

论文

未成年大鼠双酚A暴露对卵巢发育影响

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摘要:

目的 探讨双酚A暴露对未成年雌性大鼠的卵巢发育影响。方法 48只雌性未成年Wistar大鼠按体重随机分为4组,溶剂对照组和双酚A低、中、高3个剂量组,腹腔注射染毒,染毒剂量分别为10、40、160 mg/kg,对照组注射橄榄油10 ml/kg,每天1次,连续8 d;称重后处死各组大鼠,取卵巢和子宫称重并计算脏器系数,测定血清雌二醇和孕酮水平,制作卵巢组织连续切片,计数各级卵泡数量。结果 中、高剂量组卵巢脏器系数分别为(0.45±0.109)、(0.36±0.196)mg/g,均低于对照组的(0.71±0.126)mg/g,差异有统计学意义($P<0.01$);血清雌二醇和孕酮水平随染毒剂量增高呈下降趋势,中、高剂量双酚A组孕酮水平(10.54、12.93 nmol/L)与对照组(43.65 nmol/L)比较,差异均有统计学意义($P<0.01$);双酚A暴露可引起卵巢原始/初级卵泡比例减少,闭锁卵泡比例增加,中、高剂量组与对照组卵泡构成比差异均有统计学意义($P<0.01$)。结论 双酚A对未成年大鼠卵巢发育具有一定抑制作用,其机制可能与闭锁卵泡比例增加有关。

关键词: 双酚A 未成年大鼠 卵巢 环境雌激素

Effects of bisphenol A on development of ovary in immature rats

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Abstract:

Objective To examine effects of bisphenol A(BPA) on the development of ovary in immature rats.Methods Totally 48 Wistar male rats(4 weeks old) were randomly divided into a vehicle(olive oil) control and 3 different dosage BPA(10,40,and 160 mg/kg) treatment groups.All rats were treated by intraperitoneal injection one time a day for 8 days.The rats were sacrificed after the last weighing.Ovarian wet weight and ovarian/body weight ratio were examined.The contents of estrogen and progesterone in serum were detected.The numbers of ovarian follicle at different development stage were counted by serial section.Results Compared with the control group(0.71±0.126),the ovarian/body weight ratios were reduced in 40 and 160 mg/kg groups(0.45±0.109,0.36±0.196)($P<0.01$).The contents of estrogen in serum showed no significant change compared with the control group($P>0.05$),but the contents of progesterone in 40 and 160 mg/kg groups(10.54 nmol/L,12.93 nmol/L) changed significantly compared with those of the control group(43.65 nmol/L)($P<0.01$).In BPA treatment groups,primordial/secondary follicles were significantly lower and atresic follicles were significantly higher in 40 and 160 mg/kg groups($P<0.01$).Conclusion The development of ovary could be depressed by BPA in immature rats.One of the mechanisms may be the increase of follicular atresia induced by BPA.

Keywords: bisphenol A immature rat ovary environmental estrogen

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