

The LH-specificity in Patients with High Diastolic Blood Pressure

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KEY WORDS *Erythrina lithosperma*. High Diastolic Blood Pressure. LH-specificity.

ABSTRACT The LH-specificity refers to weak (LH-negative) or strong (LH-Positive) agglutination of erythrocytes obtained with the lectin from *Erythrina lithosperma*. The LH status of patients with high diastolic blood pressure has been estimated by this anti-LH lectin. Blood samples from 105 confirmed cases of high diastolic blood pressure were typed both for the ABO blood groups and LH-specificity and compared with an appropriate control. The results suggest no association between patients with high diastolic blood pressure and the LH reaction patterns.

INTRODUCTION

A new red blood cell membrane specificity in the seed extracts of *Erythrina lithosperma*, a legume plant, was reported by Shrivastava et al. (1979) and was called LH by them. The anti-LH lectin reacts with human cells either by clumping them firmly or just weakly agglutinating them. The former type of reaction is called LH-positive and the latter LH-negative. Further studies relating to the immunochemical properties of the *Erythrina lithosperma* lectin and genetics and population distribution of the LH-specificity have been made by Shrivastava et al. (1979), Sehajpal and Shrivastava (1980, 1981), Reddy et al. (1981), Kaur (1983), Koley et al. (1991) and Koley and Shrivastava (1992).

An apparent association between the ABO blood groups and diastolic blood pressure has been reported by Nance et al. (1964). In the present study an attempt was made to see if there is any association between the LH blood types and high diastolic blood pressure.

MATERIAL AND METHODS

A total of 105 blood samples from confirmed cases with high diastolic blood pressure was obtained from the District Hospital, Sagar (Madhya Pradesh). We considered diastolic

blood pressure 100 mm of Hg or above as high. 475 unrelated normal individuals sampled randomly acted as controls from Sagar. Since sex differences are not known to exist in the LH-system, the samples collected from both males and females were pooled for all analyses.

For the ABO typing standard serological procedures were followed. The LH-typing was done with anti-LH lectin prepared in our own laboratory as described by Shrivastava et al. (1979). The seeds of *Erythrina lithosperma* were obtained from Botanical Survey of India, Calcutta.

RESULTS AND DISCUSSION

The phenotypic distribution of the LH-types and allele frequencies in patients with high diastolic blood pressure and controls are given in table 1. Patients have slightly higher frequency (32.38%) in LH-negative type than controls (31.79%). The difference between these two groups in regard to the distribution of LH-types is not significant ($p > 0.05$) statistically. In patients, the allele frequency of LH-positive type is 0.178 and in control it is 0.174. Both these groups are in Hardy-Weinberg equilibrium.

Table 2 shows the distribution of the ABO blood groups along with their allele frequencies

Table 1 : Distribution of the LH types in patients with high diastolic blood pressure and controls

Sample	n		Phenotype frequencies		Allele frequencies		Chi-square
			LH ⁺	LH ⁻	LH ⁺	LH ⁻	
Patients	105	Obs.	71	34			
		%	67.62	32.38	0.822	0.178	0.00
Controls	475	Obs.	324	151			
		%	68.21	31.79	0.826	0.174	0.00

χ^2_1 (O individuals excluded)=0.04, $p>0.05$

Table 2 : Distribution of the ABO blood groups in patients with high diastolic blood pressure and controls

Sample	n		Phenotype frequencies				Allele frequencies			Chi-square
			A	B	O	AB	A	B	O	
Patients	105	Obs.	27	45	24	9	0.192	0.308	0.500	1.67
		%	25.71	42.86	22.86	8.57				
Controls	475	Obs.	127	178	125	45	0.203	0.273	0.524	1.93
		%	26.74	37.47	26.32	9.47				

$\chi^2_3 = 1.16$, $p > 0.05$

Table 3 : ABO groupwise distribution of the LH types in patients with high diastolic blood pressure and controls

Sample	n		A		B		O		AB	
			LH ⁺	LH ⁻	LH ⁺	LH ⁻	LH ⁺	LH ⁻	LH ⁺	LH ⁻
Patients	105	Obs.	11	16	31	14	24	—	5	4
		%	10.48	15.24	29.52	13.33	22.86	—	4.76	3.81
Controls	475	Obs.	65	62	116	62	125	—	18	27
		%	13.68	13.05	24.42	13.05	26.32	—	3.79	5.68

in patients and controls. Patients have lower frequencies in group A (25.71%), group O (22.86%) and group AB (8.57%) than the controls—26.74% in group A, 26.32% in group O and 9.47% in group AB, and have higher frequency (42.86%) in group B than their control counterpart (37.47%). There exists no significant difference ($p>0.05$) statistically between these two groups. Patients have higher allele frequency of B=(0.038) than controls B=(0.273) but have lower frequencies for A=(0.192) and O=(0.500) than controls A=(0.203) and O=(0.524). Both these populations are in Hardy-Weinberg equilibrium.

The ABO groupwise distribution of the LH-types in patients and controls is shown in table 3. Patients have higher frequencies of A/LH⁺ type (15.24%) and B/LH⁺ type (13.33%), but have lower incidence of AB/LH⁺ (3.81%) type than controls (13.05%) in A/LH⁺ type, 13.05% in B/LH⁺ type and 5.68% in AB/LH⁺ type.

Statistically no significant difference ($p>0.05$) was found in regard to the distribution of the LH types between patients with high diastolic blood pressure and control samples. High frequency of LH-positive type in both patients and controls caused the non-significant difference among them. Thus, we may conclude that there is a lack of any association between high diastolic blood pressure and the LH reaction patterns.

ACKNOWLEDGEMENT

S.K. acknowledges the financial support of U.G.C. made through a Junior Research Fellowship to him.

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