

论著

PFT- α 对隐睾所致生精细胞凋亡的影响

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摘要:

目的: 通过研究PFT- α 对隐睾生精细胞中p53和bcl-2/bax表达的影响, 探讨生精细胞凋亡的分子机制。方法: 将雄性SD大鼠随机分为假手术组、隐睾组、隐睾+p53抑制剂(p-fifty three inhibitor-alpha, PFT- α)组、隐睾+PFT- α 溶媒(DMSO)组。后三组建立单侧隐睾模型, 后两组分别于大鼠腹腔内注射PFT- α 和PFT- α 溶媒, 每天1次, 定时定量。7 d后处死所有大鼠, 取双侧睾丸称湿重。观察手术侧睾丸生精细胞组织形态, 采用TUNEL法结合流式细胞术(flow cytometry, FCM)检测生精细胞凋亡程度, 免疫组织化学和Western 印迹分别检测p53和bcl-2/bax的表达。结果: 隐睾+PFT- α 组与隐睾组和隐睾+PFT- α 溶媒组比较, 生精上皮排列有序, 细胞层数厚, 凋亡指数较低, p53和bax表达弱, bcl-2表达强。结论: PFT- α 可能通过上调bcl-2, 下调p53和bax的表达, 抑制隐睾生精细胞的过度凋亡。

关键词: PFT- α 生精细胞 凋亡 p53 bcl-2/bax

Effect of PFT- α on apoptosis of spermatogenic cells caused by enorchia

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Abstract:

Objective: To determine the molecular mechanism of germ cell apoptosis via investigating the effect of PFT- α on the expression of p53 and bcl-2/bax during experimental cryptorchid cell apoptosis.

Methods: Male Sprague-Dawley rats were assigned into 4 groups: a sham-operated group, a cryptorchid group, a cryptorchid+p53 inhibitor (p53 inhibitor-alpha, PFT- α) group, and a cryptorchid+dissolvent of PFT- α [dimethyl sulphoxide (DMSO)] group. Unilateral cryptorchidism was surgically induced in the rats of the cryptorchid group, PFT- α group, and cryptorchid+dissolvent of PFT- α group. The rats in the PFT- α group and cryptorchid+dissolvent of PFT- α group were intra-peritoneally injected PFT- α and dissolvent of PFT- α , respectively, once a day. The rats were killed on the 7th day after the surgery. The morphology of spermatogenic epithelium at the side of surgery in the rats was observed under light microscope. The apoptosis of spermatogenic cells in the unilateral cryptorchidism was evaluated by TUNEL and flow cytometry (FCM). The protein expression levels of p53, bcl-2, and Bax were detected by Western blot and immunohistochemical assay in turn.

Results: Compared with the cryptorchid groups and the cryptorchid+dissolvent of PFT- α group, the seminiferous epithelium of the cryptorchid+p53 inhibitor group appeared orderly, with thicker cell layers and lower apoptosis index, weak protein expression level of p53/Bax and strong protein expression level of bcl-2.

Conclusion: PFT- α inhibits the germ cell apoptosis caused by the experimental cryptorchidism via increasing the expression of bcl-2 and decreasing the expression of p53 and bax.

Keywords: PFT- α spermatogenic cell apoptosis p53 bcl-2/bax

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