

PREVALENCE OF ANTISPERM ANTIBODIES IN INFERTILE WOMEN*

By

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SUMMARY

The study was conducted on 30 infertile women to find the prevalence of antisperm antibodies in the Sera and Cervical mucus by Sperm Immobilisation Test (SIT). Post coital test (PCT) was carried out in all cases. Correlation between PCT, local and systemic immunity were studied. Systemic antisperm antibodies were present in 40% of cases and 23.3% had local antisperm antibodies. Only women having a cervical factor in P.C.T. showed antisperm antibodies locally, though systemic antibodies were present in a higher percentage of cases with a cervical factor. It was not statistically significant ($p > 0.05$). In women with no cervical factor 27.2% of cases had systemic antisperm antibodies and none of them had local antisperm antibodies. Both systemic and local antisperm antibodies were present in 6.6% of cases; 16.6% of cases had only local and 33.3% of cases had only systemic antisperm antibodies. None of the ten cases serving as controls demonstrated the presence of antisperm antibodies in the serum or cervical mucus.

Introduction

Antisperm antibodies have been demonstrated in the cervical mucus and serum of infertile women. These antibodies may be responsible for infertility.

Metchnikoff in 1899 demonstrated the production of antibody capable of agglutinating and immobilising spermatozoa in guineapigs. In 1954 Rumke demonstrated antisperm antibody as sperm agglutinins in the sperm of oligospermic

man. In 1961 Nakabayashi *et al* established circulating antisperm antibodies in human females. This study was undertaken to find out prevalence of antisperm antibodies in Cervical mucus and serum of infertile women. Correlation between P.C.T., and local and systemic immunity were studied.

Material and Methods

Thirty women attending sterility clinic of LNJP Hospital who failed to conceive after two years of normal marital life and had normal basic tests for infertility (including normal sperm count of husband) were selected for this study.

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A. Collection of Material

(a) 5 ml. of blood was withdrawn from the antecubital vein.

(b) Cervical mucus sample was aspirated by a syringe at midcycle.

(c) Post coital test was done at the time of ovulation and results were graded according to criteria laid down by Marcus and Marcus (1963). The cases who had fair, poor or negative P.C.T. were considered as having hostile cervical factor where as cases with excellent and good P.C.T. were regarded as having no cervical factor.

B. Sperm Immobilisation Test (SIT) was done. The method as suggested by Isojima *et al* (1968) was followed. The value of 2 or more was considered positive.

Observations and Results

In 40% of cases antisperm antibodies were detected in serum and in 23.3% of cases cervical mucus was positive for antibodies. None of the 10 cases serving as controls demonstrated the presence of antisperm antibodies in the Serum or Cervical mucus.

Table II shows the results of P.C.T. and antisperm antibodies in the cervical mucus and serum.

The two groups of women with and without cervical factor were compared. It was found that only women with a cervical factor had antibodies in cervical mucus. Systemic antibodies were detected in both the groups. Though a higher percentage of women with a cervical factor showed systemic antibodies, the

TABLE I
Incidence of Antisperm Antibodies by SIT

Group	No. of cases	SIA +ve	
		No.	Cases %age
Serum	30	12	40
Cervical Mucus	30	7	23.3
Control	10	0	0

TABLE II
Correlation Between P.C.T. and Local and systemic Immunity by Sperm Immobilisation Test

PCT	Total	Immobilisation Technique	
		Serum	Cervical mucus
Excellent	5	—	—
Good	6	3	—
Fair	5	2	1
Poor	11	5	7
Negative	3	2	—
P Value		X = 0.47 P > 0.05	

TABLE III
Distribution of Immobilising Antisperm Antibodies in Serum and Cervical Mucus

	Serum +ve cervical mucus -ve	Serum -ve cervical mucus +ve	Serum -ve cervical mucus +ve	Serum -ve cervical mucus +ve
No. of cases	10	5	13	2
Percentage	33.3	16.6	43.3	6.6

difference was not statistically significant ($P > 0.05$).

6.6% of cases showed presence of both local and systemic immobilising antibodies. 16.6% had only local antibodies, whereas 33.3% had only systemic antibodies. 43.3% had absence of local as well as systemic immobilising antibodies.

Discussion

The sperm immobilisation test has been used by various workers for detection of antisperm antibodies in the serum and cervical mucus. Isojima *et al* (1968) studied Sera of 25 patients who had unexplained infertility; immobilising antibody was present in 12% of cases. Ansbacher *et al* (1971) reported presence of antisperm antibodies in Sera of 11.4% women suffering from unexplained infertility. In the present study 40% of

cases had Serum positive for antisperm antibodies. Similar results have been reported by Etribi *et al* (1982). The discrepancies in the results could be explained as a peculiarity of population studied or may be because of the incidence of local inflammation which may be in the form of cervicitis or vaginitis. The infection might have triggered the formation of local or systemic antibodies.

The antibody level of cervical mucus can be independent of serum levels. The cervical mucus may contain antisperm antibodies which are not demonstrable in the serum, Parish *et al* (1967), Eyquem and D'Almadia (1973). Cantuaria (1977) reported antisperm antibodies in 25.6% of Sera and 20.5% of cervicovaginal secretions in a series of 39 women in whom apparent cervical mucus hostility was the only explanation.

Table IV shows incidence of antisperm

TABLE IV

Comparison of Results of the Present Authors and Other Workers, of Antisperm Antibodies in Cervical Mucus, Demonstrated by sperm immobilisation Test

Author	Year	Total No. of cases	Member of positive cases in cervical mucus by SIT ((wife)
Parish <i>et al</i>	(1967)	48 infertile females	3 (6.2%)
Cantuaria	(1977)	39 females with cervical mucus hostility	20.5%
Etribi <i>et al</i>	(1982)	90 couples with various types of infertility	51.5% by agglutination or immobilisation test
Menge <i>et al</i>	(1982)	459 females	29.6%
Present authors	(1983)	30 couples with unexplained primary infertility	23.3%

antibodies in cervical mucus, reported by various authors. Our results are comparable with those of Cantuaria (1977) and Menge *et al* (1982), whereas Parish *et al* (1967) reported low incidence of antisperm antibodies. The results reported by Etribi *et al* (1982) were much higher as compared to present study.

Antisperm antibodies in the Serum were detected in 47.3% of women with hostile Cervical factor and 27.2% of women with no Cervical factor (Table II). Stone and Shulman (1977) reported sperm antibodies in serum in 50% of couples with a poor P.C.T. and 10% of couples with excellent PCT. They also reported that 43% of cases with antibody positive serum were also mucus positive. Only 6.6% women were serum negative and mucus positive and 43.3% were serum negative and mucus negative, whereas it was 31% and 57% respectively in the series reported by Stone and Shulman (1977).

Only women having cervical factor in P.C.T. showed antisperm antibodies locally. This was significant, though antibodies in the serum were present in a higher percentage of cases with cervical factor it was not statistically significant ($P > 0.05$). In women with no cervical factor, 27.2% of cases had systemic antisperm antibodies.

To conclude it is suggested that all cases of infertility with hostile cervical factor should be subjected to investigations for detection of antisperm antibodies.

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