

Abstract

J Coll Physicians Surg Pak. 2005 Nov;15(11):671-3.

Relationship of serum and seminal plasma zinc levels and serum testosterone in oligospermic and azospermic infertile men.

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OBJECTIVE: To measure the zinc level in fertile and infertile population and to find out relationship of serum and seminal plasma zinc levels and serum testosterone in oligospermic and azospermic infertile men.

DESIGN, PLACE AND DURATION OF STUDY: Comparative study. The Infertility Clinic, Jinnah Postgraduate Medical Center, Karachi, from January 2002-July 2003.

PATIENTS AND METHODS: Fifty-eight primary infertile male subjects, without any treatment, who had regular unprotected intercourse for at least 12 months without conception with their partners, aged 20-40 years, having normal and regular menstrual cycles without any uterine pathology or hormonal disturbance were selected from Infertile Clinic, Jinnah Postgraduate Medical Center, Karachi. After semen analyses, they were grouped as, oligospermic (30), and azospermic (28). Twentyfive known fertile male selected from general population (their spouse had given birth to a child within one year) and after semen analysis were taken as normospermic control group . Semen analyzed according to WHO criteria and serum and seminal plasma zinc was estimated by 5Br. PAPS colorimetric method. Serum testosterone, LH, and FSH were measured by ELISA, using kits supplied by Diagnostic System Laboratories (DSL), USA.

RESULTS: The mean value for testosterone was significantly low in oligospermic, (8.04 \pm 0.76) and azospermic subjects (7.14 \pm 0.27) as compared to normospermic (9.90 \pm 0.14) control groups ($p < 0.05$, $p < 0.001$ respectively), serum LH ($p < 0.05$, $p < 0.001$ respectively) and FSH ($p < 0.05$) were significantly higher than normospermic control group. Serum and seminal plasma zinc levels was low in oligospermic, and azospermic subjects when compared with normospermic control groups ($p < 0.05$, $p < 0.001$ respectively). This suggests its involvement in spermatogenesis and infertility in such patients. Seminal zinc level has weak correlation with testosterone in oligospermic ($r = 0.44$, $p < 0.05$) and with serum zinc in azospermic subjects ($r = 0.49$, $p < 0.05$) while no correlation was observed with LH and FSH in all the groups.

CONCLUSION: In this study, there was significant decrease in serum and seminal plasma zinc levels in oligospermic and azospermic infertile males with significantly low androgen. It indicates zinc has a possible role for spermatogenesis and steroidogenesis. Therefore, zinc concentration in seminal plasma should be considered as one of the factors responsible for decreased testicular function in infertile male subjects.