

Abstract

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Oxidative stress and male infertility--a clinical perspective.

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BACKGROUND: Oxidative stress occurs when the production of potentially destructive reactive oxygen species (ROS) exceeds the bodies own natural antioxidant defenses, resulting in cellular damage. Oxidative stress is a common pathology seen in approximately half of all infertile men.

DISCUSSION: ROS, defined as including oxygen ions, free radicals and peroxides are generated by sperm and seminal leukocytes within semen and produce infertility by two key mechanisms. First, they damage the sperm membrane, decreasing sperm motility and its ability to fuse with the oocyte. Second, ROS can alter the sperm DNA, resulting in the passage of defective paternal DNA on to the conceptus.

SUMMARY: This review will provide an overview of oxidative biochemistry related to sperm health and will identify which men are most at risk of oxidative infertility. Finally, the review will outline methods available for diagnosing oxidative stress and the various treatments available.

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