Expression and localization of septin 14 in testis tissues of infertile male and its association with spermatogenic status

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Septins are a highly conserved family of GTP binding cytoskeletal proteins implicated in multiple cellular functions, including membrane transport, apoptosis, cell polarity, cell cycle regulation, cytokinesis and spermatogenesis. In mammals, 14 septin genes have been identified so far. Disruption of septin functions has been implicated in the pathology of many diseases, including male infertility. The aim of the present study was to define localization of septin 14 and assess its expression pattern in testis tissues of infertile men. Testicular tissues (N=30) were obtained from biopsies of azoospermic men and were subdivided into three groups each containing 10 patients (complete spermatogenesis, maturation arrest and sertoli cell only) according to the pathology reports. The RNA was extracted from tissue biopsies using trizol reagent and their septin expression level was assessed by real time PCR. Protein expression in these groups was evaluated by immunohistochemistry using secondary antibody conjugated with HRP. After normalizing the relative amount of septin 14 by the amount of β-actin transcript, it was shown that mRNA expression level in samples with complete spermatogenesis was significantly higher than those with maturation arrest or sertoli cell only syndrome. This finding was confirmed at protein level with immunocytochemistry. Also, septin 14 protein expressions became evident in spermatogonia, spermatocytes and spermatid in cases of complete spermatogenesis and maturation arrest and also leydig cells of all three pathologic determined groups. This is the first report on the localization of septin 14 protein in human testis. It was indicated that septin 14 is expressed in all germ cells and leydig cells. It is also shown that deficiency of this protein could be related with spermatogenic failure.

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