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IRB Number: 5474

Expiration Date: 08/08/2004

Principal Investigator: Tamer Said

Department: Urology

Title: Oxidative stress mediated sperm DNA damage in infertile patients - possible role of Apoptosis

X] REQUEST TO TERMINATE

Final summary report

We have enrolled 13 healthy donors and 15 men undergoing infertility screening. Each patient (or donor) was asked to donate a semen sample by masturbation after an abstinence of at least 48-72 hours. Each sample was collected, separated into 2 fractions (mature spermatozoa and immature spermatozoa) using a density gradient and incubated for 0, 3 and 24 hours with NADPH (5 mmol/L). Both mature and immature fractions were assessed for levels of reactive oxygen species (superoxide radical) using chemiluminescence and sperm DNA damage using the TUNEL assay.

We have detected that immature sperm from teratozoospermic semen samples were characterized by significant presence of cytoplasmic residues in the mid-piece when compared to mature normozoospermic samples. Increased ROS production was observed in spermatozoa rich in cytoplasmic residues that showed significant positive correlation with sperm DNA damage in a time dependent manner.

Our data support the role of NADPH in ROS-mediated sperm DNA damage and suggest that abnormal sperm morphology combined with an elevated ROS production may serve as a useful indicator of potential damage to sperm DNA.

There were no adverse events noted as a result of our experiment.

Papers presented at meetings:

Said TM, Rakesh K. Sharma RK, Sikka SC; Thomas, AJ Jr. and Agarwal A. Effect of Exogenous β -Nicotinamide Adenine Dinucleotide Phosphate Reduced (NADPH) on Sperm DNA Integrity. In: 59th Annual Meeting of the American Society for Reproductive Medicine, October 11-15, 2003, San Antonio, Aabstract # 03-A-893.

Said TM, Agarwal A, Sharma RK, Sikka S, Thomas AJ Jr, (2004): Oxidative stress mediated sperm DNA damage in normozoospermic infertile patients – role of NADPH. In: 29th Annual Meeting of the American Society of Andrology, April 17-20, Baltimore, MD, Abstract # 23.

Article submitted

Said TM, Agarwal A, Sharma RK, Thomas AJ, Jr., Sikka SC. Impact of sperm morphology on DNA damage caused by NADPH induced oxidative stress. *Fertil Steril* (Under review).