Abstracts

60. ALMEIDA, J. O. & KWAPINSKI, J. B. Reatividade de antigenos de actinomicetos com soros de lepra, avaliada por immunofluorescência em suporte de acetato de celulose. **[The reactivity of antigens from actinomycetes against leprosy sera, measured by the immunofluorescent test utilizing cellulose acetate.]** *Publções Cent. Estud. Leprol.,* 1974, v. 14, No. 2, 73-90. English summary.

The description is given of an immunofluorescence reaction between leprosy sera on the one hand and antigen from lepromata or from cultures of Actinomycetales (9 species) on the other. Either the sera or the antigens were absorbed in discs of cellulose acetate and, when the reaction was completed, the fluorescence of the disc was measured in a Turner fluorometer. The text should be consulted for full details. Two hundred and seventy-six sera from tuberculin-negative persons were negative (i.e. Turner fluorometer reading was less than 50). In 24 sera from tuberculoid leprosy 18 were negative and 6 showed fluorescence less than 100. In 420 sera from lepromatous leprosy, 310 gave a reaction greater than 100, 68 gave reactions between 51 and 100, and 42 gave reactions of 50 or less. The reproducibility of the reaction was verified by repeating the test with 30 discs against the same negative serum; 3 tests showed readings greater than 100 and 23 gave readings of 50 or less. A further 30 discs were tested against a known positive leprosy serum; 24 fluoresced between 300 and 500, 2 and 200, and 4 at more than 500. Antigens which inhibited the Rubino reaction [see *Trop. Dis. Bull.,* 1931, v. 28, 960] provided greater fluorescence that those which did not. Sera from lepromatous leprosy reacting with antigens from Actinomycetales produced more fluorescence than those from tuberculoid leprosy. There was no constant relationship between the capacity of antigens to inhibit the Rubino reaction and their precipitation in gel by anti-leprosy sera.

F. Hawkins

61. PATTYN, S. R., ROLLIER, M. T., ROLLIER, R. & VERDOOLAEGHE-VAN LOO, G. Sensibilité envers la dapsone, la sulfamethoxypyridazine et l'éthionamide, de *Mycobacterium leprae* provenant de malades traités par ces substances. **[Sensitivity to dapsone, sulfamethoxypyridazine and ethionamide of *Mycobacterium leprae* strains obtained from patients treated with these drugs.]** *Int. J. Lepr.,* 1975, v. 43, No. 4, 356-363. English summary.

Patients suffering from multibacillary forms of leprosy, and having clinically suspicious signs of relapse accompanied by the reappearance (in most cases) of morphologically normal *Mycobacterium leprae,* are the subject of this paper. Interest centres on the emergence of drug-resistant strains in patients who, after an initial period as inpatients under investigation, were entrusted with a 6-months' supply of medicine and asked to report at regular intervals.

The incidence of drug-resistant strains discovered is not indicated, except in the case of ethionamide, where it was of the order of 4%.

Two strains (out of the 4 tested by the standard mouse foot-pad inoculation technique) proved to be dapsone-resistant, after 13 and 14 years' treatment respectively.

The 5 patients suspected of harbouring organisms resistant to sulfamethoxypyridazine proved to be suffering from clinical relapse associated with drug-sensitive *Mycobacterium leprae.* The point is made that, in view of the small difference in serum concentrations of the

drug between the levels achieved in practice and the minimal inhibitory concentrations, absolute regularity of treatment is necessary if clinical relapse is to be avoided. The authors therefore suggest that sulphonamides have no place in the treatment of patients suffering from multibacillary forms of leprosy.

Ethionamide is considered to have a fairly rapid bactericidal action, but demonstrable decrease in morphologically normal bacilli follows only after a certain delay. In 2 patients out of the 4 harbouring ethionamide-resistant bacilli, among 104 patients taking the drug, the resistant forms appeared after 6 years of treatment.

S. G. Browne

62. MEHRA, N. K., DASGUPTA, A. & VAIDYA, M. C. **An evaluation of the immune state in leprosy**. *Lepr. India,* 1976, v. 48, No. 3, 231-237.

"An evaluation of the immune state in leprosy was done by the application of a system of graft-versus-host reaction. Peripheral blood lymphocytes obtained from patients with different forms of leprosy and from normal healthy individuals were injected intravenously into the irradiated mice. The rate of blast transformation of the donor cells was measured by the radio-active thymidine uptake. The number of cells labelled with tritiated-thymidine was much higher in the normal individuals and patients with tuberculoid leprosy than in patients with lepromatous leprosy with the borderline group placed in between the two. However, following successful treatment with DDS, an increased responsiveness and active DNA synthesis could be observed in the previously less responsive lepromatous lymphocytes."

63. FABER, W. R., LEIKER, D. L. & CORMANE, R. H. **Immunoglobulin-bearing cells in leprosy**. *Acta Derm.-Vener.,* 1976, v. 56, No. 5, 319-326.

"Peripheral blood lymphocytes of 28 untreated and 17 treated patients with different types of leprosy were investigated for the occurrence of immunoglobulin (Ig) bearing cells by means of a smear method. Seven healthy Africans served as controls. In a later stage a complementary study was performed on 6 tuberculoid and 6 lepromatous leprosy patients by means of a suspension method. The immunofluorescence technique was used for the detection of Ig-bearing cells. In tuberculoid leprosy an increase of Ig-bearing cells seems to occur during treatment, predominantly expressed by an increase in IgD-bearing cells. In lepromatous leprosy no increased percentages of Ig-bearing cells were observed."

64. ELLIS, B. P. B. & THOMAS, J. E. P. **First lesion sites in leprosy**. *Cent. Afr. J. Med.,* 1976, v. 22, No. 5, 96-97.

This short article tabulates the sites of first lesions in 1523 patients with leprosy at Harare Central Hospital, Salisbury, Rhodesia. In 35.3% of patients the first lesions would normally be hidden by clothing. 31.1% of patients described as first symptoms abnormalities other than skin lesions, i.e. paraesthesiae, blisters, anaesthesia or ulcers. The figures were obtained by questioning the patients and this may explain the low scoring values of sites where patients could not see themselves—e.g. the back, buttocks and back of thighs.

T. F. Davey

65. ALMEIDA NETO, E. Viragem lepromínica em crianças de 4 a 26 meses. [**Changes in lepromin reaction in children aged 4-26 months.**] *Anais Bras. Derm.,* 1975, v. 50, No. 2, 111-134.

The English summary appended to the paper is as follows:

"This is a trial of repeated BCG vaccination by the oral route in children previously lepromin and tuberculin (PPD) negative, in a social institution for children whose patients live in a

leprosy hospital. Twenty-two of them were followed-up through 2 years and 7 successive BCG doses, the Mitsuda test being performed after each. A control group of 17 children from other origins was also tested and followed in the same way. At the end of the study 2 children remained Mitsuda negative (5.2%), 6 had doubtful reactions (15.4%) and 31 had turned positive (79.4%). The effect of successive doses is analysed in detail and genetic factors which might affect the reaction are discussed. Results are also compared with those of other trials of BCG vaccination against leprosy, techniques for the reading of the Mitsuda test being discussed."

66. TURK, J. L. **Leprosy as a model of subacute and chronic immunologic diseases.** *J. Invest. Derm.,* 1976, v. 67, No. 3, 457-463.

"A review has been made of the immunologic bases for the various clinical appearances that may be found during infection with *M. leprae.* This infection may serve as a model for the understanding of the mechanisms behind the same clinical appearances when they occur in situations in which the primary etiologic agent has not yet been discovered. . . ."

[This paper was one of many contributions to a symposium on immune mechanisms in cutaneous disorders, published in this special issue of the journal. There are 33 references.]

67. OLITSKI, A. L. **The effect of dioxyphenylalanine (DOPA), amides and some potential sources of energy on the multiplication of** *Mycobacterium leprae. Bull. Ist Sieroter. Milan.,* 1976, v. 55, No. 2, 110-119.

The multiplication of 2 out of 3 strains of *Mycobacterium leprae* on a medium containing substances from digested non-acid fast micro-organisms, or even free of them, was promoted by D-3-4-dihydroxyphenylalanine (DOPA). Growth-promoting effects on several strains were also found with a variety of organic substances but the effects were variable. An oxidation-reduction reaction was also observed when media containing DOPA and malachite green were inoculated with at least 0.12×10^6 *M. leprae* and it is suggested that this may be a means of identifying *M. leprae.*

T. F. Davey

68. KRONVALL, G., STANFORD, J. L. & WALSH, G. P. **Studies of myco-bacterial antigens, with special reference to** *Mycobacterium leprae. Infection & Immunity,* 1976, v. 13, No. 4, 1132-1138.

Antigenic preparations were made from a number of mycobacterial species and from *Mycobacterium leprae.* The latter had been grown in armadillos. With the use of crossed immunoeletrophoresis and tandem crossed immunoelectrophoresis with the antigens and pooled sera from lepromatous subjects it was shown that 4 precipitin lines (numbered 1, 21, 40 and 41) were common to *M. leprae, M. avium-intracellulare* and *M. smegmatis.* Antigen 1 gave a reaction of complete identity in a number of mycobacterial species including *M. leprae.* Sephadex gel filtration showed this antigen to have a molecular weight of approximately 285,000. Antigen 40 was also common to a variety of mycobacterial species, again including *M. leprae.*

There was a reaction of complete identity between antigen 21 of *M. avium-intracellulare* and the corresponding antigen in 3 other slow-growing mycobacteria and 8 fast growers. This antigen shared a partial reaction of identity with antigen 21 from *M. leprae.* This was indicated by the formation of a spur by antigen 21 from *M. leprae* over the precipitin arcs formed by antigen 21 from the other mycobacterial species. This indicates the presence of at least 2 antigenic determinants, one shared by all mycobacteria and the other only in *M. leprae.*

Using a rabbit antiserum to *M. smegmatis,* it was shown that antigen 21 of *M. avium-intracellulare* and *M. lactis* gave reactions of complete identity with the corresponding antigen

from 3 slow growers and 6 fast growers. Again, however, antigen 21 from *M. leprae* formed a spur in these tests indicating the presence of yet another antigenic determinant.

There are thus 3 antigenic determinants associated with antigen 21. One is common to all mycobacteria, one is specific for *M. leprae* and one is present in slow- and fast-growing mycobacteria but not in *M. leprae*. The implications of this for the taxonomic position of *M. leprae* are discussed together with the possible role of these specific antigens in leprosy.

P. A. Jenkins

Thanks are due to the Director, Bureau of Hygiene and Tropical Diseases for permission to reprint Abstracts from *Tropical Diseases Bulletin* December, 1976 and January, 1977.