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论著

褪黑素对苯妥英所致小鼠胚胎体外致畸效应的拮抗作用

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摘要 采用体外着床后全胚培养模型研究苯妥英诱发的胚胎脂质过氧化和形态异常，确定褪黑素（MT）的胚胎保护作用. d 8.5的小鼠胚胎经苯妥英单独或与MT联合作用48 h后测定胚胎生长，形态发育，全胚蛋白质含量及脂质过氧化产物. 结果表明苯妥英导致胚胎生长发育迟滞并诱发脂质过氧化产物增高4倍. MT 1 mmol·L^{-1}有轻微生长抑制作用，但可完全拮抗苯妥英诱发的脂质过氧化作用，并降低或完全拮抗苯妥英导致的形态生长发育异常. 表明MT有拮抗苯妥英胚胎致畸效应的作用.

关键词 苯妥英 褪黑素 脂质过氧化作用 胚胎 抗氧化药

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Antagonistic effects of phenytoin-initiated lipid peroxidation and dysmorphogenesis by melatonin in a murine embryo culture model

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Abstract

Post-gestational d 8.5 mouse embryos were cultured for 48 h at 37.5℃ in medium containing phenytoin (30 mg·L^{-1}) alone or in combination with melatonin(0.1－1 mmol·L^{-1}). The growth and development of embryo and its protein and thiobarbituric acid reactive substance content were determined. Embryos exposed to phenytoin demonstrated substantial dysmorphogenesis, as evidenced by decreases in anterior neuropore closure, turning, cardiac beating, yolk sac circulation, yolk sac diameter, crown-rump length, head length and somite development, and a 4-fold increase over controls in lipid peroxidation. Melatonin virtually eliminated phenytoin-initiated lipid peroxidation and reduced or completely eliminated all phenytoin-initiated dysmorphological anomalies. These results suggest that lipid peroxidation constitute important molecular damage to embryo, and they provide the first direct evidence that antioxidant melatonin has the embryo protective potential to phenytoin-initiated dysmorphogenesis in embryo.

Key words phenytoin melatonin lipid peroxidation embryo antioxidants

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