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Apoptosis and Kinematics of Ejaculated Spermatozoa in Patients With Varicocele

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Increased DNA fragmentation is found in sperm from infertile men. Varicocele is an important cause of male infertility, even though it is present in 15% of men who father children. Semen analysis does not always identify infertility in these patients. Sperm motility is strongly correlated with male fertility potential. The goal of this study was to determine the correlation between apoptosis and kinematics in the ejaculated spermatozoa of patients affected by varicocele. Fresh semen samples were obtained from 30 patients with varicocele and 15 fertile controls. These samples were compared using computer-assisted semen analysis and were assayed to determine the degree of sperm apoptosis. The apoptotic index (AI) was calculated by dividing the number of terminal deoxynucleotidyl transferase-mediated deoxyuridine-5'-triphosphate nick end labeling (TUNEL) stained spermatozoa by the total number of Hoechst 33258-stained sperm cells for 300 sperm. Five microscopic fields were analyzed to obtain 5 AIs for each individual. Results demonstrated no significant difference in semen quality and sperm motion characteristics; however, a significantly higher AI (23.05% ± 4.07%: mean difference ± SE, 95% CI, 15.06%–31.03%, P < .0001) was identified in the varicocele group than in the fertile controls. We concluded that sperm apoptosis does not seem to correlate with semen quality and sperm kinematics and that apoptosis is increased in ejaculated spermatozoa in patients with varicocele compared to normal fertile men.

Key words: Computer-assisted semen analysis, terminal deoxynucleotidyl transferase-mediated deoxyuridine-5'-triphosphate nick end labeling, Hoechst 33258

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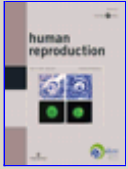


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