WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 5.990
Volume 4, Issue 12, 280-285. Research Article ISSN 2277– 7105

INFLUENCE OF SERUM ANTISPERM ANTIBODY ON THE SEMEN OF INFERTILE MEN IN Al-Hillah CITY

Ali Hussain Al-Marzoqi[*1], Mohammad Aboud Al-Qaraguli[2], Mohammad Sabry A.[3]

[*1]Ass. Prof. Phd Babylon University/Science College Microbiology Department.

[2]Ass. Prof. Phd Babylon University/Medical College Microbiology Department.

[3]Prof. Phd Babylon University/Medical College Microbiology Department.

Article Received on
08 Oct 2015,

Revised on 29 Oct 2015,
Accepted on 18 Nov 2015

***Correspondence for Author**
Dr. Ali Hussain Al-Marzoqi
Ass. Prof. Phd Babylon University/Science College Microbiology Department.

ABSTRACT

Objectives: To evaluate the role of serum antisperm antibody (ASA) in male infertility. **Methods:** one hundred and seventy five seminal fluid and serum specimens from men investigated for infertility over a period of 1 years were analyzed. Using ELISA technique to determine the accurate levels of ASA in patient's serum. **Results:** In this study we collect 175 semen and serum specimens from persons with azoospermia, oligospermia and control (normospermia). This study has shown on table 1, revealed that abnormal patients (azoospermia and oligospermia) consist the largest ratio of raising ASA titer than control group 93.9% and 6.1% respectively. Also the highest value of ASA among all groups was shown in azoospermic patients among AZFc subgroup 14 cases followed by AZFa 7 cases. **Conclusions:** Sperm antibodies are considered to be a cause of unexplained infertility.

KEYWORDS: normospermia, azoospermic, AZFc, AZFa.

INTRODUCTION

Infertility is defined as inability of couples to produce a living child. Inability may be the result of failure to conceive or failure to carry on conceptus to a viable state. If a couple fails to achieve pregnancy after 1 year of unprotected and regular intercourse, it is an indication for investigation. Overall factors responsible for infertility comprise 30-40% in the male, 40-55% in the female and ~10% in both partners. In ~10% cases the causes of infertility remain unexplained.[1]

Immunological infertility is assumed to be the cause of infertility in 9-36% of the concerned couples. The main cause of immunological infertility is the formation of antisperm antibodies (ASA), which affect the capability of fertilization of spermatozoa.[2]

ASA can be detected in male using spermatozoa, seminal plasma, and semen, and in female using serum and cervical mucus. ASA were present in sera of 30% women with unexplained infertility. In this study ASA have been identified in 10-15% of men experiencing infertility and 15-20% of women with unexplained infertility.[3] The frequency of ASA in fertile population of women and men is <2%. In infertile men and women ASA are present in 5-25% of individuals.[4]

Antisperm Antibody Effect

1. Reduced sperm output, sperm motility, and agglutination of sperm.[5]
2. ASA impairing cervical mucus penetrations have been provided by donor sperm suppression exposed to semen containing ASA against the same sperm exposed to control semen without ASA.[6]
3. ASA interference with fertility may be due to sperm injury caused by complement and/or phagocytic cell in the female genital tract.[7]
4. ASA in men impair sperm-egg interaction, interfere in acrosome reaction, and binding to zona pellucida. ASA level <75 IU was considered negative while levels >75 IU were considered positive.[8,9]

ASA have been associated with impairment of fertility. The prevalence of ASA has been estimated to range from 9% to 36% in infertile couples, specifically 8% to 21% in male partners and 6% to 23% in female part partners. Antisperm antibodies have been theorized to negatively impact fertility by affecting sperm motility, cervical mucus penetration, gamete fusion and potentially even the first steps of embryo development.[10,11]

PATIENTS AND METHODS

One hundred and seventy five seminal fluid and serum specimens from men investigated for infertility over a period of 1 years were analyzed. These seminal fluids of patients mentioned to the laboratory from the fertility clinics of Babylon maternity and children Hospital and outer clinics. The specimen was collected by patients themselves into sterile bottle. The subjects were instructed on how to collect the specimens and submit to the laboratory within one hour of production. They were told to first pass urine and then wash their hands and penis

with soap, then rinse with water prior to masturbation and ejaculation into sterile container. The semen was collected after the patient had abstained from coitus for at least three days.

The sperm density, volume, viscosity (liquefaction), the percentage of actively motile sperms, the percentage of abnormal forms, the presence or absence of pus cells were assessed. Analysis was carried out immediately they were received. By using ELISA technique we estimate the titer of antisperm antibody (ASA) in all groups.

RESULTS AND DISCUSSION

In this study we collect 175 semen and serum specimens from persons with azoospermia, oligospermia and control (normospermia). This study has shown on table 1 and figure1, revealed that abnormal patients (azoospermia and oligospermia) consist the largest ratio of raising ASA titer than control group 93.9% and 6.1% respectively.

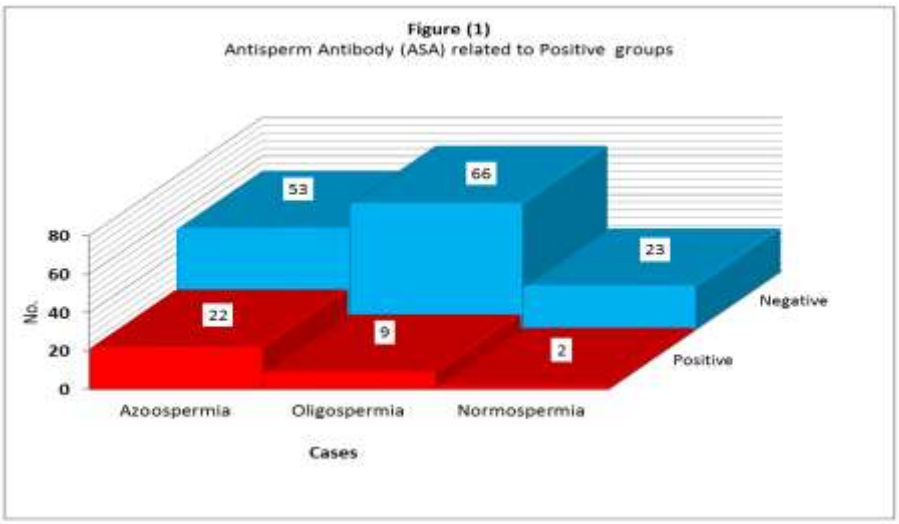
And that can explain the defect in number and activity of sperm in azoospermic and oligospermic patients.

Antisperm antibody binding has been associated with infertility. Couples with ASA, for example, have a higher incidence of impaired sperm motility, abnormal sperm agglutination and unexplained infertility. Antisperm antibodies may be produced when the blood-testis barrier is breached, allowing sperm antigens to prompt an immune response.[11]

This may arise from damage, inflammation or mechanical obstruction. In this study we examined the use of serum ASA not as an overall marker for impaired fertility but rather as a test for obstructive azoospermia. In this situation the presence of serum ASA was highly accurate in diagnosing obstructive azoospermia and, implicitly, the presence of active spermatogenesis. IgG demonstrated the best diagnostic performance for predicting vasal or epididymal obstruction.[12]

Table 1- Antisperm Antibody (ASA) related to patient groups.

Type of Cases	Antisperm Antibody (ASA)				Total
	Positive (>75 IU)		Negative (<75 IU)		
	No.	%	No.	%	
Azoospermia	22	66.7	53	37.3	75
Oligospermia	9	27.2	66	46.5	75
Normospermia	2	6.1	23	16.2	25
Total	33	100	142	100	175



Incidence of ASA in infertile population varied, depending upon the reporting center and method used for detection. Our study found it more or less similar to that observed in other studies. Infertility can result from antibodies either directly binding to sperms or affecting the spermatogenesis due to allergic orchitis. ASA can interfere with sperm motility by immobilizing the sperm or interfering with sperm mucus interaction or disturbing sperm transport.[8,9]

ASA may decrease the motility of spermatozoa through agglutination and immobilization, thus inhibiting sperm migration through the female genital tract as shown in in table 3. Decrease in sperm motility has been observed by other authors as well in ASA-positive males.[13]

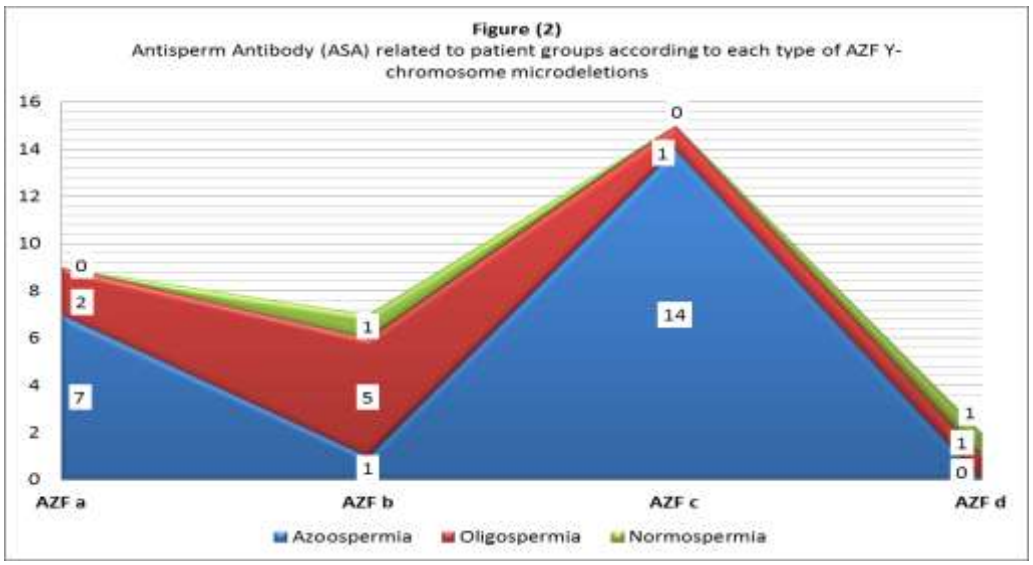
Some studies revealed that treatment of serum ASA positive couples with low corticosteroid (oral prednisolone) results in improvement of sperm count, motility, PCT results, and conception and decrease in titer of ASA. Some patients may not respond to treatment. Other studies also found that ASA titer reduced significantly after corticosteroid (oral prednisolone) treatment.

Ulcova et al. (2000)[14,15] found that treatment with decreasing doses of oral prednisolone or dexamethasone for 3 months in case of serum or seminal antibodies, IgA sperm anticoagulating antibodies totally disappeared in 3 out of 11 men and 4 out of 11 women, but sperm IgM sperm antibodies persisted.

Table 2- Distribution of cases according to ASA status and semen analysis.

Cases	ASA status		Sperm count ($x10^6$) mean				Sperm count ($x10^6$) mean			
	No.	%	21-25	26-30	31-35	36-40	21-25	26-30	31-35	36-40
Azoospermia	22	66.7	3	5	5	9	0	0	0	0
Oligospermia	9	27.2	3	5	1	0	11.7	15.1	12.4	9.2
Normospermia	2	6.1	0	2	0	0	32.3	30.7	26.6	23.5
Total	33	100	6	9	6	9				

Also the highest value of ASA among all groups was shown in azoospermic patients among AZFc subgroup 14 cases followed by AZFa 7 cases.



REFERENCES

1. Shibahara Hiroaki, Shiraishi Y, Hirano Y, Suzuki T, Takamizawa S, Suzuki M. Diversity of the inhibitory effects on fertilization by antisperm antibodies bound to the surface f ejaculated human's sperm. Hum Reprod, 2003; 18(7): 1469-73.
2. Ghazeeri GS, Kutteh WH. Immunological testing and treatment in reproduction: frequency assessment of practice pattern at assisted reproduction clinics in the USA and Australia. Human Reprod, 2001; 16(10): 2130-5.
3. Bubanovic I, Najman S, Kojic S. Immunomodulatory treatment for infertile men with antisperm antibodies. Fertil Steril, 2004; 81: 20.
4. Nagaria Tripti1, Patra P.K.2, Sahu Jai Prakash3. Evaluation of Serum Antisperm Antibodies in Infertility. The Journal of Obstetrics and Gynecology of India, May/June 2011; 307-316.
5. Razzak AH, Wais SA. The infertile couple: a cohort study in Duhok, Iraq. East Mediterr Health J., 2002; 8(2-3): 1.

6. Lahteenmaki A, Veilahti J, Hovatta O. Intrauterine insemination versus cyclic, low dose predinisolone in couples with male antisperm antibodies. Hum Reprod, 1995; 10(1): 142-47.
7. Snick HK, Snick TS, Evers JL, Collins JA. The spontaneous pregnancy prognosis in untreated subfertile couples the Walcheren primary care study. Hum Reprod, 1997; 12: 1582-8.
8. Hossain A, Islam N, Aryal S, Madanes A. The prevalence of circulating antisperm antibody (ASA) in infertile population representing of all etiologies. Middle East Fertil Soc J., 2007; 12(1): 27-30.
9. Karimi F, Khazavi S, Alaedini F. Serum antisperm antibodies in fertile and infertile individual. Iran J Med Sci., 2008; 33: 88-93.
10. Richard Lee, Marc Goldstein, Brant W. Ullery, Joshua Ehrlich, Marc Soares, Renee A. Razzano, Michael P. Herman, Mark A. Callahan, Philip S. Li, Peter N. Schlegel and Steven S. Witkin. Value of Serum Antisperm Antibodies in Diagnosing Obstructive Azoospermia. THE JOURNAL OF UROLOGY, January 2009; 181: 264-269.
11. Myogo K, Yamano S, Nakagawa K, Kamada M, Maegawa M, Irahara M. Sperm-immobilizing antibodies block capacitation in human spermatozoa. Arch Androl, 2001; 47: 135.
12. Heshmat S, Mullen J, Jarvi K, Soosaipillai A, Diamandis E, Hamilton R et al: Seminal plasma lipocalin-type prostaglandin D synthase: a potential new marker for the diagnosis of obstructive azoospermia. J Urol, 2008; 179: 1077.
13. Mumuce MJ, Berta CL, Pauluzzi F, Caille AM. Relationship between antisperm antibodies, sperm movement and quality. Urol Int., 2000; 65(4): 200-3.
14. Ali Hussein Al-Marzoqi, Mohammad Aboud M. Mohammad Sabri A. Study of Bacterial infection associated with male infertility in Hillah city-Iraq. Journal of Biology, Agriculture and Healthcare, 2012; 2(9): 10-16.