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JOURNAL ARTICLE

Oxidative stress in normospermic men undergoing infertility evaluation

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The purpose of this study was to determine whether normospermic infertile men have high seminal oxidative stress, using 3 measures of oxidative stress: reactive oxygen species (ROS), total antioxidant capacity (TAC), and a composite ROS-TAC score. Forty-three normospermic men without leukocytospermia and 19 healthy donors who came to our infertility clinic were included. Patients were categorized into 3 groups: group I, varicocele and no female factor (n = 16); group II, positive female factor (n = 16); and group III, idiopathic infertility (n = 11). In addition, 52 treated male factor patients and 19 donors were included as reference groups. We measured seminal ROS, TAC, and the ROS-TAC score in the patient groups and the controls. Normospermic infertile patients as a group had higher ROS levels (mean log [ROS + 1] 1.76 +/- 0.13) compared with controls (1.39 +/- 0.16; P = .03). Patients in the idiopathic subgroup had significantly higher ROS levels (2.29 +/- 0.25; P = .004) than controls. Normospermic infertile patients as a group not only had reduced TAC levels (970.18 +/- 73.95 Trolox equivalents), but each subgroup also had significantly lower TAC than controls (1650.93 +/- 95.87; P < .003). The ROS-TAC scores in all normospermic infertile patients as a group (35.7 +/- 1.8) as well as in each subgroup was significantly reduced compared with the ROS-TAC levels in the controls (50.0 +/- 2.1; P < .005). We conclude that oxidative stress is associated with male factor infertility. The presence of oxidative stress in infertile normospermic men may explain previously unexplained cases of infertility otherwise attributed to female factors.

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