

THE ABO BLOOD GROUPS IN RELATION TO ABORTIONS

by

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SUMMARY

It was observed that there was no significant difference in the distribution of mothers belonging to blood groups O, A and B in the two samples. However, when blood group O and AB were compared it was found that mothers with blood group AB have slight tendency for higher incidence of abortion as compared to blood group O.

Introduction

The ABO blood groups represent an instance of biological polymorphism, apparently of long standing duration. Almost all ethnic groups (Hurkat and Mathur, 1972) have A, B and O genes. As Ford (1945) has pointed out, polymorphism can persist only if mechanism exist to maintain the balances between alleles. If such a mechanism did not exist, one of the alleles would gradually replace all the others. In view of this principle, the appearance of series of articles associating particular diseases with ABO blood groups is thought provoking. Peptic ulcer, gastric cancer, pernicious anemia, diabetes mellitus, chromophobe adenoma of pituitary, bronchopneumonia in childhood, portal cirrhosis and gynecological cancer have all been associated with varying degrees of certainty, with either groups O or A. In Indian population, the

frequency of various blood groups A, B, O and AB is 23.53, 34.49, 34.44 and 7.54 per cent respectively. The authors have tried to project an idea if the maternal blood group can be a factor for increased rate of abortion in a given population and hence a low proportion of a particular blood group. The present study was intended to test this hypothesis.

Material and Methods

The study is based on 964 consecutive deliveries in the Maternity Hospital of Ajmer. Included in this number were 771 mothers who had normal deliveries and 193 mothers who had aborted at various periods of gestation. The blood group of mothers of both the samples were determined by preparing red cell suspension after a finger prick in normal saline and treating it with commercially available high titre anti-A and anti-B sera in the precipitation tubes as described by Darmady and Devenport (1963). Agglutination was checked under the microscope.

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TABLE I
The Distribution of the ABO Blood Groups in 964 Mothers With Normal Delivery and Abortion

Class	Blood group						X ² for the comparison of blood groups					
	O	A	B	AB	O-A-B-A-B	O-A	O-B	O-AB	DF	X ²	DF	X ²
Normal (N = 771)	N	189	286	43	5.6	5.6	43	5.6	5.6	2.15	3	0.15
	%	32.8	37.1	9.7	5.6	5.6	9.7	5.6	5.6	0.15	3	2.1
Abortion (N = 193)	N	48	70	16	8.3	8.3	16	8.3	8.3	0.5	3	0.7
	%	30.6	36.3	8.3	8.3	8.3	8.3	8.3	8.3	0.5	3	0.1

Results and Discussions

Table I shows the ABO blood group frequencies in the 771 mothers who delivered normal fullterm infants and 193 mothers who aborted at various stages of gestation. To see, if significant difference exists between the distribution of ABO blood groups in the two samples Chi square test was applied ($0.25 > P > 0.1$). It will be obvious that in studies of this type large sample and higher significance level are necessary before much certainty may be attached to blood group relationship. However, there is a true association between maternal blood group AB and abortion, a potent mechanism for the reduction of the frequency of gene A and or AB over O would then exist. Since the offsprings of mothers belonging to population of blood group AB has a slightly higher tendency for abortion over that of belonging to blood group O, it could possibly explain that the population pool will contain fewer individuals of AB blood group. The authors earnestly hope that the findings of this paper will stimulate more investigators to undertake work of this nature on larger samples to support or refute the above hypothesis.

References

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