Research Paper

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Role of ABO Groups and Secretor Status in Sterility

Medical Science

KEYWORDS : ABO blood group, secretor status, sterility

Dr. K.M. Nisal

Associate Professor, Department of Obstetrics and Gynecology, C. M. Medical College, Chhattisgarh

ABSTRACT

Approximately 10% of infertility cases are unexplained. Studies indicated ABO incompatibility with husband as a possible cause for some of these cases. This issue is however still controvertial. Present study was undertaken to assess the role of ABO incompatibility and cervical antibodies in patients with primary sterility. 80 Couples with primary sterility were investigated for secretor status. Incidence of antibodies in cervical mucus was 28% while incidence of antigens on spermatozoa was 11%. PCT was done in all couples to confirm immobilization of spermatozoa and found majority of Negative or Poor PCT results in ABO incompatible couples.

INTRODUCTION:

Approximately 10% of infertility cases are unexplained. Matsunga et al [1] and Behrman et al [2] indicated ABO incompatibility with husband as a possible cause for some of these cases. This issue is however still controvertial . Studies have been done on uterine secretions to find out their role in infertility [3]. ABO antibodies have been found in cervical mucus [4 & 2]. Considering action of these antibodies on spermatozoa possessing ABO Ag, it was concluded that these antibodies are harmless [5]. However, Ackerman [6] found definite metabolic changes in spermatozoa when incubated with immune incompatible anti A or anti B.

Present study was undertaken to assess the role of ABO incompatibility and cervical antibodies in patients with primary sterility. Bhama R et al [7] in 1985 assessed the role of ABO in-comp. and cervical antibodies in patients with primary sterility and found that there was marked reduction in motility of sperms from ABO incompatible couples in which cervical antibodies were present.

MATERIAL & METHODS:

Infertile couples attending clinic at Govt. Medical College and Hospital, Nagpur, were investigated. They were entered in this study when wife failed to conceive within 2 years after marriage, inspite of couples desire for child.

To exclude other causes of sterility all these couples were investigated for function of endometrium, tubal patency, semen analysis and other disease conditions like diabetes etc. Details regarding age, year of marriage, sexual relations, habits etc. were collected by personal interview.

Only those couples who do not reveal any abnormally after all investigations being done were subjected to the following special investigations.

The couple was investigated for ABO Blood groups ; secretor status was determined in both the partners. In case of wife anti A and Anti B in cervical secretions and serum were detected by using doubling dilution technique. In case of husband blood group antigens were detected by using Mixed aglutination technique [8].

Post coital test was done in all couples and results were correlated in compatible / incompatible couples.

RESULTS:

In present hospital based study 80 couples were investigated for ABO incompatibility and secretor status in primary sterility.

Table 1: Incidence of ABO incompatible couples

Parameter	Blood groups	Number	Percentage
Wife X Husband ABO incompatibility	O X A/B/AB	09	11.25
	O X B/AB	04	05
	B X A/AB	04	05
	Total	17	21.25
ABO Group combination ABO Compatibility	O X O	09	11.25
	A X A/O	19	23.75
	B X B/O	23	28.75
	AB X A/B/AB	12	15
	Total	63	78.75

Table 1 shows incidence of ABO incompatibilty among couples with primary sterility. Out of these studied, 17 (21.25%) couples were found to have ABO incompatibility.

Table 2: Secretor status in ABO compatible /incompatible Couples

Wife	Husband	ABO compa.	ABO incompa.
Secretor	Secretor	1	4
Secretor	Non-Secretor	15	3
Non-Secretor	Secretor	2	2
Non-Secretor	Non-Secretor	45	8
	Total	63	17

Table 2 shows secretor status in ABO compatible / imcompatible couples. In our study only 9 Husbands were secretors (i.e. 11.25%) whereas a higher proportion i.e. 23 wives were secretors (28.75%).

Table 3: Results of Post Coital Test in ABO compatible & incompatible couples

	ABO Compatible		ABO Incompatible	
PCT Results	No.	%	No.	Incompa.%
Negative	-	0	5	29.5
Poor	3	4.8	1	5.9
Fair	23	36.5	6	35.3
Good	35	55.5	5	29.4
Excellent	2	3.2	0	0
	63		17	

Table 3 shows results of Post Coital Test in ABO comp. & incompa. Couples. Significantly higher incidence of Negative & Poor

PCT results is found in ABO incompatible group.

DISCUSSION:

Study was carried out at Govt. Medical College Hospital, Nagpur; it was aimed to evaluate the role of ABO incompatibility as a cause of sterility. Total 80 cases were studied. Sterility is manifested because of the secretor status of Husband & wife which means expression of ABO antigen and antibodies on spermatozoa and cervical mucus respectively. As a result of this antigen antibody reaction metabolism is impaired leading to immobilization of spermatozoa, thus decreasing fertilization potential.

The presence of A & B antigen on sperm has been well established (Landsteiner & & cevine 1926), urine & Celano 1961). Several studies have also reported ABO antibodies in cervical secretions (Clarke 1968), Parish and Ward 1968). The indicence of cervical antibodies differ in different studies varying from 10.1 – 20% in our study it was slightly higher i.e. 28%.

Similarly the incidence of antigen being +ve on spermatozoa was 11%.

Immobilization of spermatozoa was confirmed by PCT and results of PCT were either negative or poor in majority of the ABO incompatible couples.

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