ABO BLOOD GROUPS AND RHEUMATIC HEART DISEASE

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Buckwalter, Naifeh, and Auer (1962) reviewed the literature on the relationship of the blood groups to rheumatic fever. There is a significant increase in the frequency of ABO (H) non-secretors in rheumatic fever patients as compared with controls, and there is a significant deficiency of patients of blood group O. This paper reports the ABO distribution in 431 additional cases.

Material

Patients.—The data were derived from the case records of 431 in-patients treated in the Royal Victoria Hospital, Belfast, during an 8-year period, 1953 to 1960 inclusive. There were 89 males and 342 females, all of whom had mitral valvotomy for the treatment of mitral stenosis caused presumably by a previous attack of rheumatic fever.

Controls.—The controls were drawn from the same population as the patients. The ABO blood group distribution was known for a large series (28,566) of "current" and "resigned" blood donors normally resident in the County Borough of Belfast and these were used as controls. The blood donors' distribution has been used to compute the expected distributions of the patients on the hypothesis that patients and controls have similar ABO distributions.

Results

Table I shows the ABO distribution of the 431 patients compared with that expected from the 28,566 controls. There was a significant ($P < 0.05$) difference between the observed and expected distributions. ($\chi^2 = 14.70$; $0.01 > P > 0.001$.)

TABLE I

DISTRIBUTION OF 431 PATIENTS WITH RHEUMATIC HEART DISEASE BY ABO BLOOD GROUP COMPARED WITH DISTRIBUTION EXPECTED FROM 28,566 CONTROLS

Blood Group	Patients		Controls Percentage
	Total No.	Percentage	
A	156	36.19	33.02
O	203	47.09	55.01
B	57	13.23	9.46
AB	15	3.49	2.51
Total ..	431	100.0	100.0

$$\chi^2 = 14.70; \text{ d.f. } = 3; 0.01 > P > 0.001$$

Discussion

The method of Woolf (1955) comparing blood groups A and O has been used to compare and combine these data with some of those from the literature (Table II).

TABLE II

RELATIVE INCIDENCE OF RHEUMATIC HEART DISEASE IN PERSONS OF GROUP A COMPARED WITH THAT IN PERSONS OF GROUP O

Authors	Date	Centre	Total No. of Patients	Relative Incidence A:O	χ^2	P
Clarke, McConnell, and Sheppard ..	1960	Liverpool	263	1.37	5.38	$0.05 > P > 0.02$
Glynn, cited by Clarke and Others ..	1960	Taplow	609	1.05	0.29	$0.70 > P > 0.50$
Glynn, Glynn, and Holborow ..	1956					
Present Study	1965	Belfast	431	1.28	5.29	$0.05 > P > 0.02$
Mean Weighted Relative Incidence				1.18		
χ^2 { Total ..					10.96	
{ Difference from unity d.f. = 1					7.51	$0.01 > P > 0.001$
{ Heterogeneity d.f. = 2					3.45	$0.20 > P > 0.10$

In Liverpool and Belfast the estimated incidence of rheumatic heart disease in persons of blood group A is significantly greater than in those of blood group O. The average relative incidence of 1·18 is significantly different from unity. There is no evidence of significant heterogeneity between areas. The Taplow series was based on the examination of children with rheumatic fever, while the Liverpool data, like the present series, were based on the examination of patients with established mitral stenosis. Buckwalter and others (1962) drew attention to the fact that the ABO blood group association is strongest in the patients who were not operated upon. It is possible that the diagnostic criteria used in ABO blood group investigations of rheumatic heart disease may have an effect upon the ABO blood group distributions.

Summary

A series of 431 patients operated upon for the treatment of rheumatic heart disease showed a significant difference in the ABO blood group frequency as compared with controls from the same population. There was also a significant increase in the incidence of blood group A over blood group O in the combined data from three centres.

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Les groupes sanguins ABO et la maladie de Bouillaud

RÉSUMÉ

Une série de 431 patients opérés pour la maladie de Bouillaud accusa une différence significative dans la fréquence des groupes sanguins ABO comparée à celle trouvée chez les témoins de la même population. Il y eut aussi une augmentation appréciable de la fréquence du groupe sanguin A par rapport au groupe O dans le matériel combiné obtenu de trois centres.

Los grupos sanguíneos ABO y la enfermedad de Bouillaud

SUMARIO

Una serie de 431 pacientes con la enfermedad de Bouillaud tratados quirúrgicamente acusó una diferencia significativa en la frecuencia de los grupos sanguíneos ABO en comparación con la encontrada en testigos de la misma población. Se observó también un aumento apreciable de la incidencia del grupo sanguíneo A en comparación con el grupo O en el material recogido en tres centros.