

ANTISPERM ANTIBODIES IN WOMEN OF RECURRENT ABORTIONS

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SUMMARY

It is believed that 40% of all women with three or more abortions have no genetic, structural or endocrinological or infectious etiology. It is in such groups of unexplained recurrent spontaneous abortions that various immunological etiologies have been propounded. Antisperm antibodies are considered one of the immunological factors. In the present study of 120 women including those with recurrent abortions and controls statistically significantly more women of recurrent abortions had antisperm antibodies (66.66% against 38.33%) (p value < 0.05). The positivity increased with age around 50% upto 25 years & 100% after that in study and 32% and 55% in control group ($p < 0.05$). With increase in marriage conception interval highly significantly more women had antisperm antibodies in study as well as control groups ($p < 0.001$).

At least 40% of all women with three or more abortions have no genetic, structural, endocrinological or infectious etiology for their recurrent pregnancy wastage (Tho et al 1979, Harger et al 1983). It is in such group of unexplained recurrent spontaneous abortions that various immunological etiologies have been propounded. Patients with autoimmune disease abort more frequently than those without. Moreover women who are recurrent aborters

with one spouse may carry a pregnancy to term with another mate (Faulk 1980). We endeavoured to study presence of antisperm antibodies in women with recurrent abortions.

MATERIAL & METHODS

This study was carried out in the department of Obstetrics and Gynaecology of Mahatma Gandhi Institute of Medical Sciences, Sevagram with the help of Sperm Bio-Technology Laboratory National Institute of Immunology New Delhi and also the Departments of physiology and Biochemistry of MGIMS, Sevagram. Cases in the study group comprised

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of 60 case of recurrent abortion, (women having 2 or more abortions) who attended obstetric and gynaecology department of MGIMS. The controls were 60 fertile women with one or more live birth (no mishap).

S1 (30 Cases) : Pregnant women with history of previous two or more first trimester abortions.

S2 (30 Cases) : Nonpregnant women with similar history.

C1 (30 Cases) : Pregnant women with history of previous live birth (without mishap).

C2 (30 Cases) : Nonpregnant women with previous history of live birth.

Age distribution was similar in all the different groups. The circulating antisperm antibodies were detected by an Enzyme Linked Immuno Sorbent Assay (ELISA).

The methodology (ELISA) was standardised at Sperm Bio-Technology Laboratory, NIL NEW Delhi. In the ELISA procedure used, cord blood was chosen for control level (being never exposed to sperms). The mean of values of antisperm antibodies detected in the cord blood was taken as the cut off point to evaluate the sera of fertile controls and those of study group.

OBSERVATIONS

As is evident from Table I, statistically significantly more women of study group had antisperm antibodies. The percentage of ASA positivity gradually increased as the age of women advanced in study as well as control groups. This finding was found to be statistically significant ($p < 0.05$) (Table II). It was observed that in the study group the percentage of ASA positivity gradually increased from 50% when age at marriage was 15-20 years to 100% when the age at marriage was above 25 years. This finding was found to be statistically significant ($p < 0.05$) (Table III). Further a gradual increase in the incidence was observed with increase in the marriage conception interval, in both the study and control cases. This increase was also found to be statistically highly significant ($p < 0.001$) (Table IV).

DISCUSSION

Not all investigators have been able to find association between recurrent abortions and the presence of circulating antibodies. This could be probably due to methodological difference in ascertaining the presence and titres of antisperm antibodies. Recent studies indicate that trophoblast and sperm antigens may stimulate macrophages and lymphocytes from some women with recurrent abortions to

Table I

Results of ELISA for ASA in study and control groups

Group	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Study S1 + S2 (60)	40	66.66	20	33.33	60	(100)
Control C1 + C2 (60)	23	38.33	37	61.77	60	(100)
Total	63	52.5	57	47.5	120	(100)

Table II

AGE Distribution of positive cases for ASA by ELISA in the study and control groups

Age in years	Total study S = S1+S2 No.	ASA+VE		ASA-VE		Total of control C=C1+C2 No.	ASA+VE		ASA-VE	
		In S1		In S2			In C1		In C2	
		No.	%	No.	%		No.	%	No.	%
15 - 20	10	4	40	6	60	10	1	10	9	9
21 - 25	38	25	65.78	13	34.22	30	11	36.36	19	63.33
26 - 30	7	6	85.71	1	14.29	14	6	42.45	8	57.15
≥ 31	5	5	100	—	—	6	5	83.33	1	16.66
Total	60	40	66.66	20	33.33	60	23	38.33	57	61.66

Table III

Relationship of the incidence of ASA detection by ELISA and the age at Marriage

Age at marriage in years	Total	ASA+VE		ASA-VE		Total of	ASA+VE		ASA-VE	
		No.		%			No.		%	
		No.	%	No.	%		No.	%	No.	%
15 - 20	16	8	50	8	50	17	4	23.52	13	76.58
21 - 25	39	27	69.23	12	30.87	36	15	41.66	21	58.44
26 - 30	4	4	100	—	—	5	3	60	2	40
≥ 31	1	1	100	—	—	2	1	50	1	50
Total	60	40		20		60	23		37	

secrete soluble fats on to either embryo and/or trophoblast in vitro. The antisperm antibodies may be a marker for attenuated immunosuppression in these women with recurrent abortions. This was shown in a study conducted by Wilkin et al (1989). Menge et al (1982) reported that four out of seven (57.14%) pregnant women with antisperm antibodies (using agglutination and sperm immobilisation

assays) subsequently aborted, leading to the concept of postfertilization infertility.

Donat et al (1989) evaluated serum samples from 70 patients with two or more early spontaneous abortions and for comparison sera from 20 healthy fertile women were assayed by indirect immunofluorescence for the presence of antibodies to sperms. The frequency of sperm antibodies and auto antibodies was

Table IV

Positivity of ASA by ELISA in the study and the control cases in relation to the marriage conception interval

Marriage conception interval in months	Total study	ASA+VE		ASA-VE		Total of control	ASA+VE		ASA-VE	
		No.	%	No.	%		No.	%	No.	%
0 - 3	11	2	(18.18)	9	(81.82)	24	4	(16.16)	20	(83.31)
4 - 6	28	20	(71.42)	8	(28.58)	23	8	(34.78)	15	(65.22)
7 - 9	14	12	(85.71)	2	(14.29)	9	7	(77.79)	2	(22.23)
10 - 12	3	2	(66.66)	1	(33.34)	3	3	(100)	—	—
≥ 13	4	4	(100)	—	—	1	1	(100)	—	—
Total	60	40		20		60	23		37	

significantly higher in patients with recurrent abortions than in the control group.

In a recent clinical study by Zang et al (1990) couples with history of recurrent spontaneous abortions were analysed for circulating titres of antisperm antibodies. It was found that statistically significant levels of circulating antisperm antibodies were found in sera of such couples.

Clarke and Stojanoff (1985) say that repetitive exposures are needed to maintain antisperm antibodies titres. In our study also we found that statistically significantly more women were having antibodies. Further we found that as age and marriage conception interval increased the percentage of positivity increased.

CONCLUSIONS

The results of this small study go in favour of investigating women for antisperm antibodies if the more commonly responsible factors of recurrent abortions have been excluded.

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