LIPID PEROXIDATION IN THE SEMEN OF SUBFERTILE PATIENTS.
Yongjin Wang, Rakesh K. Sharma, Anthony J. Thomas, Jr., and Ashok Agarwal, Cleveland, OH 44195 (Presented by Dr. Sharma).

INTRODUCTION AND OBJECTIVES: There has been a growing interest in the role of lipid peroxidation (LPO) in male infertility as it is known to cause the loss of membrane integrity, enzyme inactivation, structural damage to DNA, and cell death. Human spermatozoa are extremely susceptible to LPO induced damage as they are rich in polyunsaturated fatty acid and lack protective antioxidant enzymes. The objectives of this study were to assess 1) if subfertile patients have higher seminal LPO levels than normal men, and 2) if the level of LPO correlates with sperm characteristics.

METHODS: LPO was measured as level of malonaldehyde by thiobarbituric acid method. Malonaldehyde levels were measured in fresh ejaculates from 11 subfertile patients and 20 normal men who acted as control group. Ferrous sulphate and sodium ascorbate were used as promoters of LPO. The malonaldehyde levels were measured at 534 nm using a spectrophotometer and expressed as nM/10^8 sperm/hr. Computer-assisted semen analyzer was used to analyze the sperm motion characteristics. Seminal smears were examined for morphological abnormalities by WHO method.

RESULTS: Higher malonaldehyde levels (50.3 ± 38.5 nM/10^8 sperm/hr) and poor sperm motility (45 ± 15.3%) was seen in the semen specimens from subfertile patients compared to normal men (malonaldehyde: 24.8 ± 5.0 nM/10^8 sperm/hr, P = 0.04; motility: 57.4 ± 7.8%, P = 0.04). In the subfertile group, 5 patients had elevated LPO levels, while the other 6 had normal LPO levels (P = 0.004). Patients with elevated LPO levels had a higher percentage of abnormal sperm forms (P = 0.048) compared to patients with normal LPO levels. LPO levels in all men (patients or donors) showed no relationship with the time of abstinence, sperm concentration and motion characteristics.

CONCLUSIONS: Poor sperm motility and higher LPO levels seen in the semen of some subfertile patients suggests the importance of LPO in the etiology of defective sperm function in these men. The semen quality in these men may be improved by administration of antioxidants such as vitamin E or glutathione.