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Abstract title:

Effect of Abstinence Period on Seminal Oxidative Stress in Infertile men

Biography

Dr Mohamed Arafa graduated from Cairo University Medical School in 1996. He joined the Andrology Department as a resident then as a medical staff. currently he is an Associate Professor of Andrology & STDs, Cairo University. From 2004 till 2011 he was the Head of Andrology & STDs in Dr Fakhry & AlRajihi Hospital in AlKhubar. Since 2011 he is a Consultant Urology/Male Infertility, Hamad General Hospital, Qatar. He is appointed as Adjunct Assistant Professor of Urology, Weill Cornell medicine - Qatar and Assistant Scientist in the American Center for Reproductive Medicine, Cleveland Clinic, USA.

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Study question:

Does the duration of abstinence period affect seminal oxidative stress in infertile men?

Summary answer:

Shorter abstinence period significantly decreases seminal oxidative stress with subsequent improvement of motility, progressive motility and normal morphology.

What is known already:

The duration of abstinence may affect the semen quality. While longer abstinence is associated with more semen volume and sperm concentration, it negatively affects total and progressive motility. WHO guideline stated that abstinence should be 2-7 days. Different studies have sought to determine the optimal time frame for ejaculatory abstinence, however the results are often found to be contradictory. Also, there are no studies discussing the effect of abstinence on seminal oxidative stress measured by oxidation reduction potential.

Study design, size, duration:

This retrospective study included 255 patients presenting with male factor infertility to a tertiary medical center over a period of 2 months. The inclusion criteria were patients who did semen analysis with an abstinence of less than 2 days or more than 5 days.

Participants/materials, setting, methods:

Patients were grouped into group A (76 patients) with abstinence < 2 days and group B (177 patients) with abstinence > 5 days. Semen analysis was done according to the 5th edition WHO guidelines. ORP was determined using the MiOXSYS system (Aytu BioScience, Englewood, CO). SDF was measured by sperm dispersion method (Halosperm). The results were compared by Wilcoxon rank sum test and paired T test. p value < 0.05 was considered significant.

Main results and the role of chance:

The patients' mean age was 35.9±7.6 years. ORP was significantly lower in group A than in group B (2.5±3.0 vs 5.3±10.5mV/10⁶ sperm). Sperm concentration was lower in group A than group B but the difference was non-significant (32.9±25.7 vs 37.7±28.6millions/ml). Total and progressive motility were also better in group A than group B (53.6±18.1% vs 49.2±18.8%, 12.5±10.9% vs 11.6±11.5% respectively)

but again the differences were insignificant. Abnormal form was slightly and insignificantly less in group A than group B ($93.7\pm 9.8\%$ vs $93.8\pm 9.0\%$). Sperm DNA fragmentation was less in group A than group B ($28.8\pm 21.2\%$ vs $31\pm 15.9\%$) but the difference was not significant.

Limitations, reasons for caution:

The main limitation is the retrospective design of the study.

Wider implications of the findings:

The significant improvement in seminal oxidative stress with the short abstinence may introduce a new treatment technique in infertile men where couples can be counseled to engage in frequent sexual intercourses hoping to benefit from the improvement in semen parameters.

Keywords:

Male infertility

abstinence

oxidative stress

oxidation reduction potential