

Abstract

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Reactive oxygen species as an independent marker of male factor infertility.

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OBJECTIVE: To determine the abnormal patterns of reactive oxygen species (ROS) production in male factor infertility (MFI) patients and to define the ROS reference values in such patients.

DESIGN: A retrospective study.

SETTING: Male infertility clinic at a tertiary healthcare center.

PATIENTS: We examined 132 MFI patients (all normal sperm parameters, n = 24, and all abnormal sperm parameters, n = 38) and 34 healthy donors.

INTERVENTIONS: Routine semen analysis, measurement of ROS.

MAIN OUTCOME MEASURES: Sperm parameters, ROS levels (10(4) cpm/20 x 10(6) sperm).

RESULTS: Normal, healthy donors had significantly higher ($P < .0001$) sperm concentration, motility, and morphology compared with all MFI patients. Univariate analysis indicated a significant association between MFI and log (ROS + 1) (odds ratio [OR] = 3.84), besides sperm parameters and age. A multivariate model using logistic regression analysis also indicated an independent association of log ROS with MFI (OR = 4.25). The ROS cutoff values of 1.2-1.4 had a sensitivity of 0.70-0.78 with a corresponding specificity of 0.82. However, at a cutoff point of 1.2, the OR was 68.6, which increased with an increase in the cutoff.

CONCLUSIONS: High ROS is an independent marker of MFI, irrespective of whether these patients have normal or abnormal semen parameters. We suggest the inclusion of ROS measurement as part of idiopathic infertility evaluation. Treatment with antioxidants may be beneficial in such patients.

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