

Effect of Maternal Hypothyroidism During Gestation and Lactation in Female Rats on Thyroidal and Testicular Functions of Their Male Offspring at Puberty.

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Abstract

Maternal hypothyroidism, is a deficiency of the transfer of thyroid hormones from the mother to the fetus. This study was designed to investigate the effect of induced hypothyroidism in female rats during gestation (G), lactation (L) and gestation and lactation (G+L) on thyroid and testicular functions of their male offspring at puberty. The hypothyroidism state was induced by administration of propylthiouracil (PTU) (0.2) mg/kg b.w/day orally to three pregnant female rats' groups during different physiological state as follows: gestational group (treated from day 6 till parturition), lactational group (treated from parturition till weaning) and gestational and lactational (treated from day 6 of parturition till weaning), in addition, to pregnant control group which received distilled water (D.W) only. All offspring were weaned at 30 days age and six male offspring of each group were chosen randomly and left without treatment until puberty (60 days) postnatal. Blood samples were collected to the measurement of serum level of some hormones including thyroid stimulating hormone (TSH), thyroxin (T4), triiodothyronine (T3), testosterone (T), luteinizing hormone (LH), and follicle-stimulating hormone (FSH). Thyroid glands and testes were removed for histopathology study. The results of hormonal analysis revealed a significant ($P \leq 0.05$) increase of TSH concentration in G and L groups and a significant ($P \leq 0.05$) decrease of T4 in all treatment groups while a significant decrease in T3 was recorded in the G group compared with the control group. Histopathological results showed histological changes in both thyroid glands and testes in G, L, and G+L groups. The present study concluded that the different maternal hypothyroidism periods have a nearly different impacts on offspring male rat, where the G group was the most affected than others.

Keywords:

Hypothyroidism Gestation and Lactation thyroid testis Propylthiouracil