THYROGLOBULIN AUTOANTIBODIES IN LEPROSY

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ABSTRACT : *Two hundred and five sera from lepromatous leprosy patients were tested for the presence of thyroglobulin autoantibodies using tanned red cell haemagglutination technique. Six out of* 182 *sera from LL patients and* 5 *out of* 23 *sera from LL patients with ENL gave a positive reaction for thyroglobulin autoantibodies.*

INTRODUCTION

The thyroglobulin autoantibodies in Hashimoto's thyroiditis were first discovered by Roitt and Doniach (1956), which was the landmark in the history of autoimmune diseases. In leprosy patients the thyroglobulin autoantibodies were first reported by Bonomo *et al* in 1963. They found that 48% of sera from lepromatous leprosy patients showed a positive reaction with tanned red cell haemagglutination (TRCH) technique and 42% with latex agglutination technique. Employing the same latex agglutination technique, Mathews and Trautman (1965) and Yumnam *et al* (1977) reported positive reaction in leprosy patients to the extent of 38% and 36% respectively. By TRCH technique, Malaviya *et al* (1972) obtained 16% and Petchclai *et al* (1973) obtained 6.9% positive reactions in lepromatous leprosy. Very recently McLachlan and associates (1982, 1983a, 1983b, 1983c) conducted a pioneering study on thyroglobulin autoantibody synthetizing cells in tissue culture media. In the present study, we have tested 182 sera from lepromatous leprosy (LL) patients and 23 sera from LL patients with Erythema Nodosum Leprosum (ENL) for the presence of thyroglobulin autoantibodies employing TRCH technique.

MATERIALS & METHODS

The serum samples from 205 patients with leprosy (lepromatous type) were examined in this study. Out of 205 leprosy cases, 23 were lepromatous

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leprosy with ENL reaction. Ninety five sera were from multibacillary leprosy patients who had undergone treatment with three drugs viz. DDS (Dapsone), Rifampicin and Clofazimine (THELEP) for a period of 2-5 years and 87 sera from patients who were receiving DDS, Rifampicin and Prothionamide for a period of 1-2 years. The remaining 23 sera were from multibacillary leprosy patients with ENL reaction under dapsone monotherapy. All the patients included in the study had no apparent symptoms of thyroid diseases. The sera were collected and stored at -40°C till the investigations were carried out.

All the tests were performed as described by Fulthorpe *et al* (1961) for the semiquantitative measurement of autoantibodies to human thyroglobulin. The tests were carried out in 'U' shaped 'greiner' microtiter system employing 'Thymune-T' haemagglutination kit for the detection of thyroglobulin antibodies. This was obtained from Wellcome Diagnostics, Temple Hill, Dartford, England DA1 5AH. All the sera were inactivated by heating at 56°C for 30 minutes prior to testing. The positive and negative control sera were included in each batch of tests. The sheep anti-thyroglobulin serum have a haemagglutination titre of 1:320 with test cells were used as the positive control sera. A normal human serum which did not cause agglutination of test or control cells any dilution were used as negative control sera. These control sera were provided with the Kit. A haemagglutination titre of 1:10 or more was taken as positive.

RESULTS

The number of positive reactions in leprosy cases (without ENL) was only 6 (3.3%) out of 182 samples. In comparison to this, 5 out of 23 sera (21.7%) from LL cases with ENL gave a positive test. None from healthy individuals (non-leprosy controls) showed a positive reaction. The results are presented in Table 1.

TABLE 1

TYPE	NO. OF CASES STUDIED	NO. OF CASES POSITIVE	PERCENTAGE
Lepromatous Leprosy (LL)	182	6	3.3%
LL with ENL	23	5	21.7%

The distribution of thyroglobulin antibodies according to the dilution titres is shown in the accompanying figure.

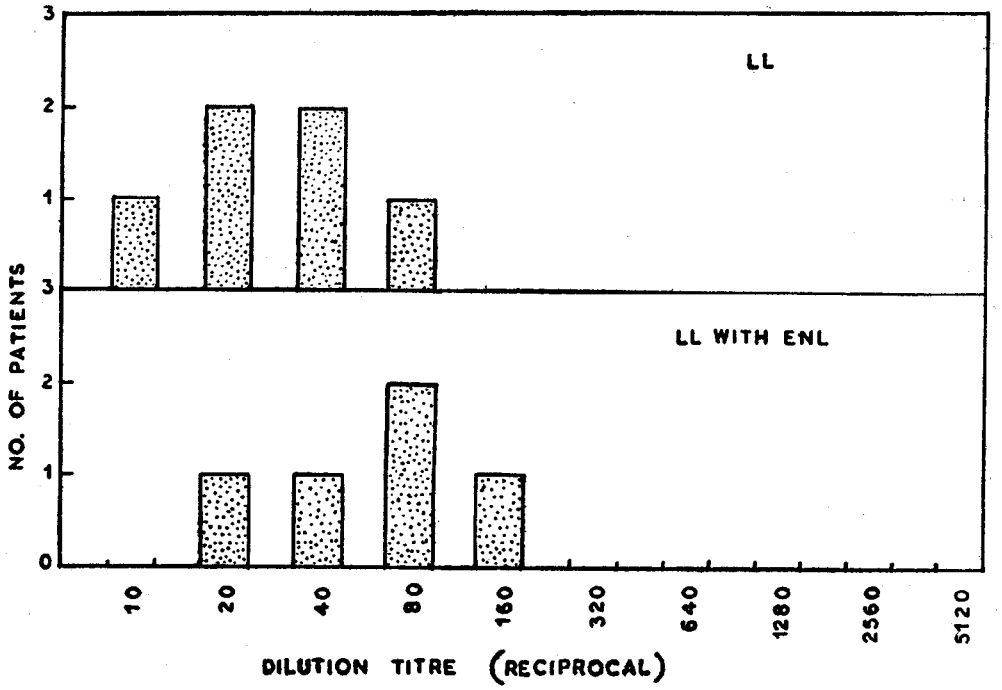

Figure showing titres of throglobulin agglutination in leprosy.

DISCUSSION

Various methods have been employed by different workers to detect thyroglobulin antibodies in disease states. Some of these are tanned red cell haemagglutination, latex agglutination, indirect immunofluorescence, agar gel diffusion, enzyme linked immunosorbent assay (ELISA) and Radio-immunoassay. The sensitivity of these techniques will vary from each other. So the comparison of our results with those obtained by techniques other than TRCH technique may not be meaningful.

Comparing the results of present study with those of Bonomo *et al* (1963), Malaviya *et al* (1972) and Petchclai *et al* (1973) employing the same (TRCH) technique shows that the percentage of positive tests in LL cases of this study is the lowest (3.3%). One relevant point to be kept in mind in this connection is that the present study has been carried out with a larger series of patients compared to the earlier reports. The relatively lower number of patients studied by Bonomo *et al* (1963) (43 cases), Malaviya *et al* (1972) (50 cases), and Petchclai *et al* (1973) (29 cases) could be partly responsible for the high percentage of positive reactions obtained by these authors. Another possible factor contributing to the low percentage observ-

ed in our series, is the fact most of the patients had undergone multidrug regimen for a long-time.

As regards the presence of the thyroglobulin antibodies in LL patients with ENL, our results indicate that 21.7% showed positive reaction. The value is close to that obtained by Malaviya *et al* (1972) in their series (16%). It may be mentioned in this connection that Bhatia *et al* (1983) reported a relatively higher percentage of Rheumatoid factor and Antistreptolysin-0 in LL patients with ENL than during the subsided phase of reaction.

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