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论著

乙酰甲胺磷对雌性大鼠氧化损伤及卵巢功能的影响

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摘要 背景与目的： 研究乙酰甲胺磷对雌性大鼠氧化损伤及卵巢功能的影响。 材料与方法: 30只健康成年SD雌性大鼠，随机分为5组，每组6只。实验组设高(47.25 mg/kg)、中(23.63 mg/kg)、低(11.81 mg/kg)3个不同剂量乙酰甲胺磷染毒组、阴性对照组(蒸馏水)和阳性对照组(雌二醇，0.1 mg/kg)。染毒组和阴性对照组采用经口灌胃，阳性对照组采用腹腔注射染毒。检测大鼠动情周期、血清和卵巢组织中SOD和GST活性、GSH和MDA含量及卵巢组织形态等的改变。 结果: 与阴性对照组比较，乙酰甲胺磷高剂量染毒组大鼠动情周期延长，血清SOD活力升高，GSH含量降低，差异具有统计学意义(P<0.05)。中、高剂量染毒组大鼠血清MDA含量均高于阴性对照组，高剂量染毒组GST活力显著低于阴性对照组，差异均具有统计学意义(P<0.05)。各染毒组卵巢组织匀浆中SOD活力均低于阴性对照组，各染毒组GST活力均高于阴性对照组，差异均有统计学意义(P<0.05)。低剂量染毒组卵巢组织GSH含量低于阴性对照组，高剂量染毒组MDA含量显著高于阴性对照组，差异均有统计学意义(P<0.05)。高剂量染毒组大鼠卵巢组织的病理改变主要表现为始基卵泡和初级卵泡增多，而次级卵泡和成熟卵泡较少见，且闭锁卵泡增多。 结论： 乙酰甲胺磷对雌性大鼠具有一定的生殖毒性，在高剂量(47.25 mg/kg)染毒下，可引起动情周期的紊乱、卵巢组织的病理学改变，抑制卵巢的抗氧化酶活性，诱导脂质过氧化。

关键词 乙酰甲胺磷； 雌性大鼠； 卵巢； 生殖毒性

Effects of Acephate on Oxidative Damage and Ovarian Function in Female Rats

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Abstract BACKGROUND AND AIM: To study the effects of acephate on oxidative damage and ovarian function in female rats. MATERIALS AND METHODS: Female Sprague-Dawley rats veceived oral acephate at 0, 11.81, 23.63, 47.25 mg/kg once daily for 30 days. The positive control group was treated with estradiol (0.1mg/kg) by peritoneal injection. The estrous cycle, SOD, MDA, GSH, GST and the histomorphology changes of ovaries were evaluated. RESULTS: In high dosage group the estrous cycle was significantly prolonged compared to negative control group (P<0.05). In the serum, SOD activities of acephate-treated rats were significantly increased compared with that of negative group, but the contents of GSH and GST activities were reduced(P<0.05). The levels of MDA in serum were significantly increased in middle and high dosage groups compared to negative group(P<0.05). In the ovaries, SOD activities of acephate-treated rats were significantly reduced, but GST activities significantly increased compared with those of negative group(P<0.05). In addition, the content of MDA in high dosage group was significantly higher than that of negative group, and the level of GSH in low dosage group was lower than that of negative group(P<0.05). Pathology slices showed increased counts of primordial follicles and primary follicles, while the counts of secondary follicle and mature follicle was decreased in high dosage group. In addition, there were more atretic follicles. CONCLUSION: Acephate had obvious reproductive toxicity on female rats. At the dosage of 47.25mg/kg, it could induce estrous cycle disorders, some pathologic changes in the ovaries, and inhibit the activities of antioxidase and resulting in lipid peroxidation.

Keywords acephate；female rat；ovaries

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