

TOXICOLOGY & APPLIED PHARMACOLOGY

October 15-16, 2018 | Las Vegas, USA

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

Javier Del Pino¹, Paula Moyano, María Jesús Díaz, Gloria Gomez, María José Anadón, Margarita Lobo, Jimena García², Matilde Ruiz, José Manuel García¹ and María Teresa Frejo

¹Complutense University, Spain

²Alfonso X University, Spain

Chlordimeform, as a member of the formamidine pesticides family, has been described to induce permanent sex- and region-dependent effects on the 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. We hypothesized that chlordimeform produces disruption of sex hormones in some of the brain regions in which alteration of monoaminergic neurotransmitter system has been observed. With the intention to confirm our hypothesis, we evaluated the effect on the levels of testosterone and estradiol in the striatum of male and female rats at 11 days of age, after maternal exposure to chlordimeform (5mg/kg body weight). Treatment-induced a significant decrease in testosterone and estradiol levels in the 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 the striatum, is induced. 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.

Biography

Javier Del Pino received his PharmD degree at the University Complutense University of Madrid in 2004. He has two Masters in Sciences 2009 and 2010. He specialized in neurotoxicology and neurodevelopmental toxicology and received his PhD in Toxicology in 2009. In 2010 he worked in Institute of Health Carlos III in the National Center of Environmental Health. From 2010 to 2012 he was Associated Researcher at University of Massachusetts (UMASS) working in Sandra Petersen's Lab in a National Institute of Health (NIH) project on developmental effects of TCDD endocrine disruptor on sexual differentiation. In 2016, he got a position as Associate Professor of Toxicology at the Complutense University of Madrid.

jdelpino@pdi.ucm.es

Notes: