USING LOW MOLECULAR WEIGHT ZINC BINDING PROTEIN FOR ASSESSMENT OF SEMEN QUALITY

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ABSTRACT

Semen samples were obtained from 37 fertile and 37 subfertile men with asthenozoospermia between July 2011 to April 2012, from couples who consulted the infertility clinic of the Babil hospital of maternity (Hilla city/ IRAQ). The subfertile group consist of the patients which treated with zinc sulfate, every participant took two capsules of zinc sulfate per day for three months (each one 220mg). Semen samples were obtained (before and after zinc sulfate supplementation). After liquefaction seminal fluid at room temperature, routine semen analyses were performed. For determination of the amount of zinc binding proteins, the gel filtration of seminal plasma on Sephadex G-25 was performed. All the fractions were investigated for protein and for zinc concentration by atomic absorption spectrophotometry. Evaluation of chromatograms was made directly from the zinc concentration in each fraction. In this study we observed a significantly elevated semen high plus intermediate molecular weight zinc binding ligands levels ($p<0.001$) in fertile males compared with subfertile males. On the other hand, seminal low molecular weight ligands (major & minor LMW-Zn) have opposite behavior, However, zinc supplementation restores high plus intermediate molecular Weight zinc binding ligands levels in the subfertile men to the normal ranges ($p<0.001$), elevates major-Low molecular weight zinc binding protein (peak II) to more than normal levels ($p<0.001$); and raises the levels of minor-Low molecular weight zinc binding protein (peak III). Volume of semen, progressive sperm motility percentage and total normal sperm count increases after zinc sulfate supplementation.

KEYWORDS: Zinc Supplementation/ Low Molecular Weight Zinc Binding Protein/ Gel Filtration/ Asthenozoospermia/ Semenogelin.