Characterization of semen of nonobstructive azoospermia men after varicocele repair: Predictors of sperm recovery and azoospermia relapse

Abdel-Meguid T.

King Abdulaziz University, Dept. of Urology, Jeddah, Saudi Arabia

INTRODUCTION & OBJECTIVES: Reports on sperm recovery in the semen of nonobstructive azoospermia (NOA) men after varicocele repair are conflicting with variable success rates and the predictors of success have not been definitively identified. Particularly, the literature lacks compelling data on the sustainability of sperm recovery. The objective of this prospective study was to evaluate the effect of varicocele repair on patients with NOA, aiming to determine the recoverability and sustainability of motile sperm in semen after varicocelectomy as related to different variables.

MATERIAL & METHODS: Men with documented infertility for > 1 year, NOA and clinically palpable varicoceles were included in this prospective observational non-controlled study. Participants underwent simultaneous subinguinal microsurgical varicocelectomy and testicular biopsies. Preoperative; initial and late follow-up semen analyses were done. Paired t-test was used for changes in semen parameters. Two-tailed P value < 0.05 was considered statistically significant. Outcomes of sperm recovery/relapse to azoospermia were correlated with variables of patient's age, duration of infertility, varicocele grade, varicocele laterality, follicle-stimulating hormone, testicular volume and testicular histology. Correlations were examined using the nonparametric Spearman's correlation coefficient (rho).

RESULTS: The study included 31 patients with mean age = 34.9 ± 8.7 yr and mean follow-up = 19.3 ± 3.3 mo. Overall, sperm recovery was evident in 10/31 (32.3%) patients (persistent recovery = 19.4%; intermittent recovery = 6.5%; relapse to azoospermia = 6.5%). Hypospermatogenesis (HS), late-maturation arrest (MA), early-MA and Sertoli-cell-only (SCO) were observed in 13, 6, 2 and 10 patients,

respectively. Sperm were recovered in HS (7 patients, 53.8%) and late-MA (3 patients, 50%). No sperm were recovered with early-MA or SCO. Only histologic patterns demonstrated significant correlation with recovery (rho=0.504; p=0.004). None of other variables showed significant correlation with recovery. Among initial sperm recovery patients, none of variables demonstrated significant correlation with relapse. Bilateral varicocele repair demonstrated strong negative correlation with relapse, though non-significant (rho=-0.612, p=0.06).

CONCLUSIONS: Varicocelectomy could recover sperm in men with NOA, palpable varicoceles, and HS or late-MA. No sperm recovered with early-MA or SCO. Recovery might be persistent, intermittent or relapse to azoospermia. Testicular histology was the sole parameter significantly correlating with recovery; whereas no predictors of relapse could be identified. Based on our findings, it is imperative to counsel the couple about the potential of sperm recovery and relapse to azoospermia; and the important prognostic role of testicular histology.