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Effect of SF-1 in maternal cadmium exposure inhibit testosterone synthesis on male offspring**Yuanyuan Huang, Jingwen Zeng, Jianlin Zhu, Yuchen Li, Wenchang Zhang and Jin Liu**
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Background: Toxic effects of environmental reproductive toxicant cadmium on the testis have been confirmed and the toxicity of maternal cadmium exposure on the testis of offspring has become more important topic currently.

Objective & Design: SD female rats were treated with intra-gastric administration of cadmium (0, 0.5, 2, 8 mg/kg CdCl₂) during pregnancy. After contamination, serum and testis tissue were collected from the male first (F1) and second (F2) filial generations, respectively, at PND21 and PND56. The growth and development of the testis and the serum level of sex hormone were observed. The expression of steroidogenic factors in Leydig cells was detected. The roles of SF-1 regulating the expression of steroidogenic factors in hormone synthesis and secretion and its epigenetic mechanism were explored.

Result: Maternal exposure to cadmium during pregnancy caused a significant decrease in serum testosterone level in male F1 offspring, an obvious inhibition in the expression of SF-1 and corticosteroid-related proteins. Epigenetics showed abnormal expression of miR-10b-5p and miR-328a-5p, which regulated StAR and SF-1 (NR5A1), respectively, confirmed by luciferase report gene assay. SF-1 mRNA expression, corticosteroid-related protein expression and serum testosterone level increased significantly in the testis of F2 offspring.

Conclusion: Maternal exposure to cadmium can affect testicular development of male offspring. SF-1 may regulate the expression of steroidogenic factors, which play an important role in maternal exposure to cadmium inhibiting testosterone in offspring.

Biography

Yuanyuan Huang is pursuing her Master's degree in Fujian Medical University, China. Her specialty is labor hygiene and environmental hygiene and her research direction is environmental molecular toxicology.

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