

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Poster Presentations

P-84

The effect of cerium oxide during pregnancy on the development of the testicular tissue of newborn NMRI mice

Nemati A¹, Farhadi A², Jalili C³, Gholami M^{3,4}.

1. Developmental Biology, Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

2. Social Determinants of Health Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.

3. Department of Anatomy, Kermanshah University of Medical Sciences, Kermanshah, Iran.

4. Department of Anatomical Sciences, Faculty of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Email: rezagholami57@gmail.com

Background: Cerium (IV) oxide (CeO₂) is widely used as a catalyst in all aspects of human life and human beings are exposed to these materials.

Objective: The purpose of this experimental study was to investigate the effect of CeO₂ during pregnancy on alterations in the testis tissue and blood biochemical parameters in newborn mice.

Materials and Methods: Pregnant NMRI mice were divided randomly into five groups (n = 6 for each group) including one control group and 4 treatment groups. Injection of CeO₂ solution was administered intraperitoneally at the doses of 10, 25, 80, and 250 mg/kg.bw, respectively, on Gestational day 7 and Gestational day 14. At the end of treatment period, the

testicular histological and biochemical parameters of 2- and 6-day-old newborns were analyzed, as well as the biochemical parameters in serum samples of 15-day-old newborns.

Results: The number of spermatogonia, Sertoli, and Leydig cells in the testis of the 2-day-old newborn and spermatogonia and Leydig cells in the testis of the 6-day-old newborns in the 250 mg/kg.bw CeO₂ treatment group was significantly reduced compared with the control group (p < 0.05). Testis malondialdehyde concentration (MDA) of the 2- and 6-day-old newborns in the treated group receiving 250 mg/kg.bw of CeO₂ was significantly higher than the control group (p < 0.001). There was no significant difference between serum MDA and total antioxidant capacity levels between the treated groups with different doses of CeO₂ compared with the control group.

Conclusion: Therefore, CeO₂ given to dams during pregnancy may affect the testicular tissue and blood biochemical parameters in neonates and may be dose-dependent.

Key words: Cerium oxide, Pregnant mice, Newborn, Testicular tissue.

The original full text of this abstract has been published in *Biological Trace Element Research* 2019: 1-9. <https://doi.org/10.1007/s12011-019-01836-x>.

How to cite to this article: Nemati A, Farhadi A, Jalili C, Gholami M. The effect of cerium oxide during pregnancy on the development of the testicular tissue of newborn NMRI mice. *Biological Trace Element Research* 2019: 1-9.