Conclusions: The use of low-dose aspirin or prednisolone may be beneficial in IVF-ET patients undergoing COH with GnRH agonist long protocol. Further larger-scale prospective randomized investigations are necessary to confirm these findings.

P-7 Involvement of Fas and FasL System and Active Caspase-3 in Apoptotic Signaling of Spermatogenic Cells after Prepubertal Exposure to 4-tert-Octylphenol

Kim SK[1], Han J[1], Lee CJ[1], Yoon YD[1]

[1]Laboratory of Toxicogenomics for Endocrine Disruptors and Reproductive Endocrinology, Department of Life Science, Hanyang University

Background & Objectives: 4-tert-octylphenol (OP) is known to disrupt testicular development and reduce male fertility. The purpose of the present studies was to investigate the effects of chronic exposure of OP on the apoptosis in spermatogenic cells. To delineate further the pathways involved, we examined the changes of the expression of FasL, Fas and Caspase-3.

Method: Prepubertal male rats (F344) were injected with estradiol valerate (EV; 0.4 μg) or OP (0.4, 4 or 40 mg) for 14 or 28 days. The frequency of apoptosis of testicular cells was demonstrated by the in situ 3'-end-labelling method. Serum testosterone concentration was measured by radioimmunoassay and the expressions of FasL, Fas and Caspase-3 mRNAs and proteins were determined by RT-PCR analyses and immunohistochemistry, respectively.

Results: Decreased sizes and weights and adversely impaired histological structure of testis were observed in the OP and EV treated groups. Serum testosterone concentration was markedly decreased in all of the experimental animals treated for 28 days. Apoptotic germ cells in the testis, visualized by in situ 3' end labeling, were increased and it was coincided with the increased gene expressions of FasL. Immunohistochemistry demonstrated that the markedly increased both FasL and Fas expressions in the spermatogenic cells, especially in degenerating spermatocytes. Moreover, increased immunoreactivity of active caspase-3 was detected in spermatogenic germ cells in the OP-exposed testis and the sites of the expression were also consistent with those of Fas and FasL.

Conclusions: Taken together, the present studies demonstrate that OP causes the impairment of spermatogenesis leading to an increase in apoptosis of testicular germ cells. Especially, it is suggested that up-regulation of Fas and FasL system and the elevated activity of caspase-3 may be involved in apoptosis of the spermatogenic cells.

This study was supported by grants from Korea Science and Engineering Foundation, ABRL; R14-2003-036-010020.