

【P-76】

Early Exposure to Testosterone Propionate Induce the Delay in the Testis Development in Immature Male Rat

Hyun Ju Moon¹, Jin Hong¹, Hoil Kang¹, Tae Seok Kang¹, Il Hyun Kang¹, Tae Sung Kim¹,
Sung Yeoul Ryu¹, Soon Young Han¹, Yhun Yhong Sheen² and Ki Sung Kwon¹
¹Endocrine Toxicology Division, National Institute of Toxicological Research, Korea Food
and Drug Administration, ²College of Pharmacy, Ewha Womans University, Seoul, Korea

In our experiments, we investigated whether early exposure to testosterone propionate (TP) during prepuberty alters testis development in Sprague-Dawley male rats. We performed Hershberger assay using the stimulated weanling male rat by OECD protocols, cDNA microarray, and Western blot. TP was subcutaneously injected to uncastrated Sprague-Dawley male rat of 22 days old for 10 consecutive days at doses of 0.4, 0.8, 1.0, 1.2, 1.6 mg/kg per day. At necropsy, the following tissues were removed and weighed: combined testes (T), epididymides (Epi), Cowper's glands (COW), levator ani, and bulbocavernosus muscles (LABC), seminal vesicles, together with coagulating gland (SV) and ventral prostate (VP). We found that TP increased the weights of Epi, VP, SV, COW, and LABC, while testis was decreased in a dose-dependent manner. In cDNA microarray analysis of testis, there were significant reductions in the expression of CYP11A, the rate-limiting enzyme of steroidogenesis, and insulin-like growth factor I, II (IGF-I, II). Western blot analysis showed the reduction in expressions of IGF-I, IGF-II, estrogen receptor α (ER α), and androgen receptor (AR). Taken together these results, TP exposure before puberty in male rat may produce the delay in testis development by inhibiting the CYP11A and IGF-I, II gene expression

Keyword: cDNA microarray, testis, hershberger assay