The ABO blood groups of carcinoma of the oesophagus and of benign prostatic hyperplasia

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SYNOPSIS The results of an investigation show that there is no statistically significant excess of blood group A in cases of carcinoma of the oesophagus or in cases of benign prostatic hyperplasia.

It has been shown that an association, based on large numbers of cases, exists between the ABO blood groups and gastro-duodenal disease. However, there have been a few reports only of the distribution of the ABO blood groups in oesophageal carcinoma. This paper adds a further 272 cases.

CARCINOMA OF THE OESOPHAGUS

Squamous carcinoma of the oesophagus only is considered in this report, for it was assumed that an adenocarcinoma in the lower third was gastric in origin. The cases were obtained from hospitals in Monmouthshire, Cardiff, Sully, and Bristol, and Table I shows their distribution. The areas designated Glamorgan I and Glamorgan II were defined in a previous report (Beasley, 1960) and the ABO blood groups of the control populations of Glamorgan and Monmouthshire were provided by the Nuffield Blood Group Centre. The controls for the Bristol cases were taken from the report by Aird, Lee, and Roberts (1960). Statistical analysis of the material according to the method of Woolf (1955) shows that

there is no significant excess of group A in squamous carcinoma of the oesophagus in these areas.

Two other series have been published, one by Billington (1957) and another by Aird *et al.* (1960). In Table II there is a combined analysis, but to avoid any possible duplication, the cases at Cardiff and Bristol used by Aird *et al.* have been excluded. The value for χ^2 for the three series is 3.34 which is not quite a statistically significant result, and the many areas in the series are statistically homogenous. Thus carcinoma of the oesophagus does not appear to possess the same relationship to group A that has been found for carcinoma of the stomach. There is one inexplicable peculiarity about the figures and that is the high incidence of groups A and AB in the Bristol series, but in the analysis only groups O and A were used.

BENIGN PROSTATIC HYPERPLASIA

There have been three previous accounts of the distribution of the ABO blood groups in benign prostatic hyperplasia (Walther, Raeburn, and Case, 1956; Prosser, 1959; Bourke and Griffin, 1962). This paper reports a series of 445 cases, histologically diagnosed, from hospitals in Monmouthshire (Table III).

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TABLE I
ABO BLOOD GROUPS AND SQUAMOUS CARCINOMA OF THE OESOPHAGUS

Reported Series	Blood Groups				
	O	A	B	AB	Total
Glamorgan I (pathological sera)	35 (46.05%)	32 (42.11%)	6 (7.9%)	3 (3.95%)	76
Glamorgan I (control sera)	1,658 (47.18%)	1,356 (38.59%)	373 (10.61%)	127 (3.61%)	3,514
Glamorgan II and Monmouthshire (pathological sera)	49 (50%)	36 (36.73%)	11 (11.22%)	2 (2.04%)	98
Glamorgan II and Monmouthshire (control sera)	2,011 (44%)	1,967 (43.04%)	412 (9.02%)	180 (3.94%)	4,570
Bristol (pathological sera)	32 (32.65%)	41 (41.84%)	16 (16.32%)	9 (9.19%)	98
Bristol (control sera)	861 (43.29%)	905 (35.5%)	164 (8.25%)	59 (2.97%)	1,989
Total pathological sera	116	109	33	14	272

TABLE II

COMPARISON OF INCIDENCE OF BLOOD GROUPS A AND O IN SQUAMOUS CARCINOMA OF OESOPHAGUS

Reported Series	Blood Groups		Relative Incidence A:O	χ^2
	O	A		
London	58	61	1.14	0.51
Birmingham	28	33	1.33	1.23
Liverpool	68	64	1.24	1.49
Manchester	27	20	0.86	0.27
Sheffield	8	10	1.54	0.75
Leeds	15	16	1.23	0.32
Newcastle	12	8	0.86	0.11
Glasgow	25	18	1.19	0.30
Sydney	50	54	1.38	2.64
Glamorgan I	35	32	1.12	0.20
Glamorgan II and Monmouthshire	49	36	0.75	1.67
Bristol	32	41	1.2	0.68
Total	406	393		
Mean weighted relative incidence			1.03	
Total				10.17
χ^2 Differences from unity (D of F) = 1				3.34
Heterogeneity (D of F) = 11				6.83
P Heterogeneity			Approximately 0.8	

TABLE III

ABO BLOOD GROUPS IN BENIGN PROSTATIC HYPERPLASIA

Reported Series		Blood Groups				Total
		O	A	B	AB	
Walther <i>et al.</i> (1956)	Pathological sera	36	56	4	4	100
	Control sera	1,070 (46.03%)	1,023 (43.99%)	159 (6.84%)	73 (3.14%)	2,325
Prosser (1959)	Pathological sera	76 (38%)	92 (46%)	20 (10%)	12 (6%)	200
	Control sera	3,090 (38.63%)	3,740 (46.75%)	834 (10.42%)	336 (4.2%)	8,000
Bourke and Griffin (1962)	Pathological sera	117 (43.2%)	113 (41.6%)	26 (9.6%)	15 (5.5%)	271
	Control sera	4,580 (45.8%)	4,220 (42.2%)	890 (8.9%)	310 (3.1%)	10,000
This series	Pathological sera	193 (43.37%)	204 (45.84%)	36 (8.09%)	12 (3.7%)	445
	Control sera	986 (43.47%)	988 (43.57%)	206 (9.08%)	88 (3.88%)	2,268
Total	Pathological sera	422	465	86	43	1,016

TABLE IV

COMPARISON OF INCIDENCE OF BLOOD GROUPS A AND O IN BENIGN PROSTATIC HYPERPLASIA

Reported Series	Place	Blood Groups			χ^2
		O	A	A:O	
Walther <i>et al.</i> (1956)	London	36	56	1.63	4.99
Prosser (1959)	Italy	76	92	1.0	0
Bourke and Griffin (1962)	London	117	113	1.05	0.13
This series	Monmouthshire	193	204	1.05	0.23
Total		422	465		5.35
Mean weighted relative incidence				1.02	
Total					5.35
χ^2 Difference from unity (D of F) = 1					1.5
Heterogeneity (D of F) = 3					3.85
P Heterogeneity					0.28

III). A statistical analysis of the distribution of the ABO groups in all four series is set out in Table IV, which shows that in three series no association was found between blood group A and benign prostatic hyperplasia, but that in the series of Walther *et al.* there appeared to be a significant excess of group A. However, when all four reports were analysed together no statistically significant association between group A and benign prostatic hyperplasia was found ($\chi^2 = 1.5$, $P = 0.22$), and the four areas were homogenous ($\chi^2 = 3.85$, $P = 0.28$).

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