Abstracts

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1. **Leprosy in Hawaii**, by J. C. HATHAWAY. *Hawaii Med. J.*, 1970, **29**, 429-437.

This paper outlines the basic facts of leprosy as presented to doctors applying for a medical licence to practise in Hawaii. The text is unexceptionable, apart from such debatable statements as these: the incubation period of leprosy is said to be "not uncommonly . . . 10 to 25 years", or "even longer"; "leprosy, undoubtedly, was present" among the ancient inhabitants of Palestine; there were, by the middle of the twentieth century, "only a few known cases on the continent of Europe" [there are at present over 50,000]; indeterminate leprosy is characterized by "moderate numbers" of bacteria and is "about half way between the lepromatous and tuberculoid forms".

Leprosy was probably introduced into Hawaii around 1830, by the Chinese. After a period of rather rapid extension–culminating in the much-publicized events on Molokai–segregation of leprosy sufferers appeared to result in a falling incidence. There are at present about 400 known cases of leprosy, and some 16 new infections are recorded each year, only a few of which are detected through contact clinics. Liberalized legislation, recently passed, reflects a more modern and realistic approach to leprosy control. Some 170 patients remain in Kalaupapa (in about 40 of whom the disease is still active), and 40 in Hale Mohalu.

S. G. Browne

2. **An unusual case of leprosy with pathological features common to Lucio's phenomenon**, by E. TAUBE and B. P. B. ELLIS. *Cent. Afr. J. Med.*, 1971, **17**, 119-122.

The authors give a good clinical description of an African female patient, aged about 45 years, who had treatment for early lepromatous leprosy from 1954 to 1958. She apparently remained well until 1966, when signs closely resembling the classical features of the acute exacerbation of Lucio leprosy began to appear. The histological picture in the blood vessels of the dermis was confirmatory. The patient responded well to dapsone, given at first in small doses, which were prudently increased. Corticosteroids were not needed.

This is the first reported instance in Rhodesia of a patient exhibiting many of the clinical and histological features associated with the Lucio phenomenon in diffuse lepromatous leprosy.

S. G. Browne

3. **A preliminary report on the use of the depot sulphone preparation acedapsone ("Hansolar") in the control of leprosy**, by C. R. BOUGHTON, G. C. SCOTT, D. A. RUSSELL and D. R. VINCIN. *Med. J. Aust.*, 1971, 12 June, 1258-63.

This study on the use of the diacetyl derivative of dapsone, acedapsone (CI 566, DADDS, Hansolar) was carried out in the Karimui region of New Guinea from November 1967 to November 1969. The drug was put up in a benzyl benzoate/castor oil suspension containing 150 mg per ml, and intramuscular injections were given every 75 days to 327 patients suffering

from various types of leprosy, each injection consisting of 225 mg for adults and 150 mg for children under the age of 6 years. The injections caused minimal discomfort and no injection abscesses occurred. Response to treatment was satisfactory clinically and bacteriologically. Leprosy reactions were noted in one-third of those in the borderline and lepromatous groups, but were mild to moderate in severity and did not cause any interruption of treatment; no reactions occurred in the indeterminate and tuberculoid groups. No bacterial resistance was encountered in spite of the low dosages of sulphone.

The authors are hopeful that this line of treatment will revolutionize the management of leprosy in underdeveloped countries.

W. H. Jopling

4. **Planning for the modernization of Hawaii's leprosy program**, by W. B. QUISENBERRY and S. L. LEVY. *Am. J. Publ. Hlth*, 1971, **61**, 1403-5.

This unemotional administrative account of the transformation of the leprosy service in Hawaii provides the necessary complementary information to the reports that have appeared in the lay press.

The strict segregation policy instituted in 1865 was based upon the best advice then available (and obtained) in Europe and Asia, and sought to deal with an indigenous leprosy problem made worse by leprosy occurring among immigrant labourers. Molokai became notorious, until redeemed by the dedication of Father Damien and the pen of R. L. Stevenson. Now the old-type Kalaupapa Leprosy Colony at Molokai is to be phased out, despite opposition from the pensioned leprosy patients and some disquiet expressed by neighbours.

The Health Department, conscious of the importance of public relations, has leant heavily on the advice proffered by a Citizens' Committee, and the co-operation of officials and community has produced a sound and acceptable scheme for the control of the diminishing problem of leprosy. Out-patient care is now available, and leprosy has a place in the teaching of medical students.

S. G. Browne

5. **Repository acedapsone in leprosy chemoprophylaxis and treatment**, by N. R. SLOAN, R. M. WORTH, B. JANO, P. FASAL and C. C. SHEPARD. *Lancet*, 1971, 4 Sept., 525-526.

This important paper records the carefully-documented results of the use of acedapsone (DADDS) in the treatment of all known patients suffering from leprosy in a circumscribed area in Micronesia and also, in the same dose, of the entire exposed population. The drug was administered to adults in the usual recommended dose of 225 mg in a benzyl benzoate/castor oil suspension every 75 days for 3 years. With only 2 exceptions, all 68 patients with leprosy showed consistent clinical and histological improvement.

Of even greater interest is the fact that, instead of the 35 new cases of leprosy that, on statistical grounds, would have been expected to appear during the trial period, only 6 actually did appear, and all of these were discovered during the first year of the trial. Thus, although the population (of 1400) had been exposed to leprosy up to the beginning of the trial, the dissemination of viable bacilli had so diminished or the prophylactic value of the injected drug was so marked, that the numbers of new overt clinical infections were one-sixth of those expected.

S. G. Browne

6. **(i) Discontinuous administration of clofazimine (B663) in *Myco. leprae* infections; (ii) comparison of B1912 and clofazimine (B663) in *Myco. leprae* infections**, by C. C. SHEPARD, L. L. WALKER, R. M. VAN LANDINGHAM and M. A. REDUS. *Proc. Soc. Exp. Biol. Med.*, 1971, **137**, 725-727 and 728-729.

(i) This is a study, carried out in Atlanta, U.S.A., on the effect of clofazimine (B663;

Lamprene) on footpad infections in mice, the drug being administered prophylactically and therapeutically for various periods. It was found that continuous administration from day 70 to day 140 after infection prevented subsequent growth of *Mycobacterium leprae*. When given for 2 days a week over a 7-week period, growth eventually occurred but only after a delay of more than 400 days. When given for 2 days every 4 weeks, growth was delayed 189 days. A single 2-day period of therapy was not effective when given 70 days after infection, or 35 days before infection, but it had a distinct effect when given on the day of infection.

(ii) B1912 is a newly synthesized type of rimino compound which has roughly the same activity as clofazimine against tubercle bacilli in mice. Like clofazimine it is highly pigmented and very slowly excreted, and the authors show that it is very similar in its effect against leprosy bacilli in footpad infections in mice.

W. H. Jopling

7. **Lymphocyte-mediated modification of blood-derived macrophage function *in vitro*; inhibition of growth of intracellular mycobacteria with lymphokines,** by T. GODAL, R. J. W. REES and J. O. LAMVIK. *Clin. exp. Immunol.*, 1971, **8** (4), 625-37.

Lymphocytes, obtained from a human being or animal who has developed a specific immunity, when exposed to the specific antigen release substances called lymphokines. The authors obtained leucocytes from the blood of rabbits and men, and removed the majority of the lymphocytes and granulocytes. "80-90%" of the remaining cells were monocytes which, when cultured, developed into macrophages. Mixed leucocyte cultures (MLC) were prepared by mixing equal numbers of leucocytes from 2 rabbits. When supernatants from these MLC were added to a culture of macrophages obtained from one of these rabbits, the yield of macrophages after 8 days was increased from 3×10^3 to 9×10^3 cells, and the macrophages developed intercellular cytoplasmic bridges and giant cells. Leucocytes were cultured from pairs of patients with tuberculoid and lepromatous leprosy. To a culture of macrophages, obtained from one of the patients with tuberculoid leprosy, were added killed *Mycobacterium leprae*. When MLC supernatant was added, the yield of macrophages after 10 days was increased from 4×10^3 to 18×10^3 cells, and the macrophages developed intercytoplasmic bridges and giant cells. However, if lymphocytes were initially removed from the MLC, the supernatant did not stimulate multiplication. Macrophages from the patients with lepromatous leprosy when exposed to *Myco. leprae* and then to MLC supernatant did not increase in numbers. *Myco. microti* and *Myco. lepraemurium* multiplied in rabbit macrophages in the presence of unmixed leucocyte supernatants, but were inhibited in the presence of MLC supernatants. With filtered and unfiltered supernatants the results were identical. The authors state that these observations demonstrate clearly the lymphocyte dependence of macrophage proliferation. Also the inhibition of intracellular multiplication of mycobacteria observed in this study indicates that the lymphokine mediated lymphocyte-macrophage interaction could be a potent antibacterial principle, at least against slowly growing intracellular bacteria. They also suggest that "there is an impairment of the *M. leprae* induced lymphocyte-macrophage interaction in patients with lepromatous leprosy."

[These revealing experiments open new fields for leprosy research, as well as providing fundamental information on lymphokines.]

C. S. Goodwin

8. **Effect of B1912, a new riminophenazine derivative, in murine leprosy,** by Y. T. CHANG. *Int. J. Lepr.*, 1970, **38** (4), 417-421.

The new riminophenazine derivative, B1912, has been reported to produce lower tissue levels but higher serum levels than clofazimine (B663). Mice were infected with *Mycobacterium lepraemurium* and then fed on diets containing either B663 or B1912. The drugs were either

administered from the day of inoculation and then continued for 3 weeks or 3 months, or else the drugs were not given until 2 months after inoculation and continued for 3 months thereafter. In a fourth group, animals were treated for 5 months after inoculation and then observed for another 5 months without treatment. Two doses of each drug were used in each group, 0.005% or 0.01% in the diets. There was also an untreated group of mice.

At the end of the experiments the organs were examined for *Myco. lepraemurium*. Both doses of B663 and the higher dose of B1912 showed "marked suppressive activity", while the smaller dose of B1912 was "slightly less effective". All the treated animals developed a yellow coloration of the skin on the ears, feet and tail. The subcutaneous fat appeared yellow after 3 weeks' treatment, and orange after 3 months. After 3 months the coloration of the animals receiving the larger dose of B1912 was more marked than that of those receiving the same dose of B663. However, in the group observed without treatment for 5 months after initial treatment, the yellow coloration had virtually disappeared in the animals which had received B1912, but was still present in animals that had received B663, especially those that had received the larger dose. The author concludes that B1912 showed less drug accumulation and a faster rate of drug elimination than B663.

C. S. Goodwin