

The Incidence of Unexplained Subfertility and its Relation with Age and Antisperm Antibodies among Infertile Couples in Erbil City.

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Abstract:

Background: Unexplained subfertility (UI) is a term applied to an infertile couple whose standard investigations yield normal results. The diagnosis of UI is one of exclusion.

Aims and objectives:

1. To find any other causes of UI.
2. To know distribution of patients with UI according to the age
3. To detect Anti Sperm Antibodies (ASAs) in both serum of couples and in the semen of male partner and its relation with UI.

Patients and methods: The study carried out in Erbil In Vitro Fertilization (IVF) and subfertility care center from November 2009-September 2010 and (157) couples (explained and unexplained) were participated in this study and classified according to the cause of subfertility. A serum samples from 33 couples for both male and female, and 33 semen samples were examined for the presence of ASAs by using Enzyme linked immunosorbent assay technique (ELISA).

Results: From those (157) couples the incidence of UI was seen in 33 couples (21%) and the high percentage of infertile couples were age around (26-35) years. The mean age for both male and female was (33.64, 28.64) years respectively. The ASAs were found in 5 out of 33 couples (15.16%), in female serum 8(24.24%) while in the semen was 18(54.55%)

Conclusions: The age of male and female has effect on both the subfertility and fecundity and there is a relation between female age and subfertility. ASAs could be a cause for subfertility and ASAs found in couples with UI.

Key words: Unexplained infertility, Subfertility, Antisperm antibodies, Erbil city.

Introduction:

Subfertility can be defined as the inability of the couple to conceive within a year of beginning regular unprotected intercourse⁽¹⁾.

Unexplained subfertility (UI) refers to a diagnosis made in couples in whom standard investigations including semen analysis, tests of ovulation and tubal patency and post coital test are normal⁽²⁾.

When a couple seeks advice on subfertility the first steps (after a history and examination of both partners) are to arrange a semen analysis and a properly timed post coital test (PCT). If both of these results fall within accepted limits of normality, now, most of the diagnosis

effort will fall on the woman, while the man is usually regarded as normal and has with further investigations are required⁽³⁾.

With recent dramatic advances in subfertility treatment, age related subfertility remains as one of most difficult challenges. Reproductive specialists have known for years that the pregnancy rate is inversely related to the female partner's age. Early explanations for this trend included decreased coital frequency, diminished desire for child bearing, decreased overall time to try pregnancy and diminished ovarian with advancing age⁽⁴⁾. Today increased spontaneous abortion; oocyte depletion

and oocyte aging are added to the list⁽⁵⁾. The probable causes of UI in male are abnormal biochemical reaction in sperms causing difficulty in reaching and binding to oocyte and zona penetration. While the female factors includes: endocrinal factors like : abnormalities in luteinizing hormones (LH), prolactin, and ovarian causes like chromosomal maturation defects, tubal factors, cervical factors, immune factors-altered cell mediated immunity⁽⁶⁾.

Detection of sperm immobilizing antibodies in women may have relevance for diagnosis of immunological subfertility because the antibodies secreted in the female reproductive tract might impair sperm passage, inhibit fertilization and prevent post-fertilization processes⁽⁷⁾.

Immune reaction to spermatozoa which interferes with fertility may operate in a small, but significant proportion of couples, sperm antibodies may appear in the blood and in genital tract, they should sought in both locations⁽⁸⁾.

Patients and Methods:

A cross sectional study carried in subfertility care and IVF center in Erbil city in Iraqi Kurdistan from November 2009 to September 2010.

One hundred fifty seven couples were included, and a complete questioner form prepared for each person included: name, age, address, occupation, both medical and surgical history.

Seminal analysis were done for each male and classified according to criteria of World health organization (WHO)⁽⁹⁾. For each female an ultrasound done to exclude ovulatory causes and also hormonal examination and hysterosalpingeography (HSG) done for them.

From those (157) couples, (33) which represents about (21%) of couples have no cause for subfertility and they were included in the study.

EIISA (enzyme linked immunosorbent assay) used for detection ASAs in the serum of both males and females and also for detection ASAs in male seminal fluid qualitatively and quantitatively.

Results:

The highest frequency and percentage of infertile females and males with unexplained subfertility were in the age range (26-35) years with mean age for both females and males are (28.21, 33, 64) years respectively as shown in (Table 1)

The result of this study shows that ASAs was positive in the serum of 5(15.16%) males out of 33 males with UI as shown in (Table 2).

Table 3 shows that from the 33 infertile males (unexplained subfertility) ASAs found in the semen of 18(54.55%) males.

This study shows that ASAs was positive in the serum of 8(24.24%) female out of 33 infertile females as shown in (Table 4).

Table (1): Relation between couple's age and unexplained subfertility.

Age of couples	Age of females		Age of males	
	Frequency	Percentage %	Frequency	Percentage %
15-25 years	15	45.46	2	6.6
26-35 years	16	48.48	22	66.67
36-45 years	2	6.6	6	18.18
>46 years	0	0	3	9.09
Total	33	100	33	100
Mean	28.21		33.63	

Table (2): Incidence of ASAs in male serum in couples with unexplained subfertility.

Total numbers of infertile couples	Total numbers of couples with unexplained subfertility	Number of male with positive ASAs in the serum		Number of male with negative ASAs in male serum	
		Frequency	Percentage	Frequency	Percentage
157	33	5	15.16%	28	84.84%

Table (3): Incidence of ASAs in male semen in couples with unexplained subfertility.

Total numbers of infertile couples	Total numbers of couples with unexplained subfertility	Number of males with positive ASAs in the semen		Number of males with negative ASAs in male semen	
		Frequency	Percentage	Frequency	Percentage
157	33	18	54.55%	15	45.45%

Table (4): Incidence of ASAs in female serum in couples with unexplained subfertility.

Total numbers of infertile couples	Total numbers of couples with unexplained subfertility	Number of females with positive ASAs in the semen		Number of female with negative ASAs in male semen	
		Frequency	Percentage	Frequency	Percentage
157	33	8	24.24%	25	75.76%

Discussion:

In this study the percentage of unexplained subfertility among infertile couples was about (21%) and this agreed with Scott JR, et al. ⁽¹⁰⁾. Many studies that found the incidence of UI is relatively range from (5-20%).

In this study the highest percentage of infertile females with UI were in the age group (26-35) years and this agrees with Capri et al ⁽¹¹⁾ who found that female age is the major variable contributing factor to unexplained subfertility.

The possible reasons for UI is that some couples are apparently normal but they have below average fecundity because the female partner age is >30 years ⁽¹²⁾.

Women's fertility peaks are between ages of 22 to 26, and declines after 30: atypically 30 years woman has only (12%) of ovarian reserves she was born with ⁽¹³⁾. A tendency to delay child

bearing for social reasons has resulted in increasing numbers of women seeking subfertility treatment at advanced age ⁽²⁾. This study revealed that high percentage of infertile males were in the age group (26-35) years, this might be due to erectile dysfunction increase with age ⁽¹⁴⁾. However, evidence suggests that increase of male age is associated with a decline in semen volume, sperm motility and sperm morphology. In studies that controlled for female age, comparisons between men under 30 and men over 50 found relative decrease in pregnancy rates between (23% and 38%) ⁽¹⁵⁾.

The mean age of both infertile males and females was (33.64, 28.21) years respectively and this result agrees with Haugen TB, et al. ⁽¹⁶⁾ where the mean age of the 99 Norwegian men was 31 years and the mean age of their partner

was 30 years and 86% were less than 35 years.

In a study done by Köksal et al.⁽¹⁷⁾ they found that ASAs present in (7%) of male serum and 30% of male seminal fluid in cases with subfertility of unknown causes, the ASAs ratio was significantly high (p value < 0.002). These results have shown the importance of further investigation of ASAs in cases with subfertility of unknown reasons.

The result of this study agreed with the study done by Hargreave, et al.⁽¹⁸⁾ who found that ASAs was positive in semen of (25%) of males with subfertility.

Clinically, antibodies against sperm are found in (3% to 12%) of men who undergo evaluation for subfertility and can be found in the serum, seminal plasma or sperm-bound. As antibodies in the serum cannot logistically bind to sperm unless they transudate into semen, these immunoglobulins are considered clinically less important than sperm-bound antibodies. The formation of antisperm antibodies (ASA) may be a consequence of rupture in the blood-testis barrier⁽¹⁹⁾.

In a study done by Garcia et al.⁽²⁰⁾ it was found that (18.18%) of infertile men with unexplained subfertility were positive for ASAs, this indicates that ASAs are involved in reduced fertility.

Antisperm antibodies (ASAs) are one of the main causes of subfertility due to immune etiology. The incidence of ASAs reported by walke et al.⁽²¹⁾ among infertile couples was in a range of (9%-36%).

ASAs may either block sperm transport or agglutinate the cells within ejaculated sample as well as to inhibit their transvering through female genital tract and block sperm-oocyte interaction. They can sometimes detrimental even

for early embryo development despite of the IVF application⁽²²⁾.

Conclusions:

1. Age of both males and females has effect on the fertility and fecundity of the couples.
2. There is a relation between the age of couples and the occurrence of subfertility.
3. ASAs detected in the serum and semen of infertile couples with unexplained subfertility
4. ASAs could be a cause of subfertility in couples with UI.

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