Lepr Rev (1983) **54,** 357–359

Abstracts

MUKHERJEE R, MAHADEVAN P R, ANTIA N H **Organized nerve culture. I. A technique to study the effect of *M. leprae* infection.** *International Journal of Leprosy* 1980; **48** (2): 183–8. **II. DNA synthesis in Schwann cells in the presence of *M. leprae*.** *Ibid.* 189–92

I. Organized cultures of dorsal root ganglia from neonatal mice were infected *in vitro* for 2 weeks with *Mycobacterium leprae*, freshly isolated from lepromatous patients. Bacilli were ingested well by free Schwann cells in the premyelin secretory phase, but less so by those merged with axons. They were also phagocytosed by fibroblasts but not by neuronal cells or axons. There was only a poor uptake of heat-killed *M. leprae*, whereas the uptake of ICRC-C44 strain with a viability of 60–90% was massive.

The Schwann cells containing *M. leprae* were unable to associate with nerve fibres and secrete myelin, which suggested that the presence of bacilli interfered with cell function.

II. This hypothesis was supported by the finding that Schwann cells containing *M. leprae* failed to incorporate a DNA precursor. This indicated a blockage of DNA synthesis which would inhibit proliferation and axon association.

D S Ridley

TOUW J, STONER G L, BELEHU A **Effect of *Mycobacterium leprae* on lymphocyte proliferation: suppression of mitogen and antigen responses of human peripheral blood mononuclear cells.** *Clinical and Experimental Immunology* 1980; **41** (3): 397–405

Evidence is presented that *Mycobacterium leprae* suppresses the *in vitro* proliferative response of human peripheral blood mononuclear cells to antigen and mitogen. Lymphoproliferation induced by PPD or alloantigen stimulation was inhibited by concentrations of *M. leprae* which were not cytotoxic for lymphoblasts, and which were stimulatory for sensitized lymphocytes in the lymphocyte transformation test. In contrast, inhibition of PHA-stimulated peripheral blood mononuclear cells was seen only at 10- to 100-fold higher concentrations of *M. leprae* which proved to be cytotoxic for lymphoblasts. Inhibition of PPD-induced lymphoproliferation occurred both when cultures were initiated with *M. leprae* and PPD together, and when peripheral blood mononuclear cells were incubated with *M. leprae* alone for 2 days, before adding PPD. No inhibition occurred when cells were cultured with PPD alone for 2 days before adding *M. leprae*.

The inhibitory effect of *M. leprae* on the response to PPD of normal peripheral blood mononuclear cells resembled that seen when peripheral blood mononuclear cells both from untreated patients with tuberculoid or borderline tuberculoid leprosy, and from untreated patients with lepromatous or borderline leprosy were cultured with *M. leprae* and PPD. These findings indicate that the inhibitory effect of *M. leprae* on lymphoproliferation in response to PPD antigen does not depend upon a particular cell population present particularly in leprosy patients.

The authors discuss how these results could explain some of the immunological aberrations in lepromatous patients who harbour large numbers of *M. leprae* bacilli in their tissues.

P M Preston

YAMAMOTO Y **[Radiological studies on changes in calcaneus trabecula in leprosy]** *Japanese Journal of Leprosy* (1980; **49** (1): 20–37 [In Japanese] English summary

A useful study was made of the changes observed by X-ray of the trabeculae of the calcaneus in the feet of patients with leprosy. The trabeculae disappear, and in a particular pattern, with alterations of the strains to which the calcaneus and foot bones as a whole are subject in patients with paralysed peroneal nerves (foot drop), with fracture and in deformities. Although the author makes no specific mention of this, presumably X-ray changes would be useful in monitoring increasing deformity and applying corrective treatment. There are 7 excellent plates. All but the tables are in Japanese. The above is based on the English summary.

Ralph Schram

ROBINS K, VIJAYAKUMART, GOPINATH T, VASUDEVAN D M **Liver leprosy. I Functional changes.** *Leprosy in India* 1980; **52** (3): 416–22

DAS R, GOSWAMI A, MITRA A K, ROY I S **Ocular complications in leprosy.** *Journal of the Indian Medical Association* 1980; **74** (1): 5–8

150 cases of leprosy with ocular complications were studied in West Bengal. Despite the advent of sulphone therapy, the ocular damage was extensive and crippling. As many as 38% had uveal lesions. The lids and eyebrows were involved in 56%, cornea in 34%, lens in 46% and the globe in 16% of the cases. Blindness was extensive (65.3%) but those due to cataract were operated on with success. The major factor contributing to the damage was delay in diagnosis and treatment. The obvious remedy is to have regular examination and treatment of the eyes as soon as a case of leprosy is detected.

[The authors' observations are in line with those of other workers in this field, but the list of references in the text is not matched by the bibliography given at the end of the paper.]

D P Choyce

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KRISHNA MURTHY K, RAJA BABU K K **Toxic psychosis after accidental ingestion of dapsone—review and case report.** *Leprosy in India* 1980; **52** (3): 443–5

'A case of toxic delirious psychosis in a 5-year-old child after accidental ingestion of dapsone is reported and relevant literature is reviewed. A suggestion is made for a detailed work on the pathological and metabolic effects of dapsone on the central nervous system.'

MILLAN J Le contrôle de la lèpre en Guadeloupe. I Organisation générale—mesures de déclaration et d'enregistrement des malades. **Leprosy control in Guadeloupe (French West Indies). I General organization. Notification and registration of patients** *Médicine Tropicale* 1980; **40** (4): 433–8 II. Règles de traitement et de surveillance dans le secteur de Grande-Terre. **[II. Rules of treatment and monitoring in 'Grade Terre' district]** *Ibid.* 441–5 English summaries

I. The distinctive features of the leprosy control programme in the islands collectively known as Guadeloupe are related to the fact that the programme is organized and supervised by microbiologists with epidemiological training. The two centres from which control is exercised are a general hospital and the Pasteur Institute. The partially integrated leprosy control programme is responsible for the treatment of 44% of the patients who present themselves at the two centres (neither of which is identified by an appellation that includes the word 'leprosy'), and 56% are registered with the mobile teams.

The disease is compulsorily notifiable, but confidentiality is respected when the patient requests it. Usually, particulars of the notified cases are passed by the central medical registering authority to the social and administrative services. An allowance in cash is made for a short period when required (for transport and such matters), or for long periods in the case of permanent disability.

The examination of contacts is held to be very important.

After notification, confirmation of the diagnosis is made by the Institute, with the aid of histopathological examination of biopsy material from every patient and the results of the lepromin reaction.

Due attention is paid to the social aspects of leprosy and the prejudices and cultural background of the people. The doctors practising in the islands are becoming versed in the modern ideas about leprosy, a necessary prelude to enlisting their close cooperation.

II. The treatment protocols favoured in Guadeloupe follow the lines laid down by the WHO Expert Committee: combined therapy initially for all patients suffering from multibacillary forms of leprosy, and continued for 2 years; maximal doses from the beginning of treatment; no interruption of treatment. Tablets are distributed every month to the patients.

For paucibacillary forms of leprosy, the following regimen is followed: monotherapy with dapsone for 5 years; if nerves are already damaged when treatment is begun, corticosteroids are given together with either a long-acting sulphonamide or clofazimine.

For multibacillary forms of leprosy, rifampicin and dapsone are given initially with, perhaps, ethionamide. Thereafter, dapsone is continued 'for life'.

For sulphone-resistant leprosy, clofazimine is the drug of choice. [For some unaccountable reason, dapsone is sometimes reintroduced.]

Case-holding presents problems, as does irregularity of treatment.

Profiting by the example of the treatment of tuberculosis, the aim of the treatment programme of leprosy is to prevent relapse and to postpone indefinitely the emergence of dapsone resistance. To this end, the bacillary status of the patient is established before treatment is begun. Exclusion from school or from work is rarely advised, and only for a maximum period of 2 months. Ambulatory treatment is the rule, and admission to hospital the exception. Sometimes for severe reversal reaction, and in the case of uncooperative patients, admission is advised.

Reconstructive surgery is done at the central hospital.

Follow-up examinations are made every 6 months of those patients who are discharged under observation without treatment.

Chemoprophylaxis is not given.

S G Browne

NILAKANTA RAO M S, SHANKAR S V, NARASIMHA MURTHY D P, VOMSTEIN E, MEERMEIER H **Problem of leprosy in Karnataka.** *Leprosy in India* 1980; **52** (2): 236–44

Karnataka State in south India was created in 1973 on linguistic considerations and is still undergoing development. Contiguous areas of adjacent States on the north, east and south-east have a high prevalence of leprosy. This paper summarizes available data on leprosy in the new State and concludes with an estimated leprosy prevalence of about 10 per 1000 in most urban areas (population 9·42 million) and a total of about 200,000 cases of leprosy for the State as a whole (population 35 million).

T F Davey

VAN EDEN W, DE VRIES R R P, MEHRA N K, VAIDYA M C, D'AMARO J, VAN ROOD J J **HLA segregation of tuberculoid leprosy: confirmation of the DR2 marker.** *Journal of Infectious Diseases* 1980; **141** (6): 693–701

'Families with multiple cases of leprosy were tested for HLA (histocompatibility leukocyte antigen)-linked control of susceptibility to tuberculoid leprosy and association with HLA-DR2. Thirty-one non-HLA genetic markers were also examined for indications of non-HLA-linked genetic factors that might control susceptibility to tuberculoid leprosy. A significant ($P = 0{\cdot}002$) preferential inheritance of HLA-DR2 by siblings affected with tuberculoid leprosy, but not by healthy siblings nor by siblings affected with lepromatous leprosy, was observed. In addition, combined family data showed a significant ($P < 0{\cdot}0025$) excess of identical HLA haplotypes inherited from healthy parents by siblings affected with tuberculoid leprosy. Segregation of non-HLA polymorphisms did not deviate significantly from what would have occurred randomly. These data are compatible with a recessive inheritance of HLA-linked susceptibility to tuberculoid leprosy. The preferential segregation of DR2 observed in children with tuberculoid leprosy ($P < 0{\cdot}001$ for the combined data from India) indicates that the HLA-linked susceptibility gene is either DR2 or in linkage disequilibrium with it.'

REZA K, TALIB S, IMAM S K ***O*-diphenoloxidase concentrations in leprosy.** *British Medical Journal* 1979; **2** (Oct. 13): 900–1

O-diphenol oxidase activity was demonstrated in the skin in all of 15 patients with lepromatous leprosy, and in the serum in long-standing infections, though it could not be demon-

strated in non-lepromatous patients or in normal individuals. The substrate specificity of the enzyme indicated that its origin was bacterial, not mammalian. It is suggested that this enzyme might be used as a diagnostic marker for lepromatous leprosy.

D S Ridley

KUPPUSAMY P, RICHARD J, SELVAPANDIAN, A J **A study of causes of unemployment among agricultural labourers afflicted by leprosy.** *Leprosy in India* 1979; **51** (3): 369–75

The authors followed up after an interval of 4 years the employment data of 116 leprosy patients in their care, all of them agricultural labourers. 17 (average age over 50 years) had changed their employment as a result of deformity and 6 had become unemployed. [No details are given and no comparable data offered regarding the employment risks of people without leprosy in this age group.]

T F Davey

LEW J **The integration of handicapped people due to Hansen's disease into the community.** *Journal of the Formosan Medical Association* 1979; **78** (10): 899–900

This is an interesting account of the way in which Korea coped with its leprosy 'begabonds' after World War II in 1945 when more than 5,000 leprosy patients on the streets added to their 10,000 in-patients in four leprosaria. Most of these begging vagabonds were lepromatous patients. The Korean Leprosy Association gathered most of them and through the Hope-Village movement established 16 villages by the outbreak of the Korean war in 1950. This stopped all efforts until 1955, when dapsone treatment and out-patient care came into being.

Today there are about 100 resettlement villages where some 20,000 leprosy patients are managing their daily lives, mostly in poultry and pig raising.

Ralph Schram

OSKA R **[A survey of the social situation of leprosy patients in JALMA Leprosy Centre, Agra, India. II. Survey on the socio-environmental aspects of inpatients]** *Japanese Journal of Leprosy* **48** (2), 59–66 [In Japanese] English summary

A study of 240 patients. [For part I see *Trop Dis Bull*, 1979, **76,** abstr. (2413).]

SRITHARAN V, VENKATESAN K, BHARADWAJ V P, RAMY G (1979) **Serum lipid profile in leprosy.** *Leprosy in India* **51** (4), 515–520

LATAPÍ F, SAÚL A, RODRÍGUEZ O, MALACARA M & BROWNE SG [Editors] (1980) **Leprosy. Proceedings of the XI International Leprosy Congress, Mexico City, November 13–18, 1978.** pp. xv+403. Excerpta Medica, 305 Keizersgracht, PO Box 1126, 100 BC Amsterdam, The Netherlands (ISBN 0 444 90092 6] [D. fl. 170.00]

The hardback book, which includes an excellent index, represents a *verbatim* account of the latest *International Leprosy Congress* in Mexico: more than 800 specialists came from 83 countries to describe their work. The main headings in this book are those used in the Congress; epidemiology and control; experimental leprosy; clinical aspects; microbiology; immunology; social aspects; experimental chermotherapy; clinico-pathological aspects; nerve damage; therapy, rehabilitation and workshop summaries. The latter are those already published in *Leprosy Review* [see *Trop Dis Bull*, 1979, **76,** abstr. 2411]. Consensus views of world experts in print are obviously of great value in this subject and these proceedings will be appreciated by those working in all branches of leprosy, not only for reference but, more simply, for the purpose of reading in tranquility what was said at the time. The publishers are to be congratulated on the extremely clear and accurate production. A minor point of criticism is that on the spine of the book, there appear the single word 'Leprosy', and those who do not recognize the names of the eminent leprologists alongside may, in furture years, fail to spot this book on the shelves for what it contains—the proceedings of an historic congress. A major criticism is the price, which is so far beyond the private individual's pocket that this book will never reach many who whould profit by the expert views and information it records.

A C McDougall

BROWNE SG (1980) Le contrôle de la lèpre: chimères et possibilitiés. **[Leprosy control: chimeras and possibilities]** Reprinted from *Bulletin et Mémoires de l' Académie Royale de Médicine de Belgique* **135** (3), 208–218

The author reviews the general situation regarding the control of leprosy in the world, particularly in the light of the increasing menace of sulphone resistance and the non-availability of a specific vaccine.

After 30 years of widespread monotherapy with sulphones—touching, however, only a fifth of those needing treatment—leprosy shows little sign of being controlled, except in certain countries where there is a high natural resistance to infection among potential or actual victims. As with other transmissible diseases in countries of the Third World, the situation is bedevilled by the lack of complete and reliable statistics and by irregularity of treatment.

Two serious complicating factors are now upsetting the prospects for effective control and calling into question the epidemiological assumptions of governments and co-operating voluntary agencies. The first is secondary sulphone resistance, with its inevitable consequence of primary sulphone resistance occurring in susceptible contacts; the second is the demonstration of the presence of persister organisims—viable and drug-sensitive—in certain tissues despite the exhibition of effective drugs in adequate dosage for adequate periods.

The possibilities for control of leprosy today depend on such time-honoured principles as the reduction of the reservoir of infection by correct chemotherapy (that is, multidrug regimens for multibacillary disease), and hygienic measures to reduce transmission of viable organisms. Primary prevention by stimulating innate immunological defence mechanisms has not so far proved very encouraging, and the administration of dapsone prophylactically is largely impracticable.

The world still awaits a specific, safe and inexpensive vaccine, and cheap mycobactericidal alternatives to dapsone.

Ralph Schram