

RESUMOS/ABSTRACTS

AÇÕES DE CONTROLE

NAIK, S.S., REVANKAR, C.R., GANAPATI, R.
Women workers in leprosy. *Indian Journal of Leprosy*, v.67, n.3, p.329-332, 1995.

It is generally observed that the male to female ratio of leprosy patients based on population surveys in India is about 2:1. Part of this bias could be due to improper examination of the female population as a large majority of leprosy workers in India are men. In order to know the exact position of women leprosy workers of different categories and to understand the problems of female leprosy patients, a questionnaire was sent to leprosy administrators of selected States/Union Territories. Their views about the services of women leprosy workers were also sought. The regions were divided into (a) low endemic areas in union Territories and small States including Pondicherry, Andaman and Nicobar islands, Goa, Lakshadweep, Nagaland, Tripura and Assam; (b) hyper-endemic districts of Andhra Pradesh, namely Anantapur, Cuddapah, Warangal and Srikakulam; and © major States, e.g. Bihar, Gujarat, Orissa and Maharashtra.

RAJU, M.S., KOPPARTY, S.N.M. Impact of knowledge of leprosy on the attitude towards leprosy patients: a community study. *Indian Journal of Leprosy*, v.67, n.3, p.259-272, 1995.

NLEP, through its survey-education-treatment (SET) pattern, attempts to educate the community members about the scientific facts of leprosy with the view to improve their knowledge leading to a more positive attitude towards the leprosy afflicted. This paper explores the impact of knowledge on the attitudes of 1199 community members drawn from two States, Andhra Pradesh and Orissa, towards leprosy.

The results show that, overall, a high knowledge level did not necessarily generate positive attitudes. There was a general negative

attitude despite 35% to 50% of the respondents having high knowledge level. There were, however, situations in which a high level of knowledge helps to have positive attitudes. These situations differ in the two states studied.

ROOS, Bianca R., BRAKEL, Wim H. van, CHAURASIA, Ashok K. Integration of Leprosy control into Basic Health Services; an example from Nepal. *International Journal of Leprosy*, v.63, n.3, p.422-429, 1995.

The need for integration of vertical projects into the Basic Health Services (BHS) has been felt in Nepal since 1968. In 1987 it was decided to provide integrated BHS all over the country. The Nepal Leprosy Control Project (NLPC) was one of the vertical projects which had to be integrated from that year. In order to prepare the BHS staff for this new task the NLPC developed a Comprehensive Leprosy Training course. Besides adequate training, three other prerequisites for successful integration are: a) adequate supply of drugs and equipment; b) regular supervision and specialist referral facilities; and c) a well functioning BHS system in which to integrate.

This article tries to assess to what extent these prerequisites have been met for leprosy control in Nepal. To do this, some results of an evaluation of the training are used as well as existing literature on the functioning of the BHS system.

The first three prerequisites are not fully met, but problems and obstacles related to these are mainly due to problems in the last prerequisite: a not so well functioning BHS system. It was, therefore, recommended to continue a (semi)vertical support system of leprosy control in those districts where the BHS is not so well developed.

STANIMIROVIC, Andrija; SKERLEV, Mihael; GACINA, Petar; BECK, Teodora; STIPIC, Tonci; BASTA-JUZBASIC, Aleksandra. Leprosy in Croatia in the twentieth century. *Leprosy Review*, v.66, n.4, p.307-3133, 1995.

Even today, leprosy is a relatively frequently occurring disease, especially in tropical regions of the world. From the eleventh to thirteenth century, leprosy pandemics affected Europe, including Croatia. Probably as a consequence of such history, one can still find endemic foci of leprosy in present-day Croatia.

The aim of this study was to analyse all cases of leprosy registered in Croatia during the twentieth century; therefore, we studied thoroughly existing medical documentation and published reports on sporadic leprosy cases, and went on to collect the relevant data through on-site investigation in those parts of Croatia known as putative endemic foci of leprosy. In this way, we collected data concerning the number of leprosy cases, the probable sources of infection, and traced the possible paths of spread of the disease.

During the twentieth century, 17 cases of leprosy were registered in Croatia. However, due to the loss of medical documentation concerning the cases from Metkovic, the total number was obviously slightly greater. Concerning the 17 analysed cases, 4 patients were most probably infected during their visits (as sailors or immigrant workers) to the Middle East, South America or Africa; 3 patients developed leprosy after prolonged close contact with previously infected family members, while the exact source of infection remains unsettled for the remaining 10. However, 2 of these patients originated from the area of Cazin in Bosnia and Herzegovina, which is known to be an endemic focus of leprosy. Furthermore, the remaining 8 came from the small area of the village of Blizna in the Croatian municipality of Trogir, and therefore it seems reasonable to conclude that Blizna represents the endemic focus of leprosy in Croatia. The last case of leprosy in Blizna was registered back in 1956. Nevertheless, it is clear that sporadic cases of leprosy can reappear in Croatia, originating either from this endemic focus of Blizna, or as an infected

person returning to Croatia from abroad. So, we can conclude that, even today, Croatian medical doctors (and especially dermatovenereologists) should still be acquainted with the clinical diagnosis of leprosy and basic principles of its treatment.

STYLLA, P.M. Etat de l'intégration de la lutte antiléprouse dans les services de santé généraux au Sénégal. *Acta Leprológica*, v.9, n.3, p.117-125, 1995.

L'enquête sur l'intégration de la lutte antiléprouse dans les services de santé généraux au Senegal a revele un niveau d'implantation de l'intégration variable salon les services offerts. Des points forts et des points faibles ont été déceles et il convient donc de consolider les acquis favorables et trouver de solutions aux problèmes.

- 82,10% des infirmiers chefs de poste concernes par l'enquêtes ont déjà eu à envoyer des suspects de lèpre au Spécialiste Lèpre pour confirmation.

- Dans 85,7% des cas, c'est l'Infirmier Chef de Poste qui donne la dose supervisée de la polychimiothérapie. La validité externe de cette etude pose problema, mais il n'en demeure pas moins que ses résultats pourraient permettre d'attirer l'attention des gestionnaires, des décideurs et des intervenants sur les problèmes qui pourraient constituer un frein à l'intégration de la lutte antiléprouse dans les services de santé généraux.

Mots clés: Lèpre - Integration - Polychimiothérapie - Lutte antiléprouse - Services de santé généraux.

CLÍNICA

AGNIHOTRI, N., GANGULY, N.K., KAUR, S., KHULLART, M., SHARMA, S.C., CHUGH, K.S. Role of reactive oxygen species in renal damage in experimental leprosy. *Leprosy Review*, v.66, n.3, p.201-209, 1995.

Renal involvement is known to occur in

leprosy. In the present study the possible role of reactive oxygen species (ROS) in causation of renal damage in mice infected with *Mycobacterium leprae* has been investigated. At least six animals from each group (control and infected) were killed at 0 day, 3, 6 and 9 months postinfection. The results showed a significant increase in the chemiluminescence (CL) response of peritoneal macrophages which was maximum between 3 and 6 months. No significant increase was observed in CL response of blood neutrophils. A significant increase in lipid peroxidation was observed at 3 and 6 months as evident by an increase in malondialdehyde levels. The increased ROS production might be the cause of lipid peroxidation. The renal damage is also evident by decrease in the activity of renal brush border membrane enzymes, namely, alkaline phosphatase, leucine aminopeptidase and γ -glutamyl transpeptidase. Thus ROS might play a role during early stages of *M. leprae* infection but in the later stages other immunological mechanisms may overpower the effect of ROS.

DESIKAN, P., PARKASH, O., NARANG, P. Role of antineural antibodies in perpetuation of a pre-existing peripheral nerve damage in leprosy. *Indian Journal of Leprosy*, v.67, n.3, p.293-300, 1995.

This study was carried out in order to find out whether antineural antibodies had a role to play in perpetuating pre-existing nerve damage in leprosy. Indirect ELISA was carried out on sera from 20 leprosy patients and five normal controls using antigen prepared from peripheral nerves of a cured bacteriologically negative leprosy patient. None of the patients had significant levels of IgG antibodies whereas eight of them (40%) had significant levels of IgM antibodies. However, there was no correlation with duration of disease, treatment received, nerve enlargement or active neuritis. The nature of these antibodies is discussed.

DESIKAN, Prabha; DESIKAN, Kotthapalle, V.
Persistence of lepromatous granuloma in

Clinically cured of Leprosy. *International Journal of Leprosy*, v.63, n.3, p.417-421, 1995.

Multibacillary (MB) leprosy patients are declared cured when they become bacteriologically negative and their lesions do not show any signs of clinical activity. Whether there is also a corresponding histological clearance of skin lesions is not known. The present study was carried out on the histopathology of the skin of 40 MB cases who were declared cured with multidrug (MDT). In 22 of them, small lepromatous granulomas were seen to persist, although acid-fast bacilli were not found in them. The presence of these granulomas was not found to have any significant association with the duration of the disease, length of treatment, or the period of cessation of therapy.

DHAR, Sandipan, KAUR, Inderjeet, DAWN, Goutam, SEHGAL, Shobha, KUMAR, Bhushan. Post-kala-azar dermal leishmaniasis mimicking leprosy: experience with 4 patients, with some unusual features in 1. *Leprosy Review*, v.66, n.3, p.250-256, 1995.

We report on 4 cases of post-kala-azar dermal leishmaniasis (PKDL). History of kala-azar was available in all 4 patients. Slit-skin smears (SSS) for *leishmania donovani* (LD) bodies were negative in all 4. In 3 patients hypopigmented lesions were present over the face. Papules and nodules over his lips, tongue, scrotum and dactylitis were some unusual features observed in 1 patient. Histopathological examination showed LD bodies in 2 patients; histopathology was nonspecific in the other 2. All the patients were treated with sodium stibogluconate, 20 mg/kg/day. Infiltrated papules and nodules had subsided by 3 months, while hypopigmented macules took longer to improve. In 3 patients there had previously been a misdiagnosis as leprosy sufferers and they had been treated with antileprosy drugs. Clinical and histopathological differences between PKDL and leprosy are discussed.

KATOCH, K., NATRAJAN, M., YADAV, V.S., BHATIA, A.S. Response of Leprosy patients with single lesions to MDT. *Acta Leprológica*, v.9, n.3, p.1333-137, 1995.

This study reports the clinical profile and therapeutic response of seventy-two mono-lesion leprosy cases. These 72 cases were among 578 paucibacillary (PB) cases classified according to WHO (1982) and were followed-up on multidrug therapy (MDT). Of these 72 mono-lesion cases, 46 (64%) were tuberculoid (TT) cases, 24 (33%) were Indeterminate (Ind) cases and 2(3%) were of borderline tuberculoid (BT) types. While 37.5% of these cases presented as macular patches, the remaining 62.5% had raised erythematous lesions. In majority of cases (94%), the lesions were present on the exposed parts like legs and feet, arms and hands, face whereas only 6% presented on covered areas of trunk and buttocks. These cases were treated with dapsone 100 mg daily for 12 months and rifampicin 600 mg once a month for 6 months. After 6 months of MDT, lesions in 81% of the patients regressed clinically and by one year of therapy 96% of cases had regressed. Treatment was stopped in all cases by one year of therapy. There were no relapse or late reaction in the 5 years of post treatment follow-up. The response of mono-lesion PB cases was better than the multi-lesions PB cases at 6 months and during the post treatment follow-up period.

KOLAPPAN, C., SELVARAJ, R., KHUDOOS, Abdul., GOWDA, B.N. Appe., DATTA, Manjula., PRABHAKAR, R. Repeatability of nerve thickness assessment in the clinical examination for leprosy. *Leprosy Review*, v.66, n.3, p.224-228, 1995.

The assessment of the thickness of the superficial peripheral nerve trunks to document nerve involvement is an important aspect of clinical examination in case finding for leprosy, and is usually done by trained paramedical workers (PMWs). This assessment is subject to variability and has implications on the outcome of the survey. The present study proposes to quantify this variability. In this study, 242 individuals, consisting

of 50 neuritic cases, 143 nonneuritic cases of leprosy and 49 normal controls, selected from the records of the trial of BCG prophylaxis in leprosy in South India, were examined by a doctor and paramedical workers. Repeatability of nerve thickness assessment for ulnar and popliteal nerves between the medical officer (MO) and the PMWs was quantified using Kappa statistics. The Kappa values for repeatability between the MO and the PMWs ranged from 0.45 to 0.54 and 0.52 to 0.69 for ulnar and popliteal nerves, respectively. The implications of the variability in nerve assessment are discussed.

RAMAKRISHNAN, Angaral G., SRINIVASAN, Thalyar M. Electrophysiological correlates of Hanseniasis. *International Journal of Leprosy*, v.63, n.3, p.395-408, 1995.

Sensory nerve action potentials (SNAPs) and compound nerve action potentials (CNAPs) were recorded from 25 normal subjects and 21 hanseniasis patients following electrical stimulation of the median nerve at the wrist. The various nerve conduction parameters from the affected nerves of the patients were compared with those from the clinically normal nerves of patients as well as data from healthy individuals. Analysis of the data and clinical correlation studies indicate the suitability of amplitudes of the SNAPs and CNAPs rather than the nerve conduction velocities in better characterizing the neuropathy of the patients. Significantly reduced amplitudes of responses from clinically unaffected nerves of patients indicate an early stage of neuropathy, thus being of predictive value. Further, a discriminant classifier, trained on data from clinically affected nerves of patients, classified most of the data from clinically unaffected nerves of patients as abnormal. This indicates that clinical neurophysiological studies can reveal leprosy neuropathy much before it becomes clinically evident by means of sensory or motor loss. A discriminant score involving only the parameters of motor threshold, amplitude of digit potential and palm nerve conduction velocity is able to classify almost all of the normal and abnormal responses. The authors hope that further confirmative studies might ultimately lead to the

use of the study of distal sensory conduction in the upper limbs in possible screening of a population exposed to Mycobacterium leprae. On the other hand, misclassification of a normal person occurred and suggests that further refinement of the methods is necessary in order to facilitate wider use of the methods under field conditions.

SONI, N.K. Leprosy of the eustachian tube (nasopharyngoscopic study). *Leprosy Review*, v.66, n.4, p.314-317, 1995.

The technique of nasopharyngoscopy affords an accurate assessment of the lesions at the orifices of the eustachian tube. It was performed in 30 patients suffering from lepromatous leprosy in order to determine the type, nature and site of the lesion. Involvement of the eustachian tube in leprosy may begin with a localized area of erythema progressing to granuloma formation or ulceration. Leprous lesion at the eustachian tube orifices was related with subsequent changes in the tympanogram pattern. Nasopharyngoscopy is also found to be of therapeutic value in removing the crust, discharge and granulations at the eustachian tube orifices.

EPIDEMIOLOGIA

AWOFESO, N. AIDS and Tuberculosis/Leprosy in Nigéria: the urbanisation factor. *Acta Leprológica*, v.9, n.3, p.149-151, 1995.

A study was conducted between February and June 1994 on the influence of urbanisation on the seroprevalence of human immunodeficiency virus (HIV) amongst tuberculosis (TB) and leprosy patients in the 4 Primary Health Care Zones in Nigeria. Results indicate that 71.4% of all smear positive TB patients and 75% of all multibacillary (MB) leprosy patients that are HIV seropositive in this study are resident in the urban areas.

This study emphasizes the need for careful sample selection in studies involving HIV and tuberculosis/leprosy, and for careful monitoring

of the HIV/leprosy interactions.

Key words: Leprosy - Tuberculosis - Human Immunodeficiency Virus - Urbanisation.

RAO, P.S., SUBRAMANIAN, M., PARKASH, Inder. Prospects for elimination of Leprosy in India by 2000 AD. *Indian Journal of Leprosy*, v.67, n.3, p.285-292, 1995.

Data regarding the trends of new-case detection rates of leprosy for India as a whole, for the State of Andhra Pradesh, and for Srikakulam district in Andhra Pradesh were generated and projected up to 2000 AD. The prevalence rate by 2000 AD was worked out based on these new-case detection rates. The projections show that at the current slowly declining trend of new-case detection, with 20% MB cases among the newly detected cases and the current mean duration of treatment, the elimination goal of leprosy by 2000 AD, could possibly be achieved at Srikakulam district level only, where the MDT project has been under implementation for over ten years, but not at the State or country levels. The achievement of elimination goal should be possible in other geographic units also if the duration of disease could be shortened to one month or less, for both paucibacillary and multibacillary types of leprosy.

IMUNOLOGIA

BAKOS, Lucio., LUCAS, Sebastian B. Immunohistochemical study of cutaneous neuritis in positive lepromin reactions. *Leprosy Review*, v.66, n.4, p.277-286.

Sixty skin biopsies taken from positive tuberculoid and borderline-tuberculoid late lepromin reaction were studied using histological techniques. The distribution of mycobacterial antigen and nerves was demonstrated using immunochemical methods.

A total of 557 nerve bundles was observed in 51 biopsies; 9 were devoid of nerves in the sections examined; 475 nerve bundles showed some relationship to the inflammatory

infiltrate (85%); perineuritis being seen in 144 (30%) and endoneuritis in 5 (0.9%).

Mycobacterial antigens inside the granuloma were detected in 59 of the 60 biopsies (98%). Only one specimen, showing strong tuberculoid reaction, failed to show these antigens. On the contrary, mycobacterial antigen was absent in almost all nerves. Small deposits were detected in the perineurium of one nerve with perineuritis, and inside a Schwann cell of another, the latter belonging to a previously multibacillary patient.

The neurotropic tendency of the granuloma does not seem to be stimulated by the presence of mycobacterial antigens inside the nerves, as normally these antigens do not penetrate them. The hypothesis of some antigenic fraction of the neural tissue which cross-reacts with *Mycobacterium leprae* antigens, thus eliciting a perineural or near-perineural inflammatory reaction is put forward, but needs further investigation.

PINHO, João R.R., CARDI, Bruno A., ANDRADE Jr., HeiterF., BARR, PhilipJ., BATHURST, Ian C., VICENTE, Elisabete J., SCHENBERG, Ana Clara G. Immunogenic properties of the *M. leprae* recombinant 18kDa antigen purified from *Saccharomyces cerevisiae*; Enhancement of Delayed-type Hypersensitivity after Gamma-Irradiation. *International Journal of Leprosy*, v.63, n.3, p.381-390, 1995.

In this paper we report the purification and study of the immunogenic properties of the *Mycobacterium leprae* 18-kDa protein antigen produced and secreted by the yeast *Saccharomyces cerevisiae*, using an expression system we recently described [Biotech. Lett. 16 (1994) 1241-1246]. The 18-kDa protein was purified from the yeast culture media by precipitation, ion exchange chromatography (MonoQ) and exclusion size chromatography (Sephacryl S-100). The biological properties of the recombinant protein, previously irradiated with gamma rays, were assayed by immunization of mice. Humoral and cellular responses, monitored by antibody production and delayed-type

hypersensitivity, respectively, were obtained. Furthermore, gamma-irradiation of the recombinant protein prior to the administration was shown to significantly potentiate the T-cell response. The data suggest that this irradiated recombinant antigen could be used in a more sensitive standardized skin test to monitor *M. leprae* infection.

THOLE, Jelle E.R., JANSON, Anneke A.M., KIFLE, Alemayul., HOWE, Rawleigh C., McLEAN, Kimberly., NURILYGN, Ayenew., FILLEY, Elaine., SHANNON, Edward J., BULLA, G. Jaffero., HERMMANS, Jo., VRIES, Rene R.P. de., FROMMEL, Dominique., WIT, Tobias F. Rinke de. Analysis of T-Cell responses to recombinant *M. Leprae* antigens in leprosy patients and in healthy contacts: Significant T-Cell responses to antigens in *M. leprae* nonresponders. *International Journal of Leprosy*, v.63, n.3, p.369-380, 1995.

The recognition of a panel of recombinant *Mycobacterium leprae* antigens by T cells and B cells from 29 borderline tuberculoid/tuberculoid (BT/TT) and 18 lepromatous leprosy (LL) patients and from 21 healthy controls (HC) in leprosy-endemic regions of Ethiopia was examined. All 11 antigenic molecules tested (including *M. leprae* hsp10, hsp18, hsp65 and several novel *M. leprae* antigens) were shown to be recognized by T cells, but clear quantitative differences existed between reactivities induced by individual antigens. Similar quantitative differences were observed when antibody responses to hsp10 and hsp65 antigens were determined. No associations were found between the antigen-specific responses and the subject status of either BT/TT and LL patients or HC. Fifteen percent of the patients who were nonresponsive to sonicates of *M. leprae* showed significant T-cell responses to one or more individual *M. leprae* antigens. This indicates that *M. leprae* constituents other than the proteins tested are responsible for the *M. leprae*-specific nonresponsiveness in these patients, which may be exploited for the design of vaccines or

M. leprae-specific immunity in nonresponders.

MICROBIOLOGIA

DESIKAN, K.V., SREEVATSA. Extended studies on the viability of *Mycobacterium leprae* outside the human body. *Leprosy Review*, v.66, n.4, p.287-295, 1995.

Very little is known in leprosy regarding the transmission of the infection from the source to the susceptible host. One of the important factors which governs the transmission of the disease is the viability of *Mycobacterium leprae* outside the human body. In this study *M. leprae* obtained from untreated patients have been subjected to several adverse conditions. Their viability was verified by their multiplication in the footpads of normal mice. After drying in the shade the organisms were viable up to 5 months. On wet soil, they remained alive for 46 days. Kept in saline at room temperature, the organisms lived for 60 days. Surprisingly on exposure to direct sunlight for 3 hours a day the bacteria survived for 7 days. On refrigeration at 4°C, the bacteria could be preserved for 60 days. On the other hand, keeping at - 70°C, the bacteria could be maintained in a living condition for only 28 days. On exposure to antiseptics like Savlon (R) and alcohol, the bacteria were rapidly killed. These results indicate the survival outside the human body of *M. leprae* under different environmental conditions in India where the disease is endemic. Transmission of infection by indirect contact and occurrence of new cases in the absences of any known source, are consistent with *M. leprae* being viable outside the human body for varying periods of time. The findings could also be pointers to understand the epidemiology of leprosy.

SAAD, M.H.F., GORMUS, B.J., CHO, Sang-Nae., BERNHEIMER, H., SCHWERER, B. Detection of IgA anti-PGL-I specific antigen to *Mycobacterium leprae* in mangabey monkeys inoculated with *M. leprae*. *Leprosy Review*, v.66, n.4, p.296-306, 1995.

Using sera from 4 pairs of mangabey monkeys inoculated with titrated doses of *Mycobacterium leprae* we demonstrated that IgA antibodies against *M. leprae* specific PGL-I antigen were present in 75% of inoculated monkeys' sera. High IgA antibody was detected in 50% (3/6) of infected animals and all three developed lepromatous leprosy (LL). Antibody titers correlated with PGL-1 antigen in serum. The highest IgA peak appeared late and corresponded to the beginning of treatment, and in two of them appeared shortly after or corresponded with neurological damage. Low IgA response was found in the other 3 monkeys (50% - 3/6), two of which developed indeterminate leprosy (I) and the other one LL. Low IgA levels appeared late after IgG and IgM, and shortly after neurologic signs. Both I monkeys were negative for PGL-I in serum. The remaining 2 monkeys (25% - 2/8) did not show an IgA response; one of them developed LL but the disease regressed to I. IgM seemed to correspond to the appearance of PGL-I in serum. The other animal did not develop clinical symptoms of leprosy, and PGL-I in serum was negative.

Although there was no clear relation between the development of anti-PGL-I IgA and experimental leprosy, the finding of a high IgA response in some animals suggests that further studies are needed to evaluate the role of antigen-specific IgA in the disease process.

SHARMA, R.K., KATOCH, K., SHARMA, V.D., SHIVANAVAR, C.T., NATARAJAN, M., KATOCH, V.M. Isolation and characterization of cultivable mycobacterial from leprosy skin. *Indian Journal of Leprosy*, v.67, n.3, p.321-328, 1995.

Attempts were made to isolate cultivable mycobacteria from 129 biopsies/slit-skin scrapings from the skin of leprosy patients (73 multibacillary - BB/BULL and 56 paucibacillary - TT/BT/I) as well as 50 healthy controls. Among the 19 isolates obtained, 17 were from specimens from leprosy cases whereas two were from healthy controls. 14 of 17 isolates were from multibacillary cases and three were from paucibacillary patients. The mycobacteria isolated were: *M. scrofulaceum*

(4=all LL cases); *M. avium* (3=2 from LL cases and 1 from healthy control); *M. avium*-intracellular complex (1 LL); *M. gordonae* (2=1 from BT and BB each); *M. flavescens* (1 BL); *M. smegmatis* (2=both LL); *M. phlei* (4=1 LL, 1 BL, 1 BT and 1 healthy control); *M. fortuitum* (1 BL); and *M. chelonae* (1 BT relapse). The results of this study suggest a preferential colonization of skin of lepromatous leprosy cases by *M. scrofulaceum* and *M. avium*. As such isolates have been reported by the investigators from other parts of the world, independent confirmation of such trends in Indian patients is significant and casual relationship (if any) between such colonization and development of lepromatous disease merits further investigation.

SHARMA, R.K., KATOCH, K., SHARMA, V.D., SHIVANAVAR, C.T., NATARAJAN, M., KATOCH, V.M. Studies on microbial aerobic flora of skin in leprosy patients. *Indian Journal of Leprosy*, v.67, n.3, p.309-320, 1995.

This study reports the isolation and identification of aerobic organisms from biopsies/slit-skin smears/scrapings from 129 leprosy patients and 50 healthy controls. These include 56 paucibacillary (PB) and 73 multibacillary (MB) cases. Thirty-six isolates from the specimens from 21 patients and 15 healthy controls were grown. The non-mycobacterial isolates from clinically PB leprosy (TT/BT/I) patients were: (a) Gram-positive cocci: *Staphylococcus aureus*(1), *Staphylococcus albus*(1); (b) Gram-positive bacilli: *Bacillus subtilis*(1), *Corynebacterium xerosis*(1); (c) Gram-negative bacilli: *Escherichia coli*(1), *Proteus mirabilis*(2), *Klebsiella pneumoniae*(1) and *Pseudomonas aeruginosa*(1). The isolates from clinically MB leprosy (BB/BULL) patients were: (a) Gram-positive cocci: Micrococci(1), *Staphylococcus aureus*(1) and *Staphylococcus albus*(1); (b) Gram-positive bacilli: *Corynebacterium xerosis*(1), *Corynebacterium hofmanni*(1) and *Bacillus cereus*(1); (c) Gram-negative bacilli: *Escherichia coli*(2), *Klebsiella pneumoniae*(1) and *Proteus mirabilis*(2). The specimens from healthy controls yielded similar organisms. These were (a) Gram-positive cocci: *Staphylococcus albus*(2), *Staphylococcus aureus*(2) and Micrococci(2); (b)

Gram-positive bacilli: *Corynebacterium xerosis*(1), *Bacillus subtilis*(2), *Corynebacterium hofmanni*(1) and *Bacillus cereus*(1); (c) Gram-negative bacilli: *Escherichia coli*(3), *Proteus vulgaris*(1) and *Proteus mirabilis*(1). While these results show no significant differences in the species types of non-mycobacterial aerobic organisms isolated from healthy skin and PB/MB types of leprosy, these isolates need to be characterized by immunological/molecular methods to find out subtypes if any.

REABILITAÇÃO

COURTRIGHT, Paul., LEWALLEN, Susan. Current concepts in the surgical management of lagophthalmos in leprosy. *Leprosy Review*, v.66, n.3, p.220-223, 1995.

Existing data suggest that, at a minimum, 2% of paucibacillary patients and 5% of multibacillary patients have lagophthalmos; at least 290,00 people worldwide have leprosy-related lagophthalmos. Surgical intervention is the only method for correcting lagophthalmos; effectiveness of the different procedures commonly used has not been measured. Results from a survey of eye care providers revealed that surgeons in Asia used a wide range of different techniques for the correction of lagophthalmos while almost all of the surgeons in Africa used tarsorrhaphy. There is a need to evaluate surgical outcome of these techniques and to develop guidelines to assist in increasing the number of surgeries for lagophthalmos in leprosy patients.

KOPPARTY, S.N.M. Problems, acceptance and social inequality: a study of the deformed leprosy patients and their families. *Leprosy Review*, v.66, n.3, p.239-249, 1995.

Though the impact of social inequality on health conditions is widely known, its impact on the chronic and stigmatized disease, leprosy, has received little attention. Deformity sometimes leads to disabilities and to handicaps causing problems

to the patient and his family. In this paper an attempt has been made to understand the impact of social inequality, prevalent in the form of the caste system in India on the deformed leprosy patients and on their families. This impact was examined in terms of the problems faced by the patients. A sample of 150 deformed patients and their families, drawn from two districts in Tamil Nadu, was selected for the study.

About 57% of the deformed patients experienced their deformity as a handicap which caused social and economic problems while the rest did not. Of the three caste groups, the Lower Caste group experienced more severe economic problems while the Upper Caste group faced more social problems. The extent of acceptance of deformed patients in their family varied significantly among those facing and not facing problems due to their deformity. The deformed patients without any handicap were accepted in a large majority of their families (82%) regardless of their caste status. In contrast the deformed but handicapped patients were accepted differentially among the three caste groups with the Upper group accepting them in most of their families (80%) while in the Lower group much less number of families (54%) did. All the families of the deformed but not handicapped patients desired to keep their patients till their death irrespective of their caste status. On the contrary, while all the families in the Upper Caste group expressed their willingness to keep their handicapped patients in the family till their death, 10% in the Middle and 22% in the Lower Caste groups did not want to do so. This suggests the gradual marginalization, rejection and debilitation of the affected. Thus, one's caste status can be a broad indicator of the nature and the extent of handicaps and acceptance in the family. This factor needs to be appropriately taken care of for rehabilitation and disability management in leprosy control programmes.

SOARES, D., DESAR, N. Hand wounds in leprosy patients. *Leprosy Review*, v.66, n.3, p.235-238, 1995.

This study assessed the causes, duration and site of hand wounds seen among patients in

order to try and improve the delivery of self-care teaching to patients with anaesthetic hands. Seventy-seven patients with 102 affected hand surfaces were assessed. The commonest cause was a burn from a tea glass. The average duration of the wound was 2 weeks. Most patients had a single current wound and 62% of wounds were on the palmar surface.

SOARES, D. Tibialis posterior transfer in the correction of footdrop due to leprosy *Leprosy Review*, v.66, n.3, p.229-234, 1995.

In the correction of footdrop due to leprosy neuritis the tibialis posterior muscle is re-routed and used to provide dorsiflexion of the foot. This study of tibialis posterior transfer was carried out to compare the results of the circumtibial and interosseous routes. There is no significant difference in the range of motion between either route though the range of the interosseous route is more functional (better dorsiflexion). The interosseous route is preferable as this results in a significantly lower incidence of recurrent inversion deformity of the foot at long-term follow-up when compared with the circumtibial route.

TURKOF, Edwin., TAMBWEKAR, Suresh., MANSUKHANI, Khushnuma., MILESI, Hanno., MAYR, Norbert. Intraoperative electroneurodiagnostics to detect a second Granuloma in the cubital Area of median nerves affected by leprosy: a new approach to prevent incomplete surgery. *International Journal of Leprosy*, v.63, n.3, p.409-416, 1995.

A recent work reports on the necessity to localize the most proximal site of leprosy ulnar neuritis with intraoperative electroneurodiagnostics. In the present study we wanted to verify the applicability of this method on leprosy median nerves. In six patients, seven median nerves were exposed at the wrist, all showing a typical leprosy granuloma there. Spinal roots C5 to Th1 were then stimulated intraoperatively, evoking efferent mixed nerve compound action

potentials (NCAPs) which were registered from the nerve's surface. No recordings could be obtained on the granuloma in all patients, neither distally nor shortly proximal from it, nor even further central at the forearm's proximal third where the median nerve exits the cubital area. Prior to dissecting the nerves in this precarious region, they were exposed at the arm's distal third, looking inconspicuous in all cases. Recordings could finally be obtained there, and subsequent exposure further proximal showed no increase in amplitude of the NCAPs, but there was a sharp decrease distally. In all cases, subsequent dissection of the cubital area revealed a second leprous granuloma extending variably from the distal third of the arm to the two heads of the pronator teres muscle, requiring microsurgical release. Intraoperative spinal root stimulation is an effective method to detect a second leprous granuloma and to avoid incomplete surgery in median nerves affected by leprosy.

TERAPÉUTICA

COURTRIGHT, Paul., LEWALLEN, Susan., LI, Huan-Fang., YANG, Jian-We Lagophthalmos in a multibacillary population under multidrug therapy in the People's Republic of China. *Leprosy Review*, v.66, n.3, p.214-219. 1995.

Lagophthalmos may be the most common potentially blinding ocular condition in leprosy. The magnitude of the problem among multibacillary patients has not been determined. We sought to ascertain the magnitude of lagophthalmos in a multibacillary leprosy patient population under multidrug therapy (MDT) (both newly diagnosed and with a prior history of dapsone monotherapy) in China and assess factors associated with its presence. In a survey of 640 multibacillary patients 3.8% of the newly diagnosed patients and 10.2% of the patients with prior dapsone monotherapy had lagophthalmos. Corneal disease and vision loss were common in both groups. Poor compliance with MDT, duration between onset and diagnosis, and duration on

dapsone monotherapy were associated with the presence of lagophthalmos.

Our findings suggest that there may be a threshold at which MDT must be maintained to prevent lagophthalmos. Early leprosy diagnosis and treatment would also lessen the incidence of lagophthalmos in these patients. The high proportion of lagophthalmos patients with corneal disease suggests that there has been inadequate eye care for these patients.

HORTALEZA, MA. Aurora R., SALTA-RAMOS, Noemi G., BARCELONA-TAN, Jerusa., ABAD-VENIDA, Luisa. Dapsone Syndrome in a Filipino Man. *Leprosy Review*, v.66, n.4, p.307-313, 1995.

A case of dapsone syndrome occurring in a Filipino man under treatment for multibacillary (MB) leprosy is described. The patient manifested progressive fever, erythroderma and jaundice 4 weeks after initiation of multidrug therapy (MDT) with rifampicin, clofazimine and dapsone. The clinical symptoms conformed well to the dapsone syndrome first described in the 1950s and this report proves that the syndrome does still exist. There was recovery after dapsone was omitted and therapy with systemic corticosteroids was started.

In view of this potentially fatal hypersensitivity reaction, this case report emphasizes the need for caution when initiating MDT or dapsone therapy. It is also suggested that any patient on MDT or dapsone needs to be referred immediately to a dermatologist or internist if the patient develops a skin rash during the first 2 months of treatment.

KISHORE, B. Nanda. SHETTY, J.N. Bacterial clearance with WHO-recommended multidrug regimen for multibacillary leprosy. *Indian Journal of Leprosy*, v.67, n.3, p.301-308, 1995.

Sixty multibacillary leprosy patients with an average initial bacteriological index (BI) of 2.5 were followed up after they had completed the

WHO - recommended multidrug therapy regularly till attaining bacteriological negativity. The minimum duration of treatment was two years as stipulated by WHO and the maximum duration for reaching negativity was seven years (mean 4.25 years). The minimum time for the attainment of bacteriological negativity was one year and the maximum was 6.75 years (mean 3.75 years). The higher the initial BI the longer was the time taken for the attainment of bacteriological negativity. The average fall of BI per year was 0.67. Dapsone monotherapy received before the commencement of MDT, prednisolone received during therapy and the type of leprosy did not have any effect on the time taken for bacteriological clearance. There was no relapse during the period of observation (mean 2.83 years). The site to attain negativity last was the ear lobe, in 95% of the cases.

MANE, I., GRAUWIN, M.-Y., CARTEL, J.-L.

Fréquence d'apparition de maux perforants plantaires chez des malades hanseniens en fonction du traitement par disulone seule ou polychimiothérapie. *Acta Leprológica*, v.9, n.3, p.127-131, 1995.

Dans 5 départements du Sénégal, 436 malades ont été dépistés entre 1986 et 1989, dont 225 ont été mis sous disulone et 211 sous polychimiothérapie. Pour la présente étude, on en a retenu 190 qui avaient bénéficié, au dépistage puis annuellement pendant 2 ans après la mise en traitement, d'un examen bactériologique et d'un examen clinique comportant un bilan neurologique. Au cours des 2 années de suivi, 10 maux perforants plantaires (MP P) sont apparus (5,3%) dont 4 (4%) chez les 99 malades sous disulone et 6 (6,6%) chez les 91 malades sous polychimiothérapie (pas de différence significative). Des 10 MPP, 3 (2%) sont apparus parmi les 149 malades indemnes de toute invalidité au dépistage et 7 (17%) chez les 41 autres, porteurs d'une invalidité de grade 1 ($p < 0,01$). Des 6 MPP apparus chez les malades sous polychimiothérapie, 5 (22%) ont été observés chez les 23 malades porteurs d'une invalidité de grade 1 et 1 (1,5%) seulement chez les 68 qui en étaient indemnes au dépistage ($p < 0,01$); cette différence n'a pas été retrouvée

chez les malades sous disulone. Ces résultats demandent à être confirmés par une étude portant sur un nombre de malades plus important suivis plus longtemps. Cependant, ils suggèrent que la polychimiothérapie pourrait réduire la fréquence d'apparition des MPP chez les malades, mais seulement s'ils sont indemnes de toute invalidité au dépistage. De ce fait, ils soulignent l'importance que conserve le dépistage précoce de la maladie dans un programme de lutte.

Most clés: Lèpre - Mal perforant plantaire - Disulone - Polychimiothérapie.

SAVE, M.P., SHETTY, V.P., ANTIA, N.H.

Intracellular localization of dapsone and rifampicin in skin and nerve of multidrug treated leprosy patients. *Indian Journal of leprosy*, v.67, n.3, p.273-284, 1995.

Intracellular localization of antileprosy drugs dapsone (DDS) and rifampicin (RFP) was carried out on skin and nerve lesions obtained from multidrug treated, multi (BL-LL) - and pauci (BT-TT) bacillary cases of leprosy using immunocytochemical techniques.

Intracellular localization of the above drugs especially in macrophages and Schwann cells was aimed by using rabbit raised anti DDS and RFP polyclonal antibody in an indirect peroxidase assay.

Our study records both intra and extracellular staining with anti DDS and RFP antibodies in the skin as well as nerve lesions of MB and PB cases treated with MDT. All the nerves under investigation had moderate to severe pathology and hence free diffusion of the drug could be attributed to the broken barrier. Basal lamina around the Schwann cell did not seem to form a barrier. It was also noted that the drug (metabolite) persisted over a long period of time.

SOARES, D.J., NEUPANE, K., BRITTON, W.J.

Relapse with multibacillary leprosy caused by rifampicin sensitive organisms following paucibacillary multidrug therapy. *Leprosy Review*, v.66, n.3. p.210-213. 1995.

Many leprosy patients treated with multidrug therapy (MDT) had previously received dapsone (DDS) monotherapy for many years. We report here 2 such patients treated with modified paucibacillary MDT composed of rifampicin and DDS who subsequently relapsed with multibacillary leprosy 5 and 6 years after release from treatment. Isolates of *Mycobacterium leprae* from both patients were resistant to DDS but sensitive to rifampicin, suggesting that the relapses were caused by rifampicin sensitive 'persistes' organisms. The implications of this for surveillance of patients released from treatment (RFT) and the management of relapsed patients is discussed.

THOMAS, Aleyamma., HARI, Lalitha., NAGARAJAN, Muthiyalusamy., PRA-BHAKAR, Ramachandra. Relapses During Long-Term Follow Up with Drug-Susceptible *M. leprae* Among Multibacillary Leprosy patients treated with(Multidrug therapy regimens; case reports. *International Journal of Leprosy*, v.63, n.3, p.391-394, 1995.

A controlled clinical trial in highly bacilliferous multibacillary leprosy patients was initiated in 1977. We report here two cases of relapse during long-term follow up of patients 15 years after the start of treatment. The patients reported here were treated with rifampin, isoniazid, clofazimine and dapsone for the first 3 months followed by clofazimine and dapsone until 84 months in one case; the other case received the same treatment but had received dapsone alone for 60-84 months. The relapses occurred 61/2 and 71/2 years after therapy was discontinued.

TIENDREBEOGO, A., BLANC, L., SYLLA, P.M. La polychimiothérapie antiléprouse dans les Etats membres de l'OCCGE: une décennie de mise en œuvre (1983-1993). *Acta Leprológica*, v.9, n.3, p.139-147, 1995.

La polychimiothérapie (PCT), recommandée par l'Organisation Mondiale de la Santé (OMS) en 1981 pour le traitement de la

lèpre, a été introduite et mise en œuvre dans les 8 Etats membres de [l'Organisation de Coopération et de Coopération pour la lutte contre les Grandes Endémies en Afrique de l'Ouest (OCCGE).

Cette mise en œuvre peut être décomposée en deux étapes qui couvrent la période 1983-1993:

- 1983 à 1987: phase d'introduction par des projets pilotes;

- 1988 à 1993: phase d'extension par des Programmes Nationaux Lèpre.

Au cours de cette décennie, la couverture PCT a atteint 68%, la prévalence des cas de lèpre enregistrés a considérablement diminué (de 40,71 à 6,56%..) tandis que le taux de détection annuel a relativement peu varié (de 1,89 à 1,26%..). Les facteurs influençant cette évolution de l'endémie lèpreuse sont envisagés et des recommandations sont formulées pour les stratégies à développer en vue de poursuivre la lutte antiléprouse jusqu'à un 2000.

Mots clés: Lèpre OCCGE - Polychimiothérapie (PCT) - Prévalence - Détection.

VIJAYAKUMARAN, P., MANIMOZHI, N., JESUDASAN, K. Incidence of "Chance" smear positivity among MB leprosy patients after MDT. *Indian Journal of Leprosy*, v.67, n.3, p.249-258, 1995.

Multidrug therapy (MDT) was introduced in 1982. Nine hundred eighty multibacillary (MB) leprosy patients had successfully completed the MDT administered for a minimum of two years or till skin smear negativity, whichever was later, as recommended by the World Health Organisation (WHO). During surveillance, 22.24% of them revealed presence of acid-fast bacilli (AFB) in the skin smear. They did not have any clinical evidence suggestive of relapse. Subsequent follow up (without antileprosy chemotherapy) for periods ranging from one to eight years was uneventful. We have called this as "chance smear positivity" where a few bacilli, yet to be cleared by the immune system, were picked up by routine skin smear examination.