

论著

邻苯二甲酸二丁酯对雄性子代大鼠学习记忆及海马Spinophilin表达的影响

李元锋/ 庄梅株/ 李涛 /胡雄飞/ 王开亮/ 王 / 石年

华中科技大学同济医学院公共卫生学院卫生毒理学系, 教育部环境与健康重点实验室, 湖北

收稿日期 2008-4-9 修回日期 2008-6-2 网络版发布日期:

摘要 背景与目的: 观察邻苯二甲酸二丁酯(dibutyl phthalate, DBP)暴露对子代大鼠学习记忆能力的影响和海马spinophilin基因表达的影响。材料与方法: 妊娠Wistar大鼠随机分成4组: 3个不同DBP剂量(25、75、225 mg/kg)的实验组和溶剂对照组, 各组孕鼠于孕第6 d至产后28 d分别给予DBP或溶剂灌胃。观察孕鼠、仔鼠染毒后的基本情况, 采用定量PCR检测21 d龄雄性仔鼠海马中spinophilin基因的表达情况, Morris水迷宫实验测试1月龄雄性仔鼠的学习记忆能力。结果: 在实验剂量范围内, 孕鼠无明显中毒表现; DBP高剂量组(225 mg/kg)雄性仔鼠肛殖距、尾长明显缩短(P<0.01)。在水迷宫实验中, DBP低剂量组(25 mg/kg)仔鼠逃避潜伏期较对照组相对延长(P<0.05), 空间搜索试验中目标象限的停留时间也相对缩短(P<0.01)。低剂量组仔鼠海马spinophilin基因的表达较对照组上调35.7%(P<0.05)。结论: DBP孕期和哺乳期暴露会降低子代雄性大鼠的学习记忆能力, 促进spinophilin基因的表达, 两者之间可能存在一定的联系。

关键词 [邻苯二甲酸二丁酯](#); [学习记忆](#); [水迷宫](#); [spinophilin基因](#); [实时定量RT_PCR](#)

Effects of DBP on Learning and Memory and Spinophilin Expression in Hippocampus of the F1 Generation Rats

LI Yuan_feng, ZHUANG Mei_zhu, LI Tao, HU Xiong_fei, WANG Kai_liang, WANG Zhe, SHI Ni an

Department of Health Toxicology, MOE Key Laboratory of Environmental and Health, Tongji Medical College of Huazhong University of Science and Technology, Wuhan 430030, Hubei, China

Abstract BACKGROUND AND AIM: To study the effects of dibutyl phthalate (DBP) exposure on learning and memory of the F1 generation rats, as well as the expression of spinophilin gene in the hippocampus. MATERIALS AND METHODS: Pregnant Wistar rats were randomly divided into 3 experimental groups and control group, each treated with 25、75、225 mg/kg DBP or vehicle only(corn oil) by gavage since gestation day 6 to postnatal day 28. The general effects of DBP on the pregnant rats and the offspring were observed. The expression level of spinophilin gene in hippocampus of the 21 day_old male pups was determined by Real Time RT_PCR, and the learning and memory abilities of the one month_old male pups was evaluated through Morris water maze. RESULTS: No overt sign of toxicity was found in the dams, but the male pups in the high dose group showed shortened AGD and tail length(P<0.01). In the water maze test, latency to find a hidden platform was longer in the low dose group than that of control(P<0.05). The pups in the former group also spent less time in the target quadrant in the probe test(P<0.01). Moreover, the expression of spinophilin gene was up_regulated 35.7% in this group as compared with control(P<0.05). CONCLUSION: In utero and lactational DBP exposure decreased learning and memory of the F1 generation rats, associated with up_regulated spinophilin expression in the hippocampus, suggesting a causal relationship.

Keywords [dibutyl phthalate](#) [learning and memory](#) [water maze](#) [spinophilin gene](#) [real time quantitative RT_PCR](#)

扩展功能	
本文信息	
▶ Supporting info	
▶ [PDF全文] (2103k)	
▶ [HTML全文] (48k)	
▶ 参考文献	
服务与反馈	
▶ 把本文推荐给朋友	
▶ 加入我的书架	
▶ Email Alert	
相关信息	
▶ 本刊中 包含“邻苯二甲酸二丁酯; 学习记忆; 水迷宫; spinophilin基因; 实时定量RT_PCR” 的相关文章	
▶ 本文作者相关文章	
· 李元锋 庄梅株 李涛 胡雄飞 王开亮 王 石年	

