

ABO BLOOD GROUPS AND CHICKEN POX IN AN INDIAN POPULATION

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ABO blood groups have been examined in a sample of 400 chicken-pox patients and their 383 unaffected siblings from Hyderabad, Andhra Pradesh, India. Subjects of blood group A (and possibly AB) would appear to have a somewhat higher risk than persons with group B and O to develop chicken pox.

In 1964, Mertens (cited from Hepp et al. 1975) reported an association between blood group A and chicken pox (varicellae). Mertens found an association at 5% level. Hepp et al. (1975) examined 975 chicken-pox cases from the Children's Hospitals of Heidelberg, Karlsruhe and Mannheim, all from West Germany. A small association between incidence of chicken pox and ABO blood groups was found. The associations reported were more interesting in view of the almost similar results obtained in small pox (Vogel and Chakravarti 1966).

As the variola (small pox) and varicellae (chicken pox) viruses and the two diseases show certain similarities, and no such attempt having ever been made in this country, we undertook a study on the probable association between chicken pox and ABO blood groups.

The material for this study came from a sample of 400 patients and their 383 unaffected siblings from Hyderabad-Secuderabad twin cities, Andhra Pradesh, India, aged 10 to 45 years and of both sexes. Both the patients and their unaffected siblings were primarily vaccinated against small pox. All the patients survived. The confinement depended on the degree of severeness of the disease which lasted for a period of one to two weeks. The degree of svereness was determined with the help of the following parameters: (a) body temperature, (b) duration of stay in bed with the disease, (c) mild or severe exanthema, (d) general weakness, and (e) other associated complaints.

The results are summarized in the Table. The comparisons of blood group frequencies in patients show significant χ^2 values, group-A subjects (and probably AB-subjects too) having a somewhat higher risk than subjects of groups B or O. This agrees

Table *ABO blood groups in chicken pox patients*

	N	Blood group				Comparisons								
						A:O			B:O			(A+AB):(B+O)		
		A	B	O	AB	x	χ^2_1	p	x	χ^2_1	p	x	χ^2_1	p
Controls	383	383	122	110	48									
Patients	400	136	108	98	58	1.48	4.59	0.05	0.99	0.01	ns	0.69	6.51	0.01
<i>Severity</i>														
Mild	215	64	68	58	25									
Severe	185	72	40	40	33	2.61	11.55	1.111	0.85	0.28	ns	0.53	0.12	ns

x values after Woolf (1955).

CODEN: AGMGAK 26 297 (1977) — ISSN: 0001-5660
Acta Genet. Med. Gemellol., 26: 297-298

with an earlier report by Vogel and Helmbold (1972).

As for the severity of the disease, there also is a definite tendency toward a more severe exanthema in group A (but not so in AB). These data are therefore compatible with the hypothesis that individuals with blood group A (and possibly AB) show a somewhat stronger tendency to develop chicken pox than individuals with blood groups B and O. Since chicken pox is a disease which has practically no mortality and that most children eventually contract, we cannot expect a stronger association and the gene frequencies cannot be influenced to a greater extent (Hepp et al. 1975).

One of us (M.R.C.) is thankful to CSIR, New Delhi, India, for the award of Pool Officership which enabled him to undertake this investigation.

REFERENCES

- Hepp R., Krüger J., Kurzen S., Rupp H., Vogel F. 1975. ABO bloodgroups and chicken pox. *Humangenetik*, 27: 329-332.
- Vogel F., Chakravarti M.R. 1966. ABO bloodgroups and small pox in a rural population of West Bengal and Bihar (India). *Humangenetik*, 3: 166-180.
- Vogel F., Helmbold W. 1972. Blutgruppen-Populationsgenetik und Statistik. In: *Humangenetik* (Bd. 1/4, pp. 129-557). Stuttgart: Thieme Verlag.
- Woolf B. 1955. On estimating the relation between blood group and disease. *Ann. Hum. Genet.*, 19: 251-253.