

Effect of infection on semen parameters in a sample of Iraqi infertile males.

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Summary:

Background: Several studies were carried out on association of infection with male infertility, which revealed great variations in the prevalence of genital infection in different parts of the world. This work was designed to study the effect of infection on semen parameters in a sample of Iraqi infertile males.

Methods: A sample of 400 infertile male patients attending the High Institute for Embryo Research and Infertility Treatment for laboratory investigations and treatment were selected. This study was carried out during the period Nov. 2002 to April 2003, inclusive. Seminal fluid analysis was performed on samples obtained by masturbation into a glass container after 48 to 72 hours from of abstinence from sexual intercourse. Analysis (examination of volume, liquifaction, sperm count, motility percent, normal morphology percent and presence of pus cells) was performed within an hour after ejaculation.

Results: Clinical infection was detected in 14% of infertile males and 29% had subclinical infection. Liquifaction time and leukocyte had significant variation between infected and non infected patients.

Conclusion: Early diagnosis and treatment of genitourinary infection in necessary to reduce complication and infertility in future.

Key word: Infertility, semen, infection, Iraq

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Introduction:

The understanding of the male factor in infertility progress slowly with the advances in different medical branches and it did not receive the required attention until recently 1. Five to 10% of normal fertile couples take more than a year or 2 to conceive. Some couples, therefore present with a delay in conceiving purely by chance, having normal low fertility rather than sub-fertility 2; many of these supposedly "infertile" couples will eventually conceive, even without treatment 3. About 6% of men between the ages of 15 and 50 years are infertile 4. Several studies were carried out on association of infection with male infertility, which revealed great variations in the prevalence of genital infection in different parts of the world; this infection was more common in infertile males in Africa (12.2%) and South America (12.4%) than in Europe and Australia (8%) and Asia (3.3%) 5. This study was designed to study the effect of infection on semen parameters in terms of its effect on sperm motility, viability and morphology in a sample of Iraqi infertile males.

Materials and methods:

A sample of 400 infertile male patients attending the High Institute for Embryo Research and Infertility

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Treatment for laboratory investigations and treatment were selected. Infertile males who had a 2 years or more duration of infertility with a healthy female partner were included in this study; if the infertile male had a previous child the period was calculated from the birth of last child 6. This study was carried out during the period Nov. 2002 to April 2003, inclusive.

Seminal fluid analysis was performed on samples obtained by masturbation into a glass container after 48 to 72 hours from of abstinence from sexual intercourse. Analysis was performed within an hour after ejaculation. Seminal fluid specimens analysis according to WHO standards 7, which include examination of volume, liquefaction, sperm count, motility percent, normal morphology percent and presence of pus cells (leukocyte count), leukocyte count of $\geq 1000\ 000$ / ml of semen was considered as an indication for presence of infection 7.

Differences in seminal fluid parameters between leukospermic infertile patients versus non leukospermic infertile patients were examined statistically by student's t test. P value < 0.05 was considered as statistically significant.

Results:

Clinical infection was detected in 56 (14%) of males, while 116 (29%) of them had subclinical infection (detected by leukocyte count of equal or more than 1 x

10^6 per ml only). This indicates that 43% of the infertile males had current genital infection.

Seminal fluid analysis by infection status is shown in Table 1. Among seminal fluid findings only liquefaction time and leukocyte count had significant variation between infected and non- infected patients.

Table 1. Among seminal fluid findings only liquefaction time and leukocyte count had significant variation between infected and non-infected patients.

Character of seminal fluid	Infection	No infection	P value
	Mean \pm SD	Mean \pm SD	
Volume (ml.)	2.26 \pm 1.04	2.29 \pm 1.27	0.6
Liquefaction time (min.)	26.6 \pm 7.6	25.1 \pm 6.9	0.01
Sperm count (million / ml)	15.2 \pm 16.3	15.6 \pm 16.4	0.7
Sperm motility (%)	11.2 \pm 8.6	11.29 \pm 10.4	0.6
Normal morphology (%)	23.8 \pm 22.1	22.01 \pm 19.9	0.6
Leukocyte count (million / ml)	3.1 \pm 1.25	0.49 \pm 0.48	0.001

Discussion:

In this study diagnosis of genital infection depend upon demonstration of leukospermia (seminal leukocytes count of or more than 1×10^6 per ml only) which was detected in 43% of infertile males. Other workers from Iraq reported high findings, 75% 8 and 85% 9, which in turn much higher than that reported in western countries (10 -20)10,11. Although it is widely assumed that leukospermia is an important indicator for genital tract infection, bacteria have been detected in only a minority of leukospermic samples 12,13. Thus there is little evidence for a strong relationship between bacterial infection in male genital tract and leukospermia 10. In industrialized countries, *Chlamydia trachomatis* (CT) (most prevalent sexually transmitted pathogen) found associated with leukospermia using nested plasmid polymerase chain

14. However, such test and other diagnostic tests for detection of antigen for precise diagnosis of bacteria, CT and viral infection are not available in Iraq yet. Only a significant difference in liquefaction time between infected and non- infected infertile males was revealed by this study. This finding agrees with that of other workers 9,15. Workers in England demonstrated a significant association between leukospermia and reduction of sperm motility and decrease in normal morphology percent 16. Others reported lack of influence of microorganisms in semen or seminal fluid quality 17. Recently, by sensitive molecular assays high prevalence of sexually transmitted pathogens were detected in semen from asymptomatic infertile patients 18. Pathogen's DNA was associated with changed in semen parameters and signs of reduced epididymal and prostate function. It indicates that infection may contribute to male infertility. Semen contains enzymes and inhibitors of haemostatic system as well as the high molecular weight seminal vesicle

which have roles in seminal clotting and affect fertility 19,20. The liquefaction time and the distribution of components vary a cross split ejaculates. This phenomena may have an important bearing on the way of clotting / fibrinolytic factors in semen 9,20. Antibacterial treatment results in improvement in sperm quality, once the infection is eradicated 21.

Conclusion:

Liquefaction time was significantly longer in leukospermic infertile men than in non leukospermic infertile men. More work is required to dissect the precise effect of infection on semen parameters.

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