

# Postnatal Development of Spinal Cord and Liver Antioxidant Status in the Young of Retinol-Overdosed Female Rats

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The metabolic form of vitamin A, retinol, has a pivotal role in the nervous system development and neuronal differentiation, both during embryogenesis through maternal-fetal support and in the early postnatal life. Retinoic acid was administered orally at a dose of 10 mg/kg body weight to pregnant female rats through days 8–10 of gestation. Spinal cord sections were processed for histochemical visualization one day after birth and on day 21, when weaning is expected. NADPH-diaphorase (NADPH-d)-positive neurons were found in the dorsal horn, around the central canal, and at the intermediolateral cell column on postnatal days 1 and 21 in both control and experimental groups. There were no NADPH-d-positive structures in the ventral horn. The results suggest that prenatal administration of high doses of retinoic acid is not associated with postnatal morphological changes in NADPH-d-positive neurons in the rat spinal cord.

Levels of antioxidants and related enzymes in retinoid storage organs were measured to estimate possible side effects. The activities of enzymes detoxifying superoxide radicals and peroxides were suppressed after birth. A decrease in the level of reduced glutathione was observed on postnatal day 21, indicating an unbalanced redox environment.

*Key words:* Spinal Cord, Retinoic Acid, Antioxidant Enzymes