POOR SEMEN QUALITY AND ROS-TAC SSCORES IN PATIENTS WITH IDIOPATHIC INFERTILITY

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Introduction and Objectives: Semen characteristics measured in a semen analysis are often correlated, indicating that underlying measures of semen quality can be used to reduce the number of variables evaluated. The purpose of our study was to compare the semen quality and the seminal oxidative stress (ROS-TAC score) in men with idiopathic infertility with normal donors (controls), and to a known group of fertile and infertile men treated for their infertility.

Methods: Principal component analysis was applied to nine semen characteristics (concentration, motility, morphology, and sperm motion characteristics assessed by computer assisted semen analyzer) to provide a standardized score in 36 men with idiopathic infertility and 19 controls attending our infertility clinic. Reactive oxygen species (ROS) production and total antioxidant capacity TAC was measured by chemiluminescence assays. ROS-TAC score was formulated using principal components to predict fertility potential in these men. A logistic regression analysis comparing the fertile (n = 13) and infertile (n = 39) men (treated male factor cases) was used to provide estimates of fertility based on the ROS-TAC score.

Results: Compared to controls, patients with idiopathic infertility had significantly lower sperm concentration (37.53 ± 6.89 vs. 69.4 ± 10.03; P <0.009), sperm motility (37.93 ± 3.36 vs. 55.5 ± 4.8; P <0.003), and normal morphology (30.39 ± 2.23 vs. 39.8 ± 3.2; P <0.02). The idiopathic group had lower semen quality scores (83.0 ± 14.5) than controls (100.0 ± 10.0; P <0.004). The ROS level was higher in men with idiopathic infertility (2.3 ± 0.21) compared to controls (1.3 ± 0.3; P = 0.006); whereas, the TAC level was lower in men with idiopathic infertility (1014.75 ± 79.22) compared to controls (1653 ± 115.29; P = 0.001). In addition, idiopathic infertility patients had significantly lower ROS-TAC scores (32.8 ± 14.2) than controls (50.0 ± 10.0; P<0.0001). An estimated 64% of men with idiopathic infertility will remain infertile during one-year follow-up based on logistic regression analysis.

Conclusions: Patients with idiopathic infertility have lower scores of semen quality and ROS-TAC compared to controls. Sixty-four percent of men with idiopathic infertility tend to remain infertile within one year. Both semen score and ROS-TAC scores provide important information about the semen quality and fertilizing potential, this information may be used in the medical management of infertile patients with idiopathic etiologies.