this concentration can be a function of a number of factors, including time since collection and the age of the donor [4]. Fructose is an important source of energy for the sperm, and, hence, measurements of fructose concentration in whole semen can change over time as a result of fructolysis, the primary source of lactic acid in semen [5,6]. Fructose is also likely involved in protein complexes, particularly in coagulated semen [7].

In fact trace elements calcium, magnesium, copper, selenium, and zinc play very vital role in affecting various parameters of semen. Among trace elements increasing evidence of a direct relationship of zinc was found with seminal parameters [8]. Zinc (Zn) in seminal plasma stabilizes the cell membrane and nuclear chromatin of spermatozoa [9]. It may also have an antibacterial function and protect the testis against the degenerative changes [10]. It may play a regulatory role in the process of capacitation and acrosome reaction [11].

The total zinc content in semen from mammals is high, and zinc has been found to be critical to **s**permatogenesis. Deficiency of zinc is associated with hypogonadism and insufficient development of secondary sex characteristics in humans [12], and can cause atrophy of the somniferous tubules in the rat and hence failure in spermatogenesis [13].

Zinc is excreted from the prostate as a low-molecular weight complex with citrate. After ejaculation, 50% is redistributed and bound to medium- and high-molecular weight compounds from the seminal vesicles [14].

Testicular Zn is critical for normal spermatogenesis and for sperm physiology; it preserves genomic integrity in the sperm and stabilizes attachment of sperm head to tail [13].

Copper is an important element for numerous metalloenzymes and metallo-proteins that are involved in energy or antioxidant metabolism. However, in its ionic form and at high level, this trace element rapidly becomes toxic to a variety of cells, including spermatozoa [15]. The present study was designed to evaluate seminal plasma levels of zinc, copper and fructose to correlate their concentrations with various sperm parameters among fertile and infertile male subjects.

Method

This study was carried out at the Institute of Embryo Research and Infertility Treatment, AL-Nahrain University, Baghdad, during the period from Sep. 2008 to Mar. 2009. Eighty six primary infertile male subjects, who had regular unprotected intercourse for at least one year without conception with their partners, aged (25-40) years were included in this study. Patients had no infections, traumatic abnormalities which could be implicated in the development of infertility. At first clinic attendance, a detailed background history and physical examination were done on both husband and wife.

Semen specimens from all infertile patients were collected into sterile polystyrene jars after an abstinence period of 3 to 5 days. Macroscopic and microscopic examination of semen was performed according to WHO recommendations [16]. A portion of each semen sample was examined for sperm count, motility and morphologic features. Infertile male patients were then divided into the following three groups count /motility and/or morphology, WHO criteria, 1992 [17].

Group I: Azoospermic (sperm concentration = zero, n=28),

Group II: Oligozoospermic (sperm concentration < 20 ×10 /ml, n= 30), and

Group III: Asthenozoosperic (sperm motility < 50%, n=28).