol/L) for one hour.The proportion of DNA damage and length of DNA migrations were determined with single cell gel electrophoresis (SCGE).RESULTS:The DNA damage rate and length of DNA migrations of isolated mice bone marrow cells and testicle germ cell treated with mercury chloride and cadmium chloride was higher than that of normal group(P<0.001， P<0.05).Results showed the obvious dose－response relationship between the DNA damage(DNA damage rate and length of DNA migrations) and doses of mercuric chloride and cadmium chloride.The DNA damage rate and length of DNA migrations of testicle germ cell treated with mercury chloride(0.01 mmol/L) and cadmium chloride(0.04、0.2、1 mmol/L)was higher than thatof bone marrow cells with mercury chloride(0.01 mmol/L) and cadmium chloride(0.04、0.2、1 mmol/L)(P<0.05). CONCLUSION: The research indicated that at certain dose mercury chloride and cadmium chloride could induce DNA damage on isolated mice bone marrow cells and testicle germ cell.The DNA damage on testicle germ cell wasmore impressible.

Keywords mercury chloride cadmium chloride DNA damage single cell gel electrophoresis

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