

THE INFLUENCE OF C-KIT GENE EXPRESSION AND APOPTOSIS ON HUMAN SPERMATOGENESIS

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Introduction and Objective: There is a dearth of information on the genetic control of germ cell apoptosis and its role in the pathogenesis of male infertility. In mice, mutations in the c-kit gene have been found to cause pleiotropic defects including sterility. The primary objective of our study was to investigate the effects of expression of the c-kit gene and apoptosis on human spermatogenesis.

Methods: Testicular biopsy specimens were obtained from 90 infertile males with nonobstructive azoospermia (NOA) due to primary testicular failure and from 9 healthy volunteers. The specimens from infertile men were divided into 4 groups according to histopathologic findings - Sertoli cell only (SCO) syndrome (A), maturation arrest (B), hypospermatogenesis (C) and disorganization with sloughing (D). C-kit gene expression and apoptosis were detected using immunohistochemistry with LSAB kit (DAKO, Denmark) and in situ cell death detection kit (Boehringer Mannheim GmbH, Indianapolis, USA), respectively.

Results: The frequency of c-kit expression was lower ($p < 0.05$) and apoptosis higher ($p < 0.01$) in infertility group B, C and D compared to the control group. A significant inverse correlation was observed in the c-kit gene expression and apoptosis in the groups B, C and D ($p < 0.05$). A similar relationship was also observed in the Sertoli cells in group D and the control group.

Conclusions: Based on the above results, it can be concluded that variation in c-kit gene expression and apoptosis are associated with abnormal spermatogenesis, and may play a role in the pathophysiology of male infertility.

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