REDUCTION OF SEMINAL ANTIOXIDANT CAPACITY IN INFERTILE MEN WITH LEUKOCYTOPERMIA: A PROSPECTIVE STUDY

Seminal oxidative stress (OS) is an imbalance between levels of reactive oxygen species (ROS) and total antioxidant capacity (TAC). Leukocytospermia is associated with excessive ROS production. The objective of this study was to examine TAC levels in infertile men with leukocytospermia. Semen specimens from 48 infertile men were examined according to the World Health Organization (WHO) guidelines (WHO, 1999). Patient samples were classified into: leukocytospermic (>1X10^6 leukocytes/mL semen; n=16) and non-leukocytospermic (≤1X10^6 leukocytes/mL semen; n=32); and 13 normal donors served as controls. Seminal TAC was measured by an enhanced chemiluminescence assay and results expressed as Trolox equivalent. Sperm motility was significantly reduced in leukocytospermic group compared to non-leukocytospermic group (P=0.04) and donors (P<0.001). Sperm concentration and normal forms were significantly reduced in leukocytospermic group compared to donors (P=0.008 and 0.003, respectively). Levels of TAC [median (25<TH & 75<TH percentiles)] in leukocytospermic group was 636 (437, 982) compared to 986 (847, 1199) in non-leukocytospermic group (P=0.04) and 989 (863, 1534) in donors (P=0.01). Seminal leukocyte concentrations were negatively correlated with TAC levels (r=-0.34, P=0.007). In conclusion, sperm from infertile men with leukocytospermia may be at higher risk of OS due to reduction of ROS scavenging capacity in semen. Low seminal TAC in leukocytospermic patients suggests the potential benefit of antioxidant supplementation in lowering OS status and, in turn, improving sperm quality in these patients.