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Altered Antioxidant Status and Increased Lipid Per-Oxidation in Seminal Plasma of Tunisian Infertile Men

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Abstarc :

Human seminal plasma is a natural reservoir of antioxidants that protect spermatozoa from oxidative damages. There is evidence in literature supports the fact that impairments in seminal antioxidant and lipid per-oxidation status play important roles in the physiopathology of male infertility. Our present study forms the first one which was carried out in Tunisia. We evaluated the antioxidant status in the seminal plasma of 120 infertile men programmed to In Vitro Fertilization (IVF) for the first tentative. Patients were characterized by an idiopathic infertility. They were divided into three groups: normozoospermics who were considered as controls (n=40), asthenozoospermics (Astheno; n=45) and oligoasthenoteratozoospermics (OAT; n=35). Seminal activities of superoxide dismutase (SOD) and glutathione peroxidase (GPX) and the levels of glutathione (GSH), zinc (Zn) and malondialdehyde (MDA) were measured. With the significant increase of the seminal activities of SOD and GPX in normozoospermics group, there were positive correlations observed between this enzymes and sperm quality. Also, significant elevated rates of seminal zinc and GSH were observed in control group, but there was contradictory associations reflecting the effects of these antioxidants on semen parameters. However, we noted significant increase of MDA levels in groups with abnormal seminogram. We showed negative associations between this per-oxidative marker and sperm parameters. These results obviously suggested that impairment on seminal antioxidants is an important risk factor for low sperm quality associated to idiopathic infertility and as a result can lead to poor IVF outcome.

Key Word :
Oxidative damage, Antioxidant enzymes, Semen quality, Male infertility, Sperm abnormalities, lipid per-oxidation.

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