Sperm DNA oxidative damages in infertile men

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Abstract

Sperm DNA oxidative damage due to free radicals is a major contributing factor in a variety of human diseases, including male infertility. The aim of the present study was to compare the levels of sperm DNA oxidative damage in infertile (according to WHO criteria) and fertile men. Semen samples were obtained after 3 to 7 days of abstinence from 25 infertile and 23 fertile men who referred to infertility Center of Tabriz University of Medical Sciences. After semen analysis, sperm cells were separated from seminal fluid by percoll gradient centrifugation and kept at –20°C for next further analysis. Sperm DNA was extracted and its concentration and purity were determined by UV-spectrophotometer. DNA damage was studied by DNA Chromatography-mass spectrometry (GC/MS). Analysis of 8 hydroxy Guanine (8-OHG) as a marker of DNA oxidative damage by GC/MS was shown that rate of basal DNA oxidative damage in infertile group was 100-fold greater than fertile group. There was also correlation between semen parameter (morphology, motility and sperm count) and DNA oxidative damage. Result of this study showed that elevation of sperm DNA oxidative damage could be one of possible reasons for male infertility.

Keywords: Oxidative DNA damage, Free radicals, Antioxidants, Infertility and 8-hydroxy Guanine.

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