

[P-36]**Role of Thyroid Dysfunction on Regulation of Cholesterol Transport and Steroidogenesis in the Testis of Sprague-Dawley Rat**

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Thyroid hormone plays a critical role in the regulation of fetal rat testes development and growth. Altered thyroid hormones status led to decrease in sex steroid metabolism and testicular function. Despite the potential involvement of thyroid hormones in steroidogenesis, their precise mode of action remains unclear. To investigate the effects of thyroid hormone on regulation of testicular gene expression involved in steroidogenesis pathway, the hyper- and hypothyroid rat were established by T3 injection to pubertal rats (ip 100 microg/kg bw) and by oral administration of 6-N-propyl-2-thiouracil (PTU) in their drink water for 30 days. In addition, di(n-butyl) phthalate (750 mg/kg/day) was administered to the normal, hypothyroid, and hyperthyroid rats by oral gavages for 30 days. Testicular mRNA expression was quantified by RT-PCR [scavenger receptor class B-1 (SR-B1), steroidogenic acute regulatory protein (StAR), P450 side-chain cleavage enzyme (P450scc), CYP17, and CYP19]. DBP exposure resulted in significant reduction in testis weight in both hypo- and hyperthyroid rats. A significantly elevated serum T3 level was observed in hyperthyroid rats, and in hypothyroid rats a significantly low level of T3 was detected. Serum testosterone levels were markedly changed in both hyper- and hypothyroid rats compared with control. SRB-1 and StAR mRNA levels were significantly decreased in hypothyroid rat, but no differences were observed in hyperthyroid rats. DBP significantly increased SR-B1, StAR mRNA, and P450scc expression in both hypo- and hyperthyroid rats. Significantly decreased CYP17 mRNA levels were detected only in hypothyroid rat testes compared to those in both the hyperthyroid and control groups. DBP markedly inhibited CYP19 expression in all treatment groups. To further evaluate the effect of thyroid hormone on the expression of AR or TR, western blot analysis was performed in the testis. TR protein levels were significantly increased in hypothyroid rat testes, whereas no significant effect was observed in DBP treatment groups. Our data strongly suggest that the thyroid hormone di-

rectly affects the development of prepuberal testes and the regulation of testicular steroidogenic gene expression.

Keyword: Thyroid hormone, steroidogenesis, SR-B1, StAR, P450scc