Rh FREQUENCY IN THE PEOPLE OF LUCKNOW

D. N. MAJUMDAR

Anthropology Laboratory, Lucknow University, India

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HUMAN erythrocytes contain a variety of antigenic components—A and B, M and N and the Rh series. The agglutinin Rh has been shown to have no relation with the ABO groups.

The importance of the Rh series lies in the fact that an Rh negative woman who is pregnant with a foetus whose blood cells are positive can develop an antibody against the agglutinin, and in addition, any Rh negative person may form such an antibody against the agglutinin if transfused with Rh positive blood. Rh positive infants usually develop jaundice or anæmia, or are still-born if the mother has developed the Rh antibody. Recent studies in the U.S.A., however, point to the fact that the incompatibility of the Rh factor in mother and foetus is unimportant in the production of premature abortions, and in the etiology of hæmolytic icterus, ectopic pregnancies, etc. (Schwartz and Levine, 1943). In any case, the genetics of the Rh factor and the understanding of it have increased tremendously in recent years, and the racial significance of its varying frequencies, as well as those of the agglutinogens M and N is now becoming clear. As Mourant (1947) puts it the present Rh ratio in Western Europe is an unstable one, and one is led to postulate a mixing of populations predominantly Rh-positive and Rh-negative respectively within the last few thousand years.

Khanolkar and Sanghvi, in discussing their results, suggest that "differences between our (their) results and those of other workers in India may be due to the fact that they have been using serum (after suitable dilutions) of animals immunised with red cells of rhesus monkeys." They say further, that "such immunisation leads to the development of anti-Rh as well as other agglutinogens to a variable extent."

During a racial and serological survey of Bengal, which I carried out in 1945 at the invitation of Prof. P. C. Mahalanobis, financed by the Indian Statistical Institute, Calcutta, I was supplied with some dried human anti-Rh testing sera from the Galton Serum Unit at Cambridge, sent by Dr G. L. Taylor for use during the Survey. When the Bengal Survey was completed in July 1945, I had to return to duty at Lucknow, and I brought some of the sera with me for testing people there. Without further absorption, the anti-Rh sera

from England could not be used against any group other than A and O, so that these alone were tested. The technique followed was that of Taylor (1943).

TABLE 1
Tests against A and O

Subjects	A		O		Total	
	Rh+	Rh—	Rh+	Rh—	Rh+	Rh—
BRAHMINS :						
Male . . .	8	0	5	0		
Female . . .	6	1	3	0	22	1
KAYASTHAS :						
Male . . .	5	0	9	0		
Female . . .	6	0	2	0	22	0
MUSLIMS :						
Male . . .	9	1	6	0		
Female children . . .	5	0	6	0	26	1
CHAMARS :						
Male . . .	4	0	6	2		
Female . . .	6	0	5	0	21	2
DOMS :						
Male . . .	5	1	7	0		
Female . . .	3	0	4	1	21	2
Total . . .	57	3	53	3	112	6
Percentage of Rh— 5.45						

TABLE 2
Frequencies of Rh— individuals in various populations

Population	Number examined	Percentage	Authority
Chinese	132	1.5	Wiener, Sonn and Belkin (1945)
Indians	100	2.0	Khanolkar and Sanghvi (1945)
Lucknow Indians	116	5.45	Majumdar (see table 1)
Negroes (U.S.A.)	223	8.1	Wiener (1944)
Jews (Canada)	967	8.37	Lubinski, Benjamin and Streat (1945)
Calcutta Indians	200	10.0	Greval and Chowdhury (1943)
" " "	240	10.0	Das Gupta (1944)
American and English (white)	...	15.0	Landsteiner and Wiener (1940)
South Americans	112	17.86	Invernizzi and Yannicelli (1944)
Basques (Argentine)	250	35.6	Etcheverry (quoted by Mourant (1947))

The results of the Bengal Survey have been published in full (Majumdar and Kishen, 1947).

SUMMARY

The present results agree with the general scheme of world variation in the Rh gene which we may arrange as in table 2. Here

we see that the Indian populations stand between the low extreme in China and the high extreme in the Basque population.

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