

Role of Antisperm Antibodies in Women of Recurrent Abortion

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Summary : Spontaneous abortion is common complication of pregnancy. In the present study, out of 150 women of recurrent abortion (23.0%) had antisperm antibodies ($z=1.969$). Positivity increased with increase in age of the patients ($P<0.001$). Most of the abortions in antisperm antibody positive cases were at the gestational age of 6-12 weeks ($P<0.01$). With increase in marriage conception interval, more women had antisperm antibodies ($P<0.01$). Highest incidence (42.85%) of antisperm antibody was in A/O incompatibility.

Introduction

Spontaneous abortion is a common complication of pregnancy. The risk of spontaneous abortion for a woman with no history of reproductive wastage is about 15%. The study of Poland et al (1977) indicates that the likelihood of repeated abortion after first spontaneous abortion, for women with no living children is 19%, after two consecutive spontaneous abortions it is 35% and after three consecutive spontaneous abortions it is 47%. Many of these patients have no genetic, structural, endocrinological or infectious etiology. The possibility of immunologic rejection of conceptus is used as an explanation for recurrent spontaneous abortion. Antisperm antibodies are considered one of the immunological factors.

Material and Methods

This study enlisted 150 patients of reproductive age group. Out of these, 100 were having history of two or more consecutive abortions and grouped as study group. The controls were 50 women with one or more live birth without mishap. At initial visit detailed history was taken and systemic and local examination was done. Blood sample of patient was taken in sterile vial. Blood was tested for the presence of antisperm antibodies. Method used was Franklin Dukes Microscopic Agglutination test. Antibody activity was defined as 11 or more clumps per high power

field and more than 95% immobilization of spermatozoa in 4 hours.

Observation

Table I
Distribution of abortions according to age in antisperm antibody positive cases

Age of Patients (in yrs)	Total number of abortions		A.S.A. Positive		A.S.A. Negative	
	No.	%	No.	%	No.	%
15 - 20	34	09.97	00	00.00	34	100.0
20 - 25	171	50.16	23	13.45	148	86.55
25 - 30	104	30.49	43	41.34	61	58.66
30 - 35	29	08.50	18	62.04	11	37.93
35 - 40	3	00.88	3	100.00	00	00.00
Total	341	100.0	87	25.51	254	74.49

Table II
Distribution of abortions according to gestational age in antisperm antibody positive cases

Gestational age (in weeks)	Total No. of abortions		A.S.A. Positive cases		A.S.A. Negative cases	
	No.	%	No.	%	No.	%
6-12	142	41.64	57	40.14	85	59.86
12 - 16	104	30.49	17	16.35	87	83.65
16 - 20	095	27.86	13	13.68	82	86.32
Total	341	100.00	87	25.57	254	74.49

Table I indicates that antisperm antibody positivity gradually increased as age of women advanced. Maximum number of positive cases (100%) were at the age of 35-40 years. This finding was found to be statistically highly significant ($P < 0.001$). It is observed that most of abortions in antisperm antibody positive cases were at the gestational age of 6-12 weeks. This finding was also found to be highly significant ($P < 0.01$) (Table II). Table III shows that 23% patients were positive for antisperm antibodies in study group, while in control group 10% patients were positive for antisperm antibodies. This finding was found to be statistically significant ($z = 1.969$). Gradual increase in the incidence was also observed with increase in marriage conception interval ($P < 0.01$) (Table IV). It was observed that maximum number of antisperm antibody positive cases were seen in A/O incompatibility (42.85%) (Table V). This finding was also found to be statistically significant ($z = 2.415$).

Table III
Distribution of antisperm antibody positive cases in study and control group

Group	A.S.A. Positive Cases		A.S.A. Negative Cases		Total Number of Cases	
	No.	%	No.	%	No.	%
Study	23	23.0	77	77.0	100	100.00
Control	05	10.0	45	90.0	50	100.00
Total	28	18.66	122	81.34	150	100.00

Discussion

Table I indicates that antisperm antibody gradually increased as the age of women increased. This is comparable with the findings of Clard and Stojanoff (1985) and Chhabra Dhri (1993). According to Clard and Stojanoff (1985), this may be due to the fact that repetitive exposure is needed to maintain antisperm antibody titre.

Table IV
Relation of marriage conception interval with antisperm antibodies

Marriage conception interval (in months)	Total No. of cases		A.S.A. Positive cases		A.S.A. Negative cases	
	study No. %	Control No. %	Study No. %	Control No. %	Study No. %	Control No. %
0-3	12 (12.00)	19 (38.0)	02 (16.66)	00 (00.00)	10 (83.34)	19 (100.0)
3-6	50 (50.00)	11 (22.0)	04 (08.0)	00 (00.0)	46 (92.00)	11 (100.0)
6-9	28 (28.0)	06 (12.0)	10 (35.71)	00 (00.0)	18 (64.29)	06 (100.0)
9-12	06 (06.00)	04 (08.00)	04 (66.66)	01 (25.0)	02 (33.34)	03 (75.00)
>12	04 (04.00)	10 (20.00)	03 (15.00)	04 (40.0)	01 (25.00)	06 (60.00)
Total	100 (100.00)	50 (100.00)	23 (23.00)	05 (10.00)	77 (77.00)	45 (90.00)

Table V
Relation of antisperm antibodies and ABO incompatible blood groups

Blood Groups	Total No. of Cases		A.S.A. Study No. (%)	Positive Control No. (%)	A.S.A. Study No. (%)	Negative Control No. (%)
	Study No. (%)	Control No. (%)				
A/O	14 (20.29)	06 (18.75)	06 (42.85)	02 (33.33)	08 (57.14)	04 (66.67)
A/B	22 (31.88)	10 (31.25)	04 (18.18)	01 (10.0)	18 (81.81)	09 (90.00)
B/O	14 (20.29)	07 (21.87)	03 (21.42)	00 (00.00)	11 (78.58)	07 (100.0)
O/AB	02 (02.90)	03 (09.38)	00 (00.00)	00 (00.00)	02 (100.0)	03 (100.0)
B/AB	11 (15.94)	05 (15.63)	01 (09.09)	00 (00.0)	10 (90.91)	05 (100.0)
A/AB	06 (08.69)	01 (03.12)	01 (16.66)	00 (00.00)	05 (83.34)	01 (100.0)
Total	69 (100.0)	32 (100.0)	15 21.74	03 9.37	54 78.26	29 90.63

In the present series most of the abortions with antisperm antibody positivity were in 6-12 weeks of gestation. This finding is consistent with study of Erguven et al (1990). Haas et al (1986) found 24.8% positivity in patients with recurrent abortion, Erguven et al (1990) also observed almost similar incidence of 28.5%. Witkin Chaudhary (1989) have reported slightly higher incidence of 36.4% in 44 women with history of recurrent abortion.

Increased incidence of antisperm antibodies with increased marriage-conception interval was also demonstrated by Clark and Strgaoff (1985) and Chhabra and Ohri (1993). Chhabra and Ohri (1993) also observed an incidence of 18.18% at 0-3 months, 66.66% at 10-12 months and 100% at 13 months.

It is believed that ABO incompatibility plays a role in etiology of recurrent abortion. ABO antigens are known to be absorbed on spermatozoa from seminal plasma. These antigens either separately or in combination with sperm specific antigens, evoke immune response and antibody formation. Chhabra and ohri (1993) reported that maximum incidence of antisperm antibody positivity (84.61%) in A/O incompatibility followed by 77.78% in

B/O incompatibility. In our study, we found a much lower incidence (42.85%) in A/O incompatibility, but it was still highest amongst other blood group incompatibilities.

Conclusion

Our study concludes a significant relationship of recurrent abortion and antisperm antibodies. The incidence is highest with the increase in age of patients, in early abortions, with prolonged marriage conception interval and with A/O incompatibility. All this is highly significant ($P < 0.01$).

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