OXIDATIVE STRESS AND IL-6 LEVELS IN PATIENTS UNDERGOING VASECTOMY REVERSAL

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Oxidative stress as a result of elevated levels of reactive oxygen species (ROS) and depressed levels of antioxidants is associated with male infertility. Cytokines are also involved in the production of reactive oxygen species. It is known that IL-6 levels are increased in the seminal plasma of infertile men. The role of oxidative stress in men following vasectomy reversal is unclear. The purpose of our study was to determine whether men undergoing vasectomy reversal have high seminal oxidative stress using three measures of oxidative stress: reactive oxygen species (ROS), total antioxidant capacity (TAC), and a composite ROS-TAC score. In addition we also measured the IL-6 concentration in the seminal plasma. Semen and seminal plasma samples were obtained from 23 men following 6 to 8 months after vasectomy reversal and 11 normal donors. Vasectomy reversal patients were further divided into infertile (n = 13) and fertile (n = 11). ROS and TAC production in the semen specimens was measured by the chemiluminescence assay. A composite ROS-TAC score was generated. IL-6 concentration in the seminal plasma was measured by the enzyme-linked immunoassay. Vasectomy reversal infertile patients had higher ROS levels (mean log [ROS + 1] 2.46 ± 0.28) compared to vasectomy reversal fertile patients (1.84 ± 0.29; P = 0.2), and controls (1.25 ± 0.31; P = 0.006). TAC levels were comparable in the three groups. The ROS-TAC scores in infertile men were reduced (46.8 ± 4.28) compared to those in the controls (50.0 ± 3.02). IL-6 levels were significantly elevated in both vasectomy reversal infertile group (1.89 ± 0.37; p <0.01) and fertile vasectomy reversal group (1.76 ± 0.24; p <0.02) compared to controls (0.83 ± 0.31). Infertility following vasectomy reversal is associated with increased level of ROS and elevated IL-6. Oxidative stress in these patients may decrease over time following increased interval after their reversal. [Supported by a research grant from The Cleveland Clinic Foundation.]