Lepr. Rev. (1973) **44**, 143-148

Abstracts

1. **Zinc deficiency with altered adrenocortical function and its relation to delayed healing**, by A. FLYNN, W. H. STRAIN, W. J. PORIES and O. A. HILL, Jr. *Lancet* 1973, **i**, 789.

The importance of zinc in wound healing receives confirmation in this report of delayed wound healing in conditions associated with interference with adrenocortical function, that is, in patients whose adrenal glands had been surgically removed and in others who had been taking corticosteroid drugs for long periods. It is apparent that adequate levels of zinc in the serum and tissues are necessary for the normal rate of wound healing and that factors tending to depress these levels are associated with delay in healing.

S. G. Browne

2. **Leprosy: fifty years of progess**, by MERLIN L. BRUBAKER. *Bol. Ofic. Sanit. panamer. (English edition)* 1972, **6**, 1-14.

The author reviews the changes that have taken place in our knowledge of leprosy, treatment of the disease, and social attitudes during the 50 years that have elapsed since the publication of the first technical issue of the *Boletin*—which, incidentally, was devoted to leprosy. He summarizes the disease as seen in the Americas of 1922, and provides some interesting comments on the historical introduction of leprosy into the New World, first by Europeans and subsequently by Africans.

The Portuguese brought leprosy to Brazil and the Spanish to the rest of South America and the Southern States of what are now the USA. Subsequently, Chinese labourers brought leprosy with them to the West Cost of the USA, and Scandinavians settled in Missouri and Minnesota, with their leprosy. German and Czech immigrants and small French communities were responsible for persistent foci in various countries, notably the USA, Venezuela and Argentina.

The main milestones of recent leprosy research are then noted—the successful inoculation of *Myco. leprae* into the mouse footpad and the armadillo, immunology, and the treatment with the newer drugs.

The author concludes by emphasizing that the application of recognized methods of leprosy control will depend on the cooperation of leprosy sufferers and the "commitment of those responsible". The trend away from the institution and towards ambulatory care of patients is helping to remove the stigma of leprosy, and the volume of research being prosecuted at the present time augurs well for the future, as one by one the intractable problems posed by this disease are solved.

S. G. Browne

3. **Crowding as related to leprosy prevalence**, by H. V. HAGSTAD. *J. Christian med. Ass. India* 1973, **48**, 101-103.

A useful retrospective study is reported in which the author analyzed the leprosy situation in 20,808 families in a district in Andra Pradesh, India, in an attempt to discover if family size had any influence on the numbers of persons suffering from leprosy. With due attention to the possibility that he would be studying the results of the disease rather than its aetiologically

important environmental "causes", he found that there was no difference in family size between families in which a parent had leprosy and those in which a child was affected.

The author found a positive correlation between family size and prevalence rates, varying from 89 patients per 1000 families where the family size was 1 to 5 persons, to 240 per 1000 families where the family size was 11 persons or over. Numerous other environmental factors must also be considered.

S. G. Browne

4. **The histoid variety of lepromatous leprosy**, by J. H. KROLL and L. SHAPIRO. *Int. J. Derm.* 1973, **12**, 74-78.

The authors describe a single case of histoid leprosy in a 16-year-old Dominican girl seen in New York. The clinical presentation is well described, and the accompanying microphotographs are convincing.

The patient was not known to be suffering from leprosy and had received no treatment. Apart from nasal stuffiness, she complained of no symptoms. No skin rash was seen. The response to dapsone was good. It is noteworthy that, despite the absence of treatment, the Morphological Index of the numerous bacilli in the lesions was only 1 to 3%, and that clinically normal skin near the nodules contained small foci of cellular tissue typical of lepromatous leprosy.

S. G. Browne

5. **Renal transplantation in leprosy**, by D. ADU, D. B. EVANS, P. R. MILLARD, R. Y. CLANE, TIN SHWE and W. H. JOPLING. *Br. med. J.* 1973, **ii**, ~~200-231~~. 280-281

The authors give a detailed clinical and necropsy report on an Anglo-Indian male patient who received in 1966 (when he was 27 years old) a cadaveric kidney transplant because of end-stage chronic renal failure. He did not disclose until later that he had suffered from lepromatous leprosy, for which he had received treatment.

Two years after the operation he experienced a recrudescence of leprosy, coinciding with a reduction in the dosage of immuno-suppressive drugs. For a time, he responded well to clofazimine, but succumbed to a pulmonary infection with *Klebsiella aerogens*. At autopsy, many organs showed degenerative changes. No deposits of IgG, IgM or C3 component of complement were found by immuno-fluorescent studies. The grafted kidney had apparently been functioning well, but numerous ante-mortem thrombi were found in the intrarenal veins.

The well-known prolonged survival of allogenic skin grafts in patients with lepromatous leprosy (deficient in cell-mediated immune response) is discussed in the light of the renal transplant in this patient.

S. G. Browne

6. **Clofazimine ointment in the treatment of trophic ulcers**, by B. P. B. ELLIS and E. TAUBE. *South Afr. med. J.* 1973, **47**, 378-379.

The reported activity of clofazimine (Lamprene, Geigy) against some organisms responsible for infections of the human skin led the authors to try this drug (incorporated at 1% concentration in a bland ointment base) for the topical treatment of patients suffering from ulcerations of diverse causation. The dressing was left undisturbed for 4 days.

An interesting feature of the adequate laboratory investigations was that, despite the continued presence of viable pathogens in the exudate from the ulcers, healing proceeded rapidly and with good cicatrization. Further investigation is recommended.

S. G. Browne

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7. **Incidence of leprosy in Gudiyatham taluk, S. India**, by P. S. S. RAO, A. B. A. KARAT, V. G. KALIAPERUMAL and S. KARAT. *Ind. J. med. Res.* 1972, **60**(1), 97-105.

The annual incidence of leprosy in the Gudiyatham taluk in Tamil Nadu, S. India, in the years 1967-69 was between 1.1 and 1.5 per 100 in a population of nearly 400,000. Twelve per cent of registered new cases had lepromatous leprosy, and 58% had the tuberculoid form. About a quarter were under the age of 10 years at the time of diagnosis, and the age-specific incidence rate was highest for the age-group 10-14 years. The overall prevalence rate in the taluk is 25.8 per 1000. No differences in rates between the sexes were noted in those reporting with signs of leprosy of less than one year's duration.

S. G. Browne

8. **Sur la lèpre en Guadeloupe (Leprosy in Guadeloupe)**, by H. A. FLOCH. *Bull. Soc. Path. Exot.* 1972, **65**, 35-46. English summary.

Despite an admittedly incomplete case-finding programme, the prevalence of leprosy in Guadeloupe has fallen from about 50 per 1000 in 1938 to 7 per 1000 in 1971. There are 2261 registered patients in a population of 330,000; 33% have lepromatous leprosy and 5% borderline. The author considers that the high proportion of patients with bacilliferous leprosy would be smaller if more and better surveys were carried out. In 1970, 61 new cases of leprosy were found among 18,765 schoolchildren examined.

The author advocates more extensive case-finding surveys, the systematic treatment of everybody found to be suffering from active leprosy, and BCG vaccination of all infants soon after birth. He considers that patients suffering from the self-healing types of leprosy should be treated, in order to prevent nerve damage and possible bacilliferous exacerbation. He is not convinced of the non-contagiousness of patients in whose skin only morphologically abnormal bacilli are present, nor does he find that long-acting sulphonamides are superior to dapsone.

S. G. Browne

9. **Topics in human genetics. Vol. I. A twin study of leprosy.** (M. R. CHAKRAVARTTI and F. VOGEL) pp. ix + 124, illustrated. 1973. Georg Thieme Verlag, Stuttgart, Germany. (Paperbound DM 54.) P. E. BECKER, W. LENZ, F. VOGEL and G. G. WENDT.

This is the report of a study in 3 areas of India, West Bengal, some areas of Andhra Pradesh, and the area around the Chingleput leprosy centre in Madras. After a brief survey of the literature on genetic aspects of leprosy, the methods and results are presented in 24 pages and then, in an appendix of 90 pages, the details of each twin studied are given. "Several thousand" leprosy patients were questioned as to whether they were one of twins, and 62 male-pairs, 28 female-pairs, and 12 male-female pairs were found. There were 62 monozygotic (MZ) pairs and in 37 each twin had leprosy; in 32 of these the leprosy was of the same type. In the 5 MZ pairs when the twins had a different type of leprosy, 3 of the pairs had probably been infected from the same source. In 25 MZ pairs only one twin had leprosy, and the authors attribute the disease to the fact that the diseased twin had "more close contact with open cases". (It is difficult to correlate the numbers mentioned in the text.) There were 40 dizygotic (DZ) pairs and in 8 each twin had leprosy, in 6 of these each having the same type of the disease. There were 32 DZ pairs in which only 1 twin had leprosy. The relative number of patients with leprosy among the siblings of the twins was "about the same in families of concordant and discordant monozygotic pairs. Besides, an interfamilial correlation of leprosy type was

observed. The combined results of this study show a definite genetic variability in susceptibility to the leprosy infection in the population investigated."

C. S. Goodwin

10. **The continuous bacteremia of lepromatous leprosy**, by D. J. DRUTZ, T. S. N. CHEN and W. H. LU. *New Engl. J. Med.* 1972, **287**(4), 159-164.

Venous blood was taken from 32 patients with leprosy. The first 5 ml was discarded and then 3 ml was obtained in a fresh syringe containing heparin. After centrifuging, smears of the leucocyte layer (buffy-coat) were prepared and stained by the Ziehl-Neelsen method. "The entire buffy-coat from 3 ml of blood was examined." When extracellular acid-fast bacilli (AFB) were seen in the buffy-coat "negligible numbers" of AFB were seen in the erythrocyte and plasma fractions. Two tables and 3 figures delineate the results. Of 5 lepromatous (LL) patients (Ridley classification) who had been treated with dapsone for more than 5 years, 2 had AFB in the blood; of 3 borderline patients, 2 had AFB in the blood and of 7 borderline tuberculoid patients, 4 had AFB in the blood. All of the 11 untreated LL or borderline lepromatous patients had AFB in the blood, as had all of the 6 LL patients who had been treated for up to 4 years. The "intensity of the bacteremia" was greatest in untreated LL patients, and became markedly less in patients after 4 months' treatment with dapsone. (No mention is made of the morphology of the bacilli.)

C. S. Goodwin

11. **Aspects de la lèpre en Polynésie française (Aspects of leprosy in French Polynesia)**, by J. SAUGRAIN and A. STRANGHELLINI. *Méd. trop* 1972, **32**(6), 735-741. English summary.

Leprosy was probably imported into French Polynesia by immigrant workers from China in the second half of the 19th century, although tuberculoid leprosy may have been present among the indigenous population.

In Tahiti itself, out of a total of 168 patients (of whom 40% had lepromatous leprosy), 72 were segregated in 1914. In 1958, the prevalence increased to 277, and to 329 in 1971—in a population numbering just under 100,000. Three hundred and seventeen of these are Polynesians and only 11 of Chinese extraction; at least 127 are considered to be suffering from the lepromatous form, as are about half of all cases diagnosed since 1965. Severe peripheral neuropathies are common and about one-third of all patients have some form of eye complication. No fewer than 11 patients have tuberculosis as well as leprosy. Relapses and severe reactional episodes are frequently encountered. The patients are said to tolerate sulphones and sulphonamides badly.

S. G. Browne

12. **The identification of leprosy among epithelioid cell granulomas of the skin**, by J. P. WIERSEMA and C. H. BINFORD. *Int. J. Lepr.* 1972, **40**(1), 10-32.

Skin biopsy is still the only, or the best, method for the laboratory diagnosis of some forms of leprosy. The present study on the differential diagnosis of leprosy from other causes of epithelioid cell granulomata is based on material referred to the Armed Forces Institute of Pathology in Washington. It is recommended that the biopsy should be taken from the periphery of the most active looking lesion, and should extend down to the subcutaneous fat. Up to 10 sections stained for acid-fast bacilli (Fite-Faraco method—see Fite *et al.*, *Trop. Dis. Bull.* 1947, **44**, 1008) were examined from each biopsy in addition to haematoxylin-eosin sections. The latter were used for making a profile of the nerves in relation to the dermal

infiltrate. The search for bacilli was limited to nerves, foci of necrosis and the centres of large granulomata, which are possible sites of destruction of nerves, and to any clear areas of the sub-epidermal zone. Eleven cases are analyzed and discussed. Whenever acid-fast bacilli are found in any of the situations listed, and there is associated nerve damage, it is a reasonably safe assumption that the diagnosis is leprosy, although the authors warn against the possibility of secondary nerve damage in other mycobacterial infections leading to a mistaken diagnosis of leprosy. Two histological patterns were observed in tuberculoid leprosy. In one, the distribution of the infiltrate followed the dermal nerves, which were usually severely damaged, and bacilli, if present, were found in the neural remnants. In the second type, the infiltrate was prominent in the superficial dermis and bacilli were usually seen in the sub-epidermal zone or in nerves that were not involved in the infiltrate. The differentiation of tuberculoid from borderline leprosy is usually not a difficult problem.

The legal and social dangers of misdiagnosing leprosy are emphasized. The paper is illustrated with numerous photomicrographs.

D. S. Ridley

13. **Acedapsone in leprosy chemoprophylaxis: field trial in three high-prevalence villages in Micronesia,** by N. R. SLOAN, R. M WORTH, B. JANO, P. FASAL and C. C. SHEPARD. *Int. J. Lepr.* 1972, **40**(1), 40-47.

Approximately 1500 highly inbred people, originating from Pingelap atoll in the Ponape District in Micronesia, are now living in 3 small villages in the district and have a high incidence of leprosy. A complete examination of that population in 1967 identified 99 cases of leprosy, a prevalence of 66 per 1000, and, judging by previous experience, it was expected that about 11 new cases would appear each year. The entire population (including all leprosy patients) was placed on the repository sulphone acedapsone (DADDS; Hansolar) given at 75-day intervals, those over the age of 6 years receiving 225 mg at each injection and those between 6 months and 6 years receiving 150 mg. All were re-examined in 1968, 1969, and 1970. Six new cases appeared during 1968 but none thereafter. Treatment of "non-cases" was stopped in 1970 and the population will remain under surveillance for at least 10 more years. No toxic effects of treatment were encountered.

W. H. Jopling

14. **Acedapsone in leprosy treatment: trial in 68 active cases in Micronesia,** by N. R. SLOAN, R. M. WORTH, B. JANO, P. FASAL and C. C. SHEPARD. *Int. J. Lepr.* 1972, **40**(1), 48-52.

This paper takes the trial (see abstr. 13 above) one stage further by describing the effect of treatment with acedapsone of 62 patients with active leprosy of various types between 1967 and 1970, together with 6 new cases discovered in 1968. Intramuscular injections were given every 75 days and all patients were re-examined annually. Apart from one patient with lepromatous leprosy, who had previously not improved on oral dapsone (DDS), and one patient whose indeterminate leprosy shifted to tuberculoid during the trial, all the remainder responded well and there were no toxic effects.

W. H. Jopling

15. **Studies in the viability of *Mycobacterium leprae* in human liver and bone marrow, using thymectomized mouse footpad technique,** by A. B. A. KARAT, H. HARMER, A. S. KUMAR and J. R. ALBERT. *Int. J. Lepr.* 1972, **40**(1), 1-3.

Bone marrow aspirates and skin and liver biopsy specimens were obtained from patients with lepromatous leprosy (possibly 4 patients), the material homogenized, and 5000 *Mycobacterium*

leprae used as inoculum in the footpads of thymectomized mice. The counts of bacilli from the skin specimens ranged from 1.9×10^7 to 3.3×10^8 per ml, from the bone marrow from 4.4×10^5 to 7.0×10^6 per ml, and from the liver 5.3×10^6 to 3.0×10^7 per ml. The percentage of evenly stained bacilli (MI) from the skin was 1 to 8%, from the bone marrow it was 0 to 16%, and from the liver it was 0 to 6%. All the inocula multiplied (which is surprising if the MI was 0%) reaching counts of 10^5 to 10^7 bacilli, and the MI ranged from 0 to 14%. The authors conclude that the bacilli were viable "despite the higher temperature in human bone marrow and the liver", and that these bacilli could be "reservoirs of viable lepra bacilli".

C. S. Goodwin