Expressions of Testicular Steriodogenic Proteins and Tyrosine Phosphorylation in VPA-induced Rats

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Background and Objective: Valproate (VPA), antiepileptic drug, has many side effects on male reproductive system of epileptic human and animals. Accumulating data about testicular protein damages are required. This study aimed to investigate the expressions of steroidogenic acute regulatory (StAR) protein, cytochrome P450 (CYP11A1), and tyrosine phosphorylated protein in VPA-treated testes.

Methods: Sixteen male rats were divided into 2 groups and peritoneal injected (i.p.) with normal saline or VPA (500 mg/kgBW) for consecutive 10 days. At the end of experiment, the reproductive parameters and histology were analyzed. Additionally, the expressions of steroidogenic-testicular proteins and tyrosine phsophorylation were determined by Immuno-Western blotting.

Results: VPA significantly decreased sperm concentration and the weights of body, testis, seminal vesicle except epididymis ($p<0.05$). Seminiferous tubules in VPA group were atrophic and their epithelia were thin presenting multinucleated giant cells. Moreover, VPA significantly increased expression of StAR protein but not of CYP11A1 ($p<0.001$). Interestingly, it was found that testicular phosphotylated proteins (40, 86, 97, 116, and 148 kDas) were changed in VPA-treated rat as compare to the control.

Conclusion: VPA induced male reproductive damages including alterations of testicular steroidogenic proteins and tyrosine phosphorylation.

Keywords: valproate (VPA), StAR, CYP11A1, phosphotyrosine, rat testis

Oral