



Striatal testosterone and estradiol disruption in rats, after prenatal and postnatal exposure to chlordimeform.

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INTRODUCTION

Chlordimeform, as a member of the formamidine pesticides family, has been described to induce permanent sex- and region-dependent effects on development of monoaminergic neurotransmitter systems. Although these effects could be related to monoamine oxidase (MAO) inhibition, chlordimeform is a very weak MAO inhibitor, thus that other mechanism should be involved. In this regard, chlordimeform, in particular, as formamidines, in general, alters the serum levels of steroid hormones that regulate the expression of enzymes whose action is to mediate the synthesis and metabolism of monoaminergic neurotransmitters. Therefore, an alteration of these hormones could mediate the observed effects on monoaminergic neurotransmitter system observed in different brain regions.

METHODS

In order to prove that chlordimeform produces disruption of sex hormones in some of the brain regions in which alteration of monoaminergic neurotransmitter system has been observed, we evaluated the effect on the levels of testosterone and estradiol in striatum of male and female rats at 11 days of age, after maternal exposure to chlordimeform (5 mg/kg body weight).

RESULTS

Treatment induced a significant decrease in testosterone and estradiol levels in striatum of rats at 11 days of age, observing sex interaction with treatment in the content of T and E₂. The present findings indicate that after maternal exposure to chlordimeform, a sex hormones disruption, in striatum, is induced.

CONCLUSIONS

These results could explain the alteration observed in monoaminergic systems in the striatum, in particular, and in the rest of brain regions affected after chlordimeform exposure, in general. Further studies are necessary to confirm the implication of our result in monoaminergic system alterations observed.

