Diabetes in Tropics - Perspectives of Research

M.M.S. Ahuja

Tohoku J. Exp. Med. 1983, 141, suppl. 65-72

Patients with IDDM in North India show a strong association with HLA BW 21 antigen. The relative risk is 12.7 with HLA BW2l. This association is further substantiated positive association of properdin factor Bf S_1 (relative risk RR 7.3), which is an extremely rare allele, recognised to be in disequilibrium linkage with BW2l. Both these are uniquely found in this population.

There is a strong association of IDDM with HLA DR3 (RR 16.6). HLA DR4 is also significantly associated (RR 4.5).

The association of the phenotype BW2l, Bf S_1 DR3 appears to be specific to patients of North India, since the comparable phenotype demonstrated in the European Caucasians is B8-BFf DR3.

HLA-DR Antigen frequencies in a North Indian Type I diabetic population.

E. Bhatia, N.K. Mehra, V. Taneja, M.C. Vaidya, and M.M.S. Ahuja
Diabetes (1985), 34 (6), 565-567.

The rare properdin allele BfS, the HLA type BW2l, and not B8 or B15 were found more often in a population of IDDM patients. This association with IDDM has not yet been reported in any other racial group. The present study was carried out to determine the HLA-DR antigen freqencies (DRI to DR7) in a representative sample of North Indian patients with IDDM.

Eighty eight unrelated patients with IDDM and 113 unaffected individuals formed the study group.

HLA-DR3 was found significantly more often in patients, compared to controls (78.4% versus 25.7% corrected P – 1.68 x 10^{-12}). The relative risk (10.52) was much higher than that reported in Western .IDDM population.

HLA-DR2 showed a significant negative association (RR - 0. 1 8, corrected P= 1.03 x 10^{-5}), but DR4 had no relationship with IDDM (RR : 1.12, P 0. 12).

These observations highlight the ethnic variability in HLA-IDDM associations and emphasize the need for separate studies in different racial groups.

HLA eomplement C2, C4, properdin factor B and glyoxalase types in South Indian diabetics.

R.L. Kirk, P.R. Ranford, S.W. Serjeanston, A.R. Thompson, S.M. Munirathnam Chetty, Lily John, V. Mohan, A. Ramachandran, C. Snehalatha & M. Viswanathan.

Diabetes Research & Clinical Practice, (l985), l, 4l-47.

A series of diabetic patients from three centres (Madras, Vellore, Coimbatore) in South India were tested for HLA, HLA B, BF; C2, C4A, C4B and GLO types.

In IDDM patients there was a significant increase in HLA B8, BF F and decrease in C4 A6. There was no significant difference in HLA, BF, C2 or GLO frequencies in NIDDM, but there was a significant decrease in C4B 1 and an increase in C4B2.

The HLA and BF association described here in patients with IDDM from South India is very different from that reported from North India.

Another association between the properdin system (BF) and insulin dependent diabetes in South India:

R.L. Kirk, P.R. Ranford, M. Viswanathan, V. Mohan, A. Ramachandran, C. Snehalatha, S.M. Munirathnam Chetty, Lily John.

Tissue Antigens (1983), 22, l70-l71.

Patients with IDDM (n =77), normal controls (n=96) matched for social class and place of origin, and NIDDM patients (n=72) from Madras, South India were studied for properdin Bf phenotypes S, FS, F, SS 1 and FS 1.

There was a strong association with the BPF factor but no association with BF S1 in IDDM.

Pancreatic beta cell function in offspring of conjugal diabetic parents assessment by IRI and C-peptide ratio.

C. Snehalatha, V. Mohan, A. Ramachandran, R. Jayashree & M. Viswanathan.

Horm. Metabol. Res. (1984) 16 supplement. 142-l44

Pancreatic beta cell function was assessed by measuring the immunoreactive insulin and C-peptide ratio following a 75 gm. load of oral glucose. Sixty nine children of 47 pairs of conjugal NIDDM patients from South India were studied.

The subjects-offspring of conjugal diabetic parents (OCDP) showed varied responses, The non-obese OCDP showed higher mean insulin levels compared to nonobese controls. The obese OCDP on the other hand, did not have a significant difference in the mean insulin response compared to obese controls.

The C-peptide levels were, however, low in both obese and non-obese groups of OCDP. The IRI/CP ratios were elevated in both groups of OCDP.

The results suggest that OCDP have low beta cell function and also possibly a change in the metabolism of insulin at the hepatic level, which is more pronounced in non-obese OCDP before the development of diabetes.

Serum uric acid concentrations in offspring of conjugal Diabetic Patients.

V. Mohan, C. Snehalatha. R. Jayashree, A. Ramachandran, M. Viswanathan
L. Kameswaran, B. Rocic, D. Breyer & L. Skrabalo.

Metabollism (1984), 33 (9), 869-71.

Serum uric acid concentrations were measured in offspring of conjugal diabetic parents, in diabetic patients, and in matched non-diabetic controls. The mean serum uric acid level in offspring of conjugal diabetic parents was significantly higher than in the controls and diabetic patients ($P<0.001$) in the non-obese and $P<0.05$ in the obese. Patients did not show significant differences in the serum uric acid concentration compared to controls. The elevated level of serum uric acid in the offspring of conjugal diabetic parents could possibly be an early biochemical marker of diabetes.