Abstract

Platelet-derived growth factor (PDGF) and its receptors (PDGFRs) play a key role in the regulation of the embryonic and postnatal development of male gonads. PDGF deficiency is associated with severe spermatogenic impairment. ACP1 is a phosphoprotein tyrosine phosphatase that is able to dephosphorylate PDGFR, decreasing its activity as growth factor. The enzyme is polymorphic and shows strong differences in enzymatic activity among genotypes. At the Outpatient Department for Infertility, University of Rome La Sapienza, we investigated the effect of high-activity ACP1 genotype on spermatic parameters in 105 subjects referred to for varicocele. ACP1 genotype was determined by DNA analysis. In ACP1 *B/*C genotype, which shows the highest enzymatic activity, spermatic concentration is significantly lower and atypical spermatozoa are significantly more frequent as compared to other ACP1 genotypes. It is concluded that subjects carrying *B/*C genotype who represent about 10% of the population have a severe impairment of spermatic parameters in the presence of varicocele.