RELATIONSHIP BETWEEN CREATINE KINASE LEVELS AND ABNORMAL SPERM MORPHOLOGY IN PATIENTS WITH VARICOCELE

F.F. Pasqualotto, J. Hallak, R.K. Sharma, A.J. Thomas, Jr., and A. Agarwal, Center for Advanced Research in Human Reproduction and Infertility, Department of Urology, Cleveland Clinic Foundation, Cleveland, OH, USA.

Varicocele is one of the most common conditions associated with male infertility. The incidence of varicocele is 10 - 20% in the general population and 30 - 40% in men with infertility. Infertile men with varicocele exhibit impaired semen characteristics. Elevated levels of creatine kinase are associated with excessive residual cytoplasm, an indicator of the degree of sperm maturity. The purpose of our study was to determine if creatine kinase (CK) could be used as a marker of sperm quality and study its correlation with morphology in patients with clinical varicocele. Semen samples from of 31 infertile patients with clinical varicocele attending our infertility clinic and 19 donors were examined. Semen parameters were assessed according to the World Health Organization (WHO) guidelines. WHO and Kruger’s strict criteria was used to assess sperm morphology. Patients with leukocytospermia were excluded from the study. Creatine kinase levels were measured after extraction with Triton-X using a creatine kinase kit. The results were expressed as U/10^8 sperm. Varicocele patients had lower sperm concentration, motility and morphology compared to donors (P <0.05). Creatine kinase levels were higher in infertile varicocele patients (0.06 U/10^8 sperm) than donors (0.01 U/10^8 sperm) (P <0.05). Creatine kinase levels were inversely correlated with sperm morphology both according to the WHO (r = -0.27; P = 0.02) and Kruger’s strict criteria (r = -0.33; P = 0.01). In conclusion, elevated creatine kinase levels are associated with abnormal sperm morphology. Creatine kinase may be a good predictor of semen quality in infertile men with varicocele. [Supported by a research grant from the Cleveland Clinic Foundation.]