
The cell walls isolated from axenically grown leprosy-derived corynebacteria were submitted to various chemical and enzymatic degradations. The glycan stands of the wall peptidoglycan are essentially composed of N-acetylglycosaminyl-N-acetylmuramic acid disaccharide units. Small amounts of N-acetylglucosaminy- l-N-glycolylmuramic acid (less than 10%) were also detected. The muramic acid residues of adjacent glycan strands are substituted by amidated tetrapeptide units which, in turn, are cross-linked through direct linkages extending between the C-terminal D-alanine residue of one tetrapeptide and the meso-diaminopimelic acid residue of another tetrapeptide. Such a structure is very similar to that of the wall peptidoglycan, found in the taxonomically related microorganisms of the Corynebacterium, Mycobacterium, and Nocardia groups. — Authors' abstract


Immunoglobulins were quantitated in sera from 52 matched mothers at delivery and in the corresponding cord blood samples. The cord IgA concentration was significantly increased in babies from mothers with active lepromatous leprosy compared to a control group, and a group where the mothers suffered from tuberculoid leprosy. The cord IgM concentration was normal both in babies from mothers with active lepromatous leprosy, the control group and the group of mothers suffering from tuberculoid leprosy. Since IgA does not cross the placenta, this increase reflects an active increased production of IgA in the foetus of mothers suffering from active lepromatous leprosy. This could indicate transfer of M. leprae or M. leprea antigens across the placenta into the foetus. — Authors' summary


Multiple skin-testing, lymphocyte transformation tests and enzyme-linked immunosorbent assay of antibodies to mycobacterial antigens have been carried out on patients and their healthy children living in Baba Baghi Leprosy Sanatorium in Iran. The data reported shows a remarkable correlation between responses to Mycobacterium leprae and M. Dacca in all 3 test systems. The percentage of positive responders to skin tests with Leprosin A amongst the children is higher than has previously been found and BCG has been shown to enhance the capacity of the individual to recognize M. leprae in this way. Finally, the majority of a small number of children considered to be protected from leprosy have been shown to possess lymphocytes that transform in the presence of M. leprae and M. vaccae antigens, but little antibody to M. leprae by the enzyme-linked immunosorbent assay. Of the 3 types of test assessed here only skin-testing appears to be of any value as a measure of protection, but whether even this will prove useful at the individual level is far from certain. — Authors' summary

On démontre que l’un des quatre antigènes de l’extrait endocellulaire de M. smegmatis qui réagit avec les sérum de lépreux est une péroxydase. — Résumé des auteurs


A two-stage in vitro culture system was used to assay cells which suppress the lymphoproliferative response to Mycobacterium leprae (IML). Responses to ML, purified protein derivative of tuberculin, and streptokinase-streptodornase were preferentially suppressed by mitomycin-treated cells which had been primed with the same antigen in a 7-day primary culture. Healthy subjects exposed to leprosy for more than 3 years showed strong suppression of the response to ML antigens (11 of 12 showed more than 40% suppression), whereas those exposed for 3 months to 3 years showed much less suppression (12 of 15 showed less than 40% suppression). The in vitro generation of strong ML-specific suppression may reflect the maturation of a well-regulated and protective immune response. However, premature induction and in vivo activation of these suppressor cells could predispose to disseminated (lepromatous) forms of leprosy. With this assay it would be possible to assess the ability of proposed leprosy vaccines to engage strongly the regulatory network controlling the immune response to ML in the same way as long-term exposure to the natural infection. — Authors' summary

PATOLOGIA, FISIOPATOLOGIA, BIOQUÍMICA


The muramidase content of reactive cells in the lesions of human foreign body reactions, lepromatous and tuberculous leprosy, sarcoidosis, tuberculosis, and granulomatous hepatitis, was assessed using specific anti-human muramidase antiserum and a peroxidase-anti-peroxidase marker system. Epithelioid and giant cells in sarcoidosis, tuberculosis, granulomatous hepatitis, and tuberculous leprosy all showed the presence of muramidase in their cytoplasm. The muramidase content of macrophages in foreign body reactions and lepromatous leprosy varied and most multinucleate cells in these lesions gave a negative reaction. Possibly varying rates of muramidase secretion may account for the differences. — Authors' summary


Serum lysozyme was assayed spectrophotometrically in 186 Kenyan Africans. The sample composition comprised 95 normal controls and 91 patients with the following distribution of diseases: leukaemia — 32, carcinoma of the oesophagus — 29, malignant lymphoma — 14, Wilms' tumour — 6, lepromatous leprosy — 5 and others — 5. The enzyme activity was markedly raised in chronic granulocytic leukaemia and acute myelomonocytic leukaemia. Cases of acute lymphocytic leukaemia and carcinoma of the oesophagus had significantly reduced enzyme activity. Contrary to what has been previously reported, serum lysozyme levels in Wilms' tumour, malignant lymphoma and chronic lymphocytic leukaemia were found to be normal. Similarly, leprosy patients and one with multiple myeloma showed normal values. Serum lysozyme determinations are of value in the diagnosis of acute leukaemias and chronic granulocytic leukaemia. — Authors' summary


Amyloid-invaded intramucosal and muscularis mucosa nerves of the large intestines in two leprosy patients were studied with our
modified Golgi Staining. The main findings were as follows; 1) Amyloid deposition was found in the mucosa and the mucosal muscle as well as on the small arterial walls. 2) Both nerve fibers passing through the muscle layer and vasomotor nerves in myenteric plexus were degenerated, coarsed and decreased in number. 3) And the circumnutated nerve fibers were disappeared and/or degenerated in amyloid-deposited arterial walls. With those findings, it might be possible to say that there are some lesions in sensory neurous at the mucosa of the colon with amyloid deposition. Authors' abstract


The lepromin test was done on 38 leprosy patients belonging to the various classifica-

HANSENÍASE EXPERIMENTAL, LEPIA ANIMAL
EXPERIMENTAL HANSENIASIS, ANIMAL LEPROSY.


Mycobacterium leprae (obtained from experimentally infected armadillo) was submitted to saponification. The liposoluble part was methylated and fractionated by chromatographic methods. Each fraction was studied by gas-liquid chromatography. Cholesterol (from the infected host) and the main fatty acids were identified. Mycolic acids were isolated, and their structures determined, using mass spectrometry. These structures are useful to make a comparison of M. leprae with some other mycobacteria. Some of these comparisons are discussed here. The absence—or, at least, the very low level—of tuberculostearate suggests comparative studies of M. leprae and M. gordone. — Authors' summary


A simple colorimetric method is described for checking that dapsone-containing diets have been correctly prepared for mouse foot-pad evaluation of the dapsone sensitivity of strains of Mycobacterium leprae. — Authors' summary


Harvests of Mycobacterium lepraemurium obtained from livers of moribund infected mice yielded M. lepraemurium cell walls that were extracted with solvent to provide crude M.
lepraemurium cell wall lipids. By solvent fractionation and chromatography on DEAE cellulose and cellulose, a cord factor-like glycolipid contaminated with mycoside C was obtained. Additional solvent treatment provided the purified glycolipid, which was identified as 6,6'-trehalose dimycolate, by infrared Find chromatographic comparison with authentic samples from M. tuberculosis, by identification of trehalose and specific mycolates of M. lepraemurium, and by permethylation analysis. This constitutes the first unequivocal identification of cord factor as a product of in vivo derived mycobacteria. — Authors' summary


The variable effect of killing on the immunogenicity of different mycobacterial species is clearly trying to tell us something fundamental about the biology of the organisms. It is therefore essential to build up an accurate picture of how Mycobacterium leprae compares with other species. (1) The immunogenicity of killed M. leprae is not in itself unique (although it has unusual features). There is a huge neglected literature on the ability of killed mycobacteria to evoke both skin-test positivity and protection. (2) It is possible that killing M. leprae causes qualitative changes in the type of response evoked. This is true of pathogenic members of the slow-growing subgenus, which, when killed, evoke less of the necrotizing component. We therefore need to know more about the relevance to protection of these different components. However, the response to killed M. leprae in mice resembles that evoked by several non-pathogenic members of the fast-growing subgenus, rather than the response to pathogenic slow-growers. (3) We know that BCG, a living vaccine, can protect man against leprosy. There is at present no evidence that killed M. leprae is immunogenic (skin-test positivity or protection) in people not previously exposed to living leprosy bacilli, but a review of the literature involving killed mycobacteria suggests that it will be. It remains, nevertheless, an act of faith. — Author's conclusion


We reported earlier that Mycobacterium leprae separated from lepromatous human as well as armadillo tissues contains an unusual form of o-diphenoloxidase which oxidized several diphenols, including D- and L-DOPA (3,4-dihydroxyphenylalanine) to quinones in vitro. It was not known whether any other species of mycobacterial separated from infected armadillo tissues would show o-diphenoloxidase activity. Recently, a few feral armadillos with mycobacterioses caused by cultivable bacilli became available. The data presented in this report demonstrate that cultivable mycobacteria obtained from the tissues of wild-caught armadillos did not contain the enzyme. Two species of nocardia tested converted DOPA to pigment, but this reaction was found to be non-enzymatic, being unaffected by heating. On the other hand, o-diphenoloxidase of the leprosy bacilli was sensitive to higher temperatures. Visual evidence on the occurrence of the enzyme in M. leprae is also presented. — Authors' summary

CLÍNICA, DIAGNÓSTICO

CLINICAL ASPECTS, DIAGNOSIS


In a study of the simultaneous occurrence of pulmonary tuberculosis and leprosy it was found that 13.4% of leprosy patients were also suffering from tuberculosis on admission to hospital. This figure is considered to accurately reflect the prevalence of the association of these two diseases in South Africa. Tuberculosis occurred throughout the leprosy spectrum and in general responded well when appropriate therapy was added to standard leprosy treatment. There is potential danger in that rifampicin resistant strains of M. tuberculosis may be selected for if the clinician fails to recognize the simultaneous condition. — Authors’ summary


A massive dose of 7-5 g of 4,4'-diamino, diphenyl sulphone (dapsone) taken as a suicide attempt in a patient on long-term therapy for tuberculous leprosy resulted in permanent bilateral retinal necrosis, a previously unreported side effect of this drug. The patient developed a severe haemolytic anaemia, methaemoglobinaemia, and acute renal failure requiring peritoneal dialysis. It is proposed that the retinal damage was due to a combination of severe hypoxaemia and the physical effects of red cell fragmentation producing vascular occlusion in the macular and perimacular region, with consequent ischaemic necrosis. — Authors’ summary


El caso presentado corresponde a una lepra lepromatosa nodular de rápida evolución, aún Guando tomamos en consideración que el proceso se debió haber iniciado antes de lo que el paciente refiere, tomando en cuenta la historia natural de la enfermedad. Los nódulos que aparecieron en la cara produjeron la deformidad de la típica “facies leonina”, siendo múltiples. — Comentario del autor


At the clinics of Ghatampur and Etawah, established by JALMA in the early period of 1966, the number of newly registered patients had increased up to several hundreds monthly in a few years. Here is reported an analysis which was done about the chief complaints and the clinical features of the newly registered patients of tuberculoid type in the period of April to August of 1971. The number of tuberculoid cases was 1,117 and 62.2% out of total 1,796 cases newly registered in the period. Male cases were 827 and female 290. The sex rate was 2.85:1 for T-type only and 3.45:1 for the total cases. It could be concluded that the number of female cases were more in T-type than it in other types and groups of the disease. The chief complaints about the skin features were divided into two groups; erythematos and hypopigmented patches. About 50% of both sexes showed the hypopigmented patches for the chief complaints. In all the cases, we could distinguish the patches clearly, and about 20% of the patients did not show the skin patches as the chief complaints but complained other symptoms; anaesthesia, deformity of the hands and so on. Clinically, 36.0% of male and 41.4% of female cases showed the erythematous patches and all the other cases had the hypopigmented patches. Patients with several patches were observed in 12-17% of both sexes and it seemed that these cases would be included rather in reactionary tuberculoid or borderline-tuberculoid. It was considered that some of tuberculoid cases inclined to borderline group along with the aging. The result that 80% of total cases complained the skin patches would show that the patients could understand the symptoms of leprosy fairly well. About 19% of male and 12% of female cases complained the symptoms of hypoesthesia, anaesthesia, neuralgia of the extremities and the deformity of hands. It is clearly considered that some patients of T-type accepted the symptoms due to the damage of peripheral nerves as the main signs of the disease. Clinically, the thickness of ulnar nerve was observed most commonly in both sexes Generally the thickness of the nerves was observed only unilaterally. In many cases, the good combination of skin patch and thickness of skin nerve was observed on the face or the extremities. Other symptoms; plantar ulcer, burning sensation of the extremities, were showed as the chief complaints in only a few cases. In the group of tuberculoid patients, most people showed the skin patches as the chief complaints, and the other people accepted the symptoms due to peripheral nerve damage as the important signs of the disease. Here we could say that the patients had a good knowledge about the clinical features of the disease. Standing on the conclusion, we can carry out effectively the educational scheme for public health especially considering the early symptoms of the disease itself. — Authors’ abstract


Since 1966, JALMA (Japan Leprosy Mission for Asia) has had two out-patient clinics at Ghatampur and Etawah of Uttar Pradesh State, India. The monthly number of newly registered patients was about three hundreds at Ghatampur clinic and sixty at Etawah in those years. Here, and analysis is done about the chief complaints and the clinical features
of borderline cases registered in the period between April and August of 1971 to understand the notion which those patients would have about the disease of leprosy. It will help us in the treatment and education for the patients. The number of borderline cases was 316 and 17.6% out of total 1,796 cases. The highest peak of the patient number was observed in the age group of 20-29 in male and 40-49 in female. The age group having the highest peak was various according to the types or groups of the disease. It seemed that the type or group for each case would depend on the starting age of the disease. In childhood (0-9 age group), almost all cases were tuberculoid. The chief complaints about the skin features was divided into two groups; erythematous and hypopigmented patches. About 60% of total cases complained the skin patches and the chief complaint of a half number of them was erythematous patches. The features of patches were various between two polar types (L and T). The typical B-patches were observed not frequently. The skin smear test from the patches showed higher percentage of positive result in cases of erythematous patches and in male. The chief complaints due to the damage of peripheral nerves in the extremities was observed in about 30% of total cases. Most of them complained hypoesthesia or anaesthesia of the extremities. Clinically, the thickness of ulnar nerve was observed most frequently. The common peroneal nerve of male case and the superficial branch of radial nerve of female case were thickened fairly frequently. Generally, the thickness of nerves was observed bilaterally. Several percentage of the patients complained heat and dryness of the extremities. It is due to the wide-spread patches and give a big trouble to farmers and out-door laborers in hot and dry season. Generally speaking, the feature of chief complaints and clinical manifestation of borderline cases were present just between L-type and T-type. Over 60% of total cases complained the skin features and about 30% showed the symptoms due to the peripheral nerve damage as the chief complaints. It will support the conclusion that patients can understand the general symptoms of the disease fairly well. In rural areas, the percentage of illiterate is still high but illiteracy seems not to have an influence on the clinical knowledge which general people have about leprosy. However, by removing illiteracy, they can go to clinics and hospitals for the treatment not tied down to the tradition. The changes of the situation in tradition and the progress in general education will be more important for women especially in the rural areas of the country. — Author’s abstract


TERAPÉUTICA

THERAPY


Prevalence of dapsone resistance among 105 previously multibacillary patients, living in the vicinity of the Marchoux Institute in Bamako, Mali, was 5.7%. Patients had been treated for 10-29 years with a mean of 21 years. It is possible that although the amount of drug administered was only 56% of that prescribed, these long incubation times are the result of a year-long practice of administering dapsone by injections. It is possible that the technique of patient selection did not detect the appearance of resistant relapses at the earliest stages. The need for training in the early diagnosis of relapses is stressed. — Authors’ summary


Thirty-four species of plants reported used in the treatment of leprosy in Africa are reviewed. The botanical and vernacular names, localities and comments on the plants are given. The importance of research into herbal medicine to establish the efficacy and toxicity of plants used is discussed. — Authors’ summary

One of the stigmata of leprosy in the hand is muscular wasting between the metacarpals of the thumb and index finger. Such a deformity, which may rarely arise for other neuropathic reasons, may pass unnoticed in places where leprosy is not endemic, but is obvious to all in places where leprosy is still common, and undesirably stamps afflicted persons as lepers even if the disease is arrested. A surgical technique is described in which a buried dermal graft is used for augmentation of the depression of that muscular wasting between thumb and index finger. — Author's abstract


**EPIDEMIOLOGIA, PREVENÇÃO**
**EPIDEMIOLOGY, CONTROL**


Offcial data on hanseniasis in Brazil, with emphasis on the Northern Region, in the period 1970-1979 is registered and discussed in connection with prevalence and evidence as well as in clinical forms. The study also includes patients under control (hospitalized or under ambulatory system) or not, patients per States and Territories. Besides it is presented data on educational establishments for leperschildren in Brazil and specifically in the classical Amazonia. — Author's summary


Screening of 11,505 adult in-patients admitted in various general hospitals (for complaints other than leprosy) revealed that 101 had leprosy with a prevalence of 8.8 per 1,000. Ten of these were found to be smear positive (prevalence rate 0.9/1,000). Such surveys provide a quick and convenient method of screening the urban population, especially adults who usually are not available during mass surveys. — Authors' summary


An account is given of a personal visit to China in early 1978. A list of 14 questions concerning the extent, classification and treatment of leprosy was submitted and the answers are recorded in this article, concluding with some recommendations for the promotion of Franco-Chinese exchanges in leprosy. — Author's summary


The early history and possible origins are outlined, and an account given of the more recent trends in the development of leprosy, based on a brief analysis of records available in the Department of Public Health. Although the total number of patients is not high, leprosy continues to be a Public Health problem in the Seychelles which is going to require a much higher level of awareness if it is to be eradicated from this country. — Author's summary


The main aspects of hanseniasis in the State of Amazonas are discussed, from the description of the first cases in the last century to the disactivation of the leprosarium in January 1979. Until December, 1979, 10,800 cases of hanseniasis had been registered in the state, 4,142 lepromatous and dimorphous, 4,523 tuberculoid and 2,135 indeterminate. There was no registration of the dimorphous type before 1974 in the files consulted.

Currently the control of hanseniasis is being developed on an outpatient basis. Mutilated patients and social cases are admitted to an asylum, constructed on the side of the old leper colony. The asylum has a capacity of 100 beds. Patients in need of hospital treatment are sent to general hospitals in Manaus. — Authors' summary

GENERALIDADES, HISTÓRIA
GENERAL, HISTORY.


Graças aos conhecimentos atuais podemos considerar a hanseníase como uma “outra doença” de conceitos muito diferentes dos primitivos e que permitem esclarecer ao doente e à coletividade saudável que: não é hereditária nem congênita; não é de fácil contágio; nenhuma criança, nascida de pais infectantes, desenvolveu qualquer das formas clínicas de hanseníase, quando afastados do convívio do-

méstico logo ao nascer; não há necessidade de internamento obrigatório; existem medicamentos eficazes; existem formas que curam até espontaneamente, como é o caso da hanseníase nodular infantil. Mas, infelizmente, existem formas que, apesar dos medicamentos eficazes, não curam jamais. Daí, o ideal seria diagnosticar e tratar precocemente todos os casos iniciais, do grupo indeterminado, pois assim seria quebrado o elo mais importante da cadeia, evitando a evolução para o polo virchowiano, principal responsável pela manutenção da endemia no mundo. — Conclusões do autor