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The Anti-LH Lectin-Leucocyte Reactions in Patients with Diabetes Mellitus

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ABSTRACT Leucocyte sample from 50 confirmed cases of diabetes mellitus were tested with the anti-LH lectin *(Erythrina lithosperma* extract) and compared with an appropriate control. The results indicate strong agglutination of leucocytes of both diabetic and control samples with the anit-LH lectin; however it fails to differentiate diabetic leucocytes from normal leucocytes on the basis of the intensity of this reaction.

INTRODUCTION

Human leucocytes possess A and B antigens (Thomsen, 1930; Dausset, 1954; Berroche et al., 1955; Gurner and Coombs, 1958 and Archer and Kooptzoff, 1958). By absorption and elusion tests and also by mixed cell agglutination test, the agglutination results have been confirmed. According to Dausset (1958) the A and B antigens are intrinsic in leucocytes and not merely absorbed from the plasma. Lectin-leucocyte interactions have been studied by Sharon (1980) and Sehrt and Luther (1982).

The anti-LH lectin *(Erythrina lithosperma* extract) was successfully used to discriminate human red blood cells as LH-positive (firm agglutination) and LH-negative (weak agglutination) types, initially by Shrivastava et al. in 1979. Recently this lectin was used to differentiate diabetic red blood cells from those of normal individuals (Koley et al., 1991). This investigation aims at studying the anti-LH lectin-leucocyte reaction patterns in patients with diabetes mellitus.

MATERIAL AND METHODS

A total of 50 blood samples form patients with diabetes mellitus (type II) was obtained form District Hospital, Sagar, and Varny Pathology Clinic, Sagar, Madhya Pradesh. Control samples were obtained form 45 unrelated normal healthy individuals from the same area. The samples comprised both males and females.

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

The separation of leucocytes was done following Widmann (1985), with minor modifications. For leucoyte agglutination tests 25 µl leucocyte suspension and an equal amount of anit-LH lectin were mixed in a cavity of a tile. Saline control was also made for comparison. After 20 minutes readings were recorded both macroscopically and microscopically. Thereafter, titration tests were performed and results were recorded after 30 minutes.

RESULTS AND DISCUSSION

Table 1 shows the anti-LH lectin-leucocyte reactions in diabetic and control samples at different titres. Among blood group A individuals, 3 leucocyte samples each from diabetic and controls reacted at titre 1:16 while 8 diabetic and 7 controls reacted at titre 1:32. In

Table 1: Anti-LH lectin-leucocyte reactions and titre scores in patients with diabetes mellitus and controls

Sample	*n*		*Titres in A group individuals*		*Titres in B group individuals*		*Titres in O group individuals*		*Titres in AB group individuals*	
			1:16	1:32	1:16	1:32	1:16	1:32	1:16	1:32
Diabetes mellitus patients	50	No. Obs.	3	8	10	12	1	12	1	3
		%Obs.	6.00	16.00	20.00	24.00	2.00	24.00	2.00	6.00
Controls	45	No. Obs.	3	7	6	10	2	11	2	4
		% Obs.	6.67	15.56	13.33	22.22	4.44	24.44	4.44	8.89

blood group B individuals, 10 diabetic and 6 control leucocyte samples reacted at titre 1:16, and 12 diabetic and 10 control lecuocyte samples at titre 1:32. For blood group O, 1 diabetic and 2 control leucocyte samples agglutinated at titre 1:16, and 12 diabetic and 11 control leucocyte samples at titre 1:32. In blood group AB, 1 diabetic and 2 control leucocyte samples agglutinated at titre 1:16 and 3 diabetic and 4 control leucocyte samples agglutinated at titre 1:32.

These results show that the anti-LH lectin reacts with leucocytes from both diabetic as well as normal individuals, in almost equal strength. However, unlike erythrocytes, the anti-LH lectin fails to differentiate between leucocytes from diabetic and normal individuals, on the basis of the intensity of their agglutination. It appears therefore that the variable expression of the LH antigen is a unique property only of erythrocytes.

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