

1. Oxidative Stress and Male Infertility: Factor Fiction?
2. Understanding the Role of Oxidative Stress in Human Reproduction

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SUMMARY

Oxidative stress and Male Infertility: Fact or Fiction

Oxidative stress has been shown to be an important cause of male infertility. Researchers have found elevated levels of seminal reactive oxygen species (ROS) in up to 88% of men with infertility. ROS are highly unstable free oxygen radicals, which include hydrogen peroxide, hydroxyl radical, and superoxide anion. These radicals are produced in a small amount by normal spermatozoa and are implicated in signal transduction.

Elevated seminal ROS, however, can cause sperm dysfunction through lipid peroxidation of the polyunsaturated fatty acids in the sperm plasma membrane. The lecture will include causes of oxidative stress, effects of oxidative stress on cell physiology and biochemistry, sources of oxidative stress, how to measure oxidative stress, relationship of oxidative stress with various clinical diagnosis of male infertility, relationship between oxidative stress and fertility outcome, antioxidant trials, and strategies to reduce oxidative stress.

Understanding the Role of Oxidative Stress in Human Reproduction

All living aerobic cells are normally exposed to a background level of reactive oxygen species (ROS). However, oxidative stress occurs with increased rates of cellular damage induced by oxygen and oxygen derived oxidants. ROS have been implicated in over 100 disease states such as arthritis, connective tissue disorders, carcinogenesis, infections, and infertility. This lecture will include causes of oxidative stress, effects of oxidative stress on cell physiology and biochemistry, sources of oxidative stress, how to measure oxidative stress, relationship between oxidative stress and fertility outcome, antioxidant trials, and strategies to reduce oxidative stress. In addition, the talk will examine the relationship between ROS and the pathogenesis of idiopathic infertility, mild minimal endometriosis, and hydrosalpinx. The speaker will share the results from his laboratory on the effects of peritoneal fluid/ hydrosalpinx fluid from patients with infertility and their affect on subsequent embryo development in mouse embryo models.