

Zinc levels in seminal plasma and its relationship with semen parameters in male partners of subfertile couples

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The objective of this study was to evaluate semen Zn levels in male partners of subfertile couples and to observe the relationship between seminal plasma Zn levels and semen characteristics. The study was carried out as a hospital based prospective observational study from November 2004 to May 2006 at the Subfertility Unit, Department of Obstetrics and Gynaecology, Faculty of Medicine, Ragama.

A total of 150 male partners of subfertile couples were recruited after excluding confounding factors (according to WHO). Semen samples were obtained from masturbation and analyzed for semen parameters. Seminal plasma Zn concentrations were assessed with atomic absorption spectrometer. Group means were compared with Student's t- test at a significance of $p < 0.05$.

The mean (SEM) seminal plasma Zn concentration in the study population was $121.87(5.60) \mu\text{g}/\text{mL}$. Mean Zn concentration was significantly high ($p < 0.05$) among subjects with asthenozoospermia (low sperm motility) in comparison to normal motile group. Mean Zn concentrations were not significantly different between normal and abnormal groups of other parameters (volume, pH, concentration, viability and morphology). Our study failed to demonstrate a significant difference in the mean Zn concentration between normozoospermics ($115.10 \mu\text{g}/\text{mL} \pm \text{SD } 57.01$) and others ($122.66 \mu\text{g}/\text{mL} \pm \text{SD } 76.51$).

A weak negative correlation ($r = -0.0193$, $p < 0.05$) was found between seminal plasma Zn concentration and pH. There was no correlation between Zn concentration and other seminal parameters. Total Zn per ejaculate also demonstrated a correlation ($r = -0.280$, $p < 0.01$) with seminal fluid pH but not with any other parameter.

We conclude that semen Zn levels in male partners of subfertile couples were comparable with other such populations that have been studied elsewhere. A significantly higher Zn concentration was observed among subjects with asthenozoospermia. Seminal plasma Zn levels correlated negatively with semen pH.

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