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Poster Presentations

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

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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.

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