ANTISPERM ANTIBODY IN INFERTILITY

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SUMMARY

Seventy two infertile males, 85 infertile females and 10 fertile couples were taken for study. Gel agglutination test of Kibrick et al and immobilisation test of Isojima were used to detect antibodies in their sera. 6.9% of infertile males and 18.75% of infertile females were positive for agglutinating antibodies. Antibody titre ranged between 1 : 64 and 1 : 1024. Sperm immobilising antibodies were positive in 5.6% of infertile males and 9.4% of infertile females.

Introduction

Various studies have shown that the aetiology is unexplained in 15-30% of infertile couples, and immunological factors may play a role in these cases. The aim of this study is to know the incidence and the nature of spermagglutinins and to assess the clinical significance of these anti-bodies in infertility.

Method and Materials

85 infertile couples attending the infertility clinic of Govt. R.S.R.M. Lying-in Hospital, Madras were taken for this study. 10 normal fertile couples were included as controls. Out of 85 infertile females, in 80 women, history, clinical examination and routine investigations could not demonstrate any major cause of infertility. The other 5 patients showed either tubal block or anovulation. Semen samples of male partners after a period of abstinence for 4 days were analysed with special reference to reaction, sperm count and motility.

The Gel agglutination test of Kibrick *et al* and spermimmobilisation test of Isojima were performed on the sera of 72 infertile men, 85 infertile women and 10 fertile couples. Generally husband's semen was used if the count was above 60 million/ml., otherwise semen collected from normal person was used for the test. In positive cases the nature of agglutination was observed under the microscope.

Gelatin agglutination test of Kibrick et al

Serum samples were inactivated by heating at 56°C for 30 mts. Dilutions were prepared starting from 1:4 using Baker buffer as diluent. Semen gelatin mixture was prepared with 5% gelatin and 20 million/ml. of sperm. 0.2 ml of serum and 0.2 ml. of semen galatin mixture were incubated at 37°C for 1 to 2 hours. After 2 hours the amount of agglutination of white flocules suspended within the medium was reported.

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Sperm Immobilization test of Isojima

0.25 ml. of inactivated serum was mixed with 0.05 ml. of guinea pig complement and 0.025 ml. of semen (60 million sperms/ml.) and after incubation at 37°C for 1 hour, the number of motile sperms per 100 counted.

Observations

In this study the age of the female partners ranged between 23 years and 32 years, and that of the male partners was between 26 and 45 years. The duration of marital life ranged between 3 and 15 years

Out of the 72 infertile men studied, 5 men (6.9%) were positive for sperm agglutinins. None of the fertile men showed agglutinins in their sera. (Table I). Among the female partners, in 80 women with unexplained infertility, sperm agglutinating antibodies were seen in 15 patients (18.75%). No sperm agglutinins were detected in fertile women, and in women with known cause for infertility. (Table II).

The antibody titre ranged between 1:128 and 1:512 in the infertile men, and between 1:64 and 1:1024 in the infertile women. (Table III).

The pattern of agglutination in the male partners was head to head in 60% and tail to tail in 40%. Whereas among the female partners the pattern of agglutination was was head to head in 86.7% and tail to tail in 13.3% (Table IV).

Immobilisation test of Isojima was employed to detect sperm immobilising antibodies. Out of 72 infertile men, the sera of 4 men (5.6%) were positive for immobilising antibodies whereas the sera of

TABLE I
Sperm Agglutinating Antibodies in the Sera of Infertile Male

	Total Number	Sera Negative		Sera Positive	
		No.	%	No.	%
Infertile Men	72	67	93.1	5	6.9
Fertile Men	10	10	100	Nil	Nil

TABLE II
Sperm Agglutinating Antibodies in the Sera of Infertile Female

	Total Number	Sera Negative		Sera Positive	
		No.	%	No.	%
Unexplained Infertility	80	65	81.25	15	18.75
Known cause for infertility	5	5	100	Nil	Nil
Fertile Women	10	10	100	Nil	Nil

TABLE III
Antibody Titre

	Sera Positive	1:64	1:128	1:256	1:512	1:1024
Infertile males	5	—	2	1	2	—
Infertile Women	15	1	6	1	6	1

TABLE IV
Pattern of Agglutination

	Sera Positive	Head to Head Pattern		Tail to Tail Pattern	
		No.	%	No.	%
Infrtille males	5	3	60	2	40
Infertile females	15	13	86.7	2	13.3

TABLE V
Sperm Immobilising Antibodies in Infertility

	Total Number	Sera Positive		Sera Negative	
		No.	%	No.	%
Infertile Males	72	4	5.6	68	94.4
Fertile Males	10	—	—	10	100
Infertile Females	85	8	9.4	77	90.6
Fertile Females	10	—	—	10	100

all 10 fertile men were negative for immobilising antibodies. Among the female partners out of 85 infertile women 8 (9.4%) were positive for immobilising antibodies and none of the controls showed positive sera (Table V).

Discussion

In this study antisperm antibodies by Kibrick's method was seen in 20 out of 157 patients (12.7%) both male and female patients. In Bhandari *et al* (1985) series, out of 28 couples with unexplained infertility 57.1% were positive for antisperm antibodies in either wife's or husband's sera.

Among 72 infertile men with unexplained infertility 6.9% were positive for antisperm antibodies and none of the controls were positive. Whereas in Bhandari's (1985) series antibodies were detected in 39.3% of unexplained infertility and 9.5% of controls, and the antibody titre ranged between 1:16 and 1:64. Our finding of 6.9% correlates closer to that of Rumke and Hellinga's (1959) series of 3.2%.

Among 80 women with unexplained infertility, antisperm antibodies were detected in 18.75% and none of the controls were positive. In Bhandari *et al* (1985) series antibodies were seen in 21.4% of unexplained infertility group and 4.8% of control group. Whereas Franklin and Dukes gave a very high incidence of 89.9% in 1964 and 67.2% in 1968 for the unexplained infertile women. Misra and Singh (1984) gave an incidence of 12% positive sera among 100 cases.

Sperm immobilising antibodies were detected in 5.6% of infertile males and 9.4% of infertile females. In Gupta *et al* (1986) series 12.5% of males and 18.8% of females showed sperm immobilising antibodies in their sera.

From our study, it can be seen that 20 patients were positive for agglutinating antibodies and only 12 were positive for immobilising antibodies. This variation may be due to different techniques used

and involvement of different immunoglobulins. However, immobilising antibodies are said to be more specific than sperm agglutinating antibodies for the latter may be detected in pregnant women also.

Regarding therapy, among 10 couples who were advised condom therapy, only one has conceived so far.

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