

# Abstract

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## Relationship between seminal ascorbic acid and sperm DNA integrity in infertile men.

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**BACKGROUND:** Ascorbic acid has recently been reported to protect sperm DNA from the damage induced by exogenous oxidative stress in vitro. But, there is no report on seminal ascorbic acid and sperm DNA fragmentation in infertile men.

**METHODS:** In this study, we asked whether sperm DNA damage correlates with seminal ascorbic acid levels. Sperm DNA fragmentation index (DFI) was analysed in 75 men by flow cytometry after acridine orange staining. We also measured the levels of seminal plasma ascorbic acid and total antioxidant capacity.

**RESULTS:** Abnormal sperm DNA integrity (DFI  $\geq$  30%) was observed in 12% of the patients with normal semen parameters and in 52% of the patients with abnormal semen parameters. There were significant correlations between the level of DFI and conventional semen parameters including sperm count, motility and morphology ( $r = -0.29, -0.55$  and  $-0.53$  respectively;  $p < 0.05$ ). Seminal ascorbic acid level was significantly lower in the patients with leucospermia than the patient with normal semen parameters. Interestingly, a significantly greater percentage of men with abnormal DFI were observed in the patients with low levels of seminal ascorbic acid compared with those with normal or high levels of ascorbic acid (59% vs. 33%,  $p < 0.05$ ).

**CONCLUSION:** Men with insufficient seminal ascorbic acid frequently have sperm DNA damage.

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