LITERATURA CORRENTE
CURRENT LITERATURE

ASPECTOS SÓCIO-ECONÔMICOS E PSICOSSOCIAIS E CONTROLE

KAUR, H.; VAN BRAKEL, W. Dehabilitation of leprosy-affected people—a study on leprosy-affected beggars. *Leprosy Rev*., v.73, n.4, p.346-55, Dec.,2002.

Leprosy is one of the most socially stigmatized diseases known today. Social stigma is associated mainly due to the prevalent myths like its hereditary and contagious nature, divine curse along with the physical deformities caused. The affected people not only face physical impairments but also suffer psychosocial repercussions due to the community's attitude. The long-term physical and psychosocial restrictions slowly push the leprosy-affected person out of the society. With lack of social support and self-confidence, some dehabilitated leprosy-affected persons end up as beggars. The present study focuses on the long-term consequences of leprosy. It is based on case studies of leprosy-affected beggars in Delhi. The process of dehabilitation in each case has been studied. It has been found that dehabilitation is a continuous process. The combination of leprosy, physical impairments and social stigma causing further participation restriction, lead to dehabilitation of people affected by leprosy, and ending in a state of beggary for some. There is a need to develop a holistic approach including both prevention of dehabilitation and rehabilitation of those dehabilitated to overcome both the disease and its consequences. Measures to prevent such dehabilitation in future along with the rehabilitation of leprosy-affected beggars have been suggested. Both these measures should take place simultaneously.

KAUR, H.; VAN BRAKEL, W. Is beggary a chosen profession among people living in a 'leprosy colony'? *Leprosy Rev*., v.73, n.4, p.334-45, Dec., 2002.

Leprosy is a highly stigmatized disease that apart from the physical ailments and the deformities causes psycho-socio-economic problems to the people affected. As a result of social rejection, leprosy colonies were formed inhabited by the leprosy-affected families. With inadequate socioeconomic support and help, these people often have resorted to beggary as a way to earn their living. This study is an attempt to look into the lives of the leprosy-affected people living in the leprosy colony in Ambala City, Haryana, north-west State of India and who have accepted beggary as their source of income. The psychosocial impact of leprosy and the subjects' attitude towards beggary has been studied. The study comprised 21 families, including, 22 men, 21 women and 40 children. Seventy-one percent of the families came from Southern India. All the men and nine of the women were leprosy-affected. The proportion of people with deformity was 89%. Prior to contracting leprosy, all of the men were employed, mainly in agriculture and physical labour. At present, all are beggars. Of the 20 who were interviewed, 65% of those who beg and 83% of other adults were illiterate. Fifty percent of the children were in need of education. Due to leprosy, the social interaction of 85% of the interviewees was limited to within the colony and of 88% to only other leprosy-affected people. Through their own organized efforts, they raised welfare services and housing for themselves. None of them liked begging to start with but have accepted it as a source of income. If given a chance and support, 80% said they were ready to quit begging. They were concerned about the education of their children. The study highlighted the need to develop alternate avenues of income generation utilizing the existing desires and potential of the inhabitants.

WONG, M.L. Can social marketing be applied to leprosy programmes? *Leprosy Rev*., v.73, n.4, p.308-18, Dec., 2002.

The implementation of multidrug therapy (MDT) has been highly effective in curing patients and reducing leprosy prevalence. In some countries, however, a significant number of cases remain undetected or are detected late. Although compliance with drug therapy is generally good, a significant proportion still defaults treatment in countries where the leprosy burden is still high. This paper proposes that leprosy control or elimination efforts might be enhanced by the application of social marketing principles. It first outlines the principles of social marketing and then reviews a successful social marketing campaign in Sri Lanka to increase case detection and treatment. The paper concludes with a discussion of the opportunities for using social marketing principles to enhance the success of current leprosy community heath education programmes and leprosy treatment services.

BIOLOGIA MOLECULAR

GUERRERO, M.I.; ARIAS, M.T.; GARCÉS, M.T.; LEÓN, C.I. [Developing and using a PCR test to detect subclinical *Mycobacterium leprae* infection] Desarrollo y aplicación de una prueba de RCP para detectar la infección subclínica por *Mycobacterium leprae*. *Rev. Panam. Salud Publica,* v.11, n.4,

p.228-34, Apr., 2002.

OBJECTIVE: While the prevalence of leprosy has declined around the world, there has not been a corresponding decrease in its incidence, thus indicating that it has not been possible to prevent transmission of the disease. Despite the small number of patients with lepromatous leprosy, the majority of the inhabitants of endemic areas show signs of exposure to *Mycobacterium leprae*, which could be explained by the presence of subclinical bacilliferous infections in the community. The objective of this study was to investigate the use of a polymerase chain reaction (PCR) test to detect M. leprae in samples of nasal mucus from asymptomatic household contacts of patients with leprosy. METHODS: We standardized and optimized a PCR technique to amplify a 321 base pair DNA fragment, using a pair of primers complementary to a segment of an LSR/A15 gene that codes for the 15 kDa M. leprae antigen. We investigated the optimal concentrations of all the test components. We used dimethyl sulfoxide (DMSO) to achieve a more specific amplification. We applied the PCR test to 70 healthy household contacts of leprosy patients from eight municipalities in Colombia where there was a high prevalence of the disease. RESULTS: The test's detection limit was 100 fg of DNA. With the optimized technique, bacillus was detected in the nasal mucus samples of 9 (12.8%) of the 70 household contacts. The 3 PCR-positive household contacts of paucibacillary cases were from municipalities with very high prevalence levels. In comparison to contacts who were PCR-negative, the contacts who were PCR-positive had spent significantly less time, as a proportion of their age, living with a patient (P = 0.028). This finding demonstrates the test's capacity for early detection. CONCLUSIONS: The PCR test that we developed is useful as a tool for detection and early follow-up of possible leprosy cases. It can be used to monitor high-risk populations and also to maintain the achievements of leprosy elimination programs in countries where the disease's prevalence has been significantly reduced.

CLÍNICA

ACHENBACH, R.; JORGE, M.; SCHROH, R.G.; LITURRI, M.; CORBELLA, M.C. Anetodermia secundaria a una lepra tuberculoide polar / Secondary anetodermia due to Polar Tuberculoid Leprosy. *Arch. argent. Dermatol.,* v.52, n.1, p.27-30, ene-feb. 2002.

Una mujer de 45 años tratada por una lepra tuberculoide polar hace 7 años en Paraguay, presentó en cara anterior de brazo izquierdo una típica lesión de anetodermia de 7 x 5 cm con hipoestesia residual. La coloración para fibras elásticas mostró disminución o ausencia de las mismas. La asociación de anetodermia es muy frecuente en casos residuales de lepra lepromatosa polar o subpolar, siendo extremadamente infrecuente en los de lepra tuberculoide. No hemos hallado ésta concomitancia en la bibliografía consultada.

DANIEL, E.; KOSHY, S.; RAO, G.S.; RAO, P.S. Ocular complications in newly diagnosed borderline lepromatous and lepromatous leprosy patients: baseline profile of the Indian cohort. *Brit. J. Ophthalmol.,* v.86, n.12, p.1336-40, Dec., 2002.

Aim: To describe ocular manifestations in newly diagnosed borderline lepromatous (BL) and lepromatous leprosy (LL) patients in India. METHODS: Ocular complications, at enrolment, occurring in all new borderline lepromatous and lepromatous leprosy patients detected by active case finding within the geographically defined leprosy endemic area of the Gudiyattam Taluk in India from 1991 to 1997 who consented to ocular examinations every 6 months, during and 5 years after treatment with multidrug therapy (MDT), were studied. RESULTS: Orbicularis oculi weakness (4.62%), lagophthalmos (4.20%), ectropion (0.42%), trichiasis (0.84%), blocked nasolacrimal ducts (1.68%), pterygium (11.34%), impaired corneal sensation (53%), corneal opacity (10.5%), corneal nerve beading (1.68%), punctate keratitis (1.26%), keratic precipitates (4.62%), iris atrophy (1.68%), and cataract (12.6%) were ocular complications seen in the 301 lepromatous patients at enrolment. 4.6% had blind eyes. Increasing age was associated with ocular complications. 80% of patients were skin smear acid fast bacilli (AFB) positive. The LL/BL ratio was 1:6.4. 71% had some limb deformity. 44% had only leprosy related ocular complications (LROC), 28% had only general ocular complications (GOC) while 14% had both LROC and GOC. Ocular complications were significantly related to leg deformities. Corneal nerve beading was seen most in LL patients (100%) having high bacterial content. Lagophthalmos and muscle weakness were associated with reversal reactions. CONCLUSIONS: Corneal nerve beading occurs in LL patients with high bacillary count. Patients with reversal reaction are more likely to present with orbicularis oculi weakness and lagophthalmos. Leprosy related ocular complications and general ocular complications are significant problems in newly diagnosed lepromatous patients. Elderly, deformed, skin smear positive, lepromatous patients are associated with increased ocular morbidity and form a group that require acceptable and accessible eye care.

DAVIS, S.V.; SHENOI, S.D.; BALACHANDRAN, C.; PAI, S.B. A fatal case of erythema necroticans. *Indian J. Leprosy,* v.74, n.2, p.145-9, Apr-Jun., 2002

Erythema nodosum leprosum (ENL) classically presents as tender, erythematous nodules over the face, arms and legs. Severe ENL can become vesicular or bullous and break-down and is termed erythema necroticans (Jopling & McDougall, 1996) and is treated with corticosteroids. The causes of death

in a majority of leprosy patients are the same as in the general population, with the exception of renal damage in lepromatous leprosy. There is possible increased mortality from side-effects of antileprosy drugs, steroids, or other drugs used in reactions, from toxaemia in severe reactions, and from asphyxia due to glottic oedema (Jopling & McDougall, 1996). We report here a case of erythema necroticans, the cause of death being septicaemia, secondary to skin ulcers and urinary tract infection, precipitated by corticosteroids.

GHORPADE, A. Inoculation (tattoo) leprosy: a report of 31 cases. *J. Eur. Acad. Dermatol. Venereol.*, v.16, n.5, p.494-9, Sep., 2002.

Thirty-one female patients with leprosy lesions starting over tattoo marks observed over a period of 16 years are reported. All the patients belonged to the Chhattisgarh State, which is highly endemic for leprosy. Most of the patients were in the third decade of life. All of them had ornamental tattooing done by roadside tattoo artists, who used unsterile needles for tattooing a large gathering one after another with the same needles. In all of them, the first lesion of leprosy started over a tattoo mark. Twenty-five cases had only single lesion of leprosy exclusively confined to tattoo marks. The duration between tattooing and appearance of first lesion in most of the cases varied from 10 to 20 years. Paucibacillary leprosy was the commonest type observed in 29 cases, while two had multibacillary leprosy. The diagnosis was confirmed by histopathology in all cases. The present report supports the hypothesis of transmission of leprosy in these cases through tattooing. To the best of our knowledge, such a large collection of leprosy cases subsequent to tattooing has not been reported so far.

KHAN, T.; AWAN, A.A.; KAZMI, H.S.; SHAH, A.A.; MUHAMMAD, S.; MUHAMMAD, S. Frequency of ocular complications of leprosy in institutionalized patients in NWFP Pakistan. *J. Ayub. Med. Coll. Abbottabad.*, v.14, n.4, p.29-33, Oct-Dec., 2002.

There is no systemic disease, which so frequently gives rise to disorders of the eye as leprosy does. The study was conducted to determine the prevalence and gravity of ocular complications in institutionalized leprosy patients in NWFP. It is important to provide necessary information to leprosy health workers and general physicians in order to sensitize them to early detection and treatment or referral to appropriate centre. METHODS: A prospective study of ocular complications of leprosy patients was conducted at the leprosy centre of Lady Reading Hospital Peshawar and the Leprosy Hospital Balakot, district Mansehra. The study included a record of the name, age, sex, type, duration of disease and completion of multi-drug therapy (MDT). Classification of the patients was done according to Ridley and Jopling 5-group system. Visual acuity was tested by Snellen chart and those patients having a vision of less than 3/60 were labelled as blind. Ocular adnexa were examined by naked eye and lacrimal sac regurgitation test was done. Slit lamp biomicroscopy was done for anterior segment examination and direct ophthalmoscope was used for fundoscopy. RESULTS: The authors studied 143 patients in the above mentioned leprosy centres. Out of these, 59 had lepromatous leprosy, 39 borderline tuberculoid leprosy, 9 tuberculoid leprosy, 33 borderline lepromatous leprosy, and 33 borderline leprosy. The majority of patients came from the northern districts of NWFP, including Malakand division and district Mansehra. The male to female ratio was 4:1. The age of the patients ranged from 14 to 80 years and the duration of the disease ranged from 1 year to 48 years. Ocular complications were found in 73% of the patients. These complications included loss of eyebrows in 57 patients, loss of eyelashes in 37, corneal changes (including opacity, ulceration, and/or anaesthesia) in 44, iridocyclitis in 31, lagophthalmos in 36, ectropion in 13, and chronic dacryocystitis in 3. Of the total of 15 (11%) patients who went blind from ocular complications, 16 eyes did so due to corneal opacities, 6 eyes due to cataract, 5 eyes due to chronic anterior uveitis and one eye due to corneal ulcer, panophthalmitis and phthisis bulbi each. CONCLUSIONS: A significant number of leprosy patients (73%) have ocular complications. The frequency of ocular complications increases with the increasing age and duration of disease of the patients.

LAWN, S.D.; WOOD, C.; LOCKWOOD, D.N. Borderline tuberculoid leprosy: an immune reconstitution phenomenon in a human immunodeficiency virus-infected person. *Clin. Infect. Dis.,* v.36, n.1, 5-6, Jan. 1, 2003.

Two months after starting highly active antiretroviral treatment (HAART), an individual with human immunodeficiency virus type 1 (HIV-1) infection and profound CD4+ T lymphocytopenia developed several erythematous plaques on his face, which were due to borderline tuberculoid leprosy with reversal reaction. The temporal association between the development of these lesions and changes in blood CD4+ lymphocyte count and plasma HIV-1 load observed during HAART strongly suggests that the presentation of leprosy resulted from immune reconstitution.

LOW, W.K.; NGO, R.; QASIM, A. Leprosy: otolaryngologist's perspective. *ORL J. Otorhinolaryngol. Relat. Spec.,* v.64, n.4, p.281-3, Jul-Aug., 2002.

A patient with hemi-facial erythematous swelling as a result of borderline leprosy and reversal reaction is reported. This uncommon presentation of the disease poses initial diagnostic difficulties to the otolaryngologist. The otolaryngologist must be familiar with otolaryngologic

manifestations of leprosy, since early diagnosis and treatment reduces the risk of transmission of the disease and may avoid permanent nerve damage.

MURRAY, C.K.; JOYCE, M.P.; LONGFIELD, R.N. Short report: Treatment failure in Hansen's disease. *Am. J. Trop. Med. Hyg.*, v.68, n.2, p.233-4, Feb., 2003.

Areas of low endemicity of Hansen's disease, such as Texas, California, and Hawaii, exist due to immigration and rare autochthonous infections. Managing this disease in these areas of low endemicity is difficult, especially in observing for relapse. The accurate diagnosis of relapse is imperative so that appropriate therapy can be promptly reinstituted and unnecessary treatment can be avoided. To assess treatment failures in an area of low endemicity, we retrospectively evaluated 113 patients with Hansen's disease treated in southern Texas. Of 57 patients who completed therapy, 11 were later restarted on medications for this disease for presumed relapse. However, nine of the 11 were found not to have true relapses of Hansen's disease. The accurate diagnosis of relapse of this disease is essential not only in the individual patient but also for prospective treatment trials to establish best practices.

RAMU, G.; DESIKAN, K.V. Reactions in borderline leprosy. *Indian J. Leprosy,* v.74, n.2, p.115-28, Apr-Jun.,. 2002.

This is a retrospective study of 276 patients consisting of 157 active and 119 reactive patients of borderline leprosy. They were followed up for 10 years after sulphone monotherapy. The presenting symptoms were carefully examined from the records and systematically presented. Frequency of reactions was least in BT cases and most in BL cases. Risk factors of reaction appear to be the type of leprosy, multiplicity of lesions, high BI and, possibly, psychological stress. Biopsy of skin lesions was performed in all cases initially, and at the subsidence of the disease. Histological findings closely correlated with clinical classification. While all the cases showed clinical subsidence, histological subsidence was found in 200 (73%) cases, and the condition was static in 36 cases (13%). Immunological upgrading was seen in 110%, while 4% showed downgrading. Bacteriological status and lepromin reaction of active and reactive cases were compared. All these factors need to be taken into consideration for instituting prompt and proper treatment.

REICHART, P.A.; SAMARANAYAKE, L.P.; SAMARANAYAKE, Y.H.; GROTE, M.; POW, E.; CHEUNG, B. High oral prevalence of Candida krusei in leprosy patients in northern Thailand. *J. Clin. Microbiol.,* v.40, n.12, p.4479-85, Dec., 2002.

Although Candida albicans is the most common human yeast pathogen, other Candida species such as C. krusei are now recognized as emerging agents, especially in patients with human immunodeficiency virus (HIV) disease. C. krusei is inherently resistant to the widely used triazole antifungal fluconazole and poses therapeutic problems, especially in systemic candidiasis. In a surveillance study of leprosy patients (with arrested or burnt-out disease) in a leprosarium in northern Thailand, we found a rate of oral carriage of C. krusei (36%) significantly ($P < 0.05$) higher than that for a healthy control group (10%). Among the Candida-positive patients, 16 of 35 (46%) carried C. krusei, while C. albicans was the second most common isolate (12 of 35 patients; 34%). The corresponding figures for the control group were 2 of 13 (15%) and 6 of 13 (46%), respectively. Studies of the antifungal resistance of the C. krusei isolates from patients indicated that all except one of the isolates were resistant to fluconazole, two isolates were resistant to ketoconazole, and all isolates were sensitive to amphotericin B. Evaluation of their genetic profiles by randomly amplified polymorphic DNA analysis with three different primers and subsequent analysis of the gel profiles by computerized cluster-derived dendrograms revealed that the C. krusei isolates from patients belonged to 10 disparate clusters, despite the origin from a single locale. These nascent findings indicate an alarmingly high prevalence of a Candida species resistant to a widely used antifungal in a part of the world where HIV disease is endemic.

SHAW, I.N.; EBENEZER, G.; RAO, G.S. Leprosy lesion on the prepuce of the male genitalia: a case report. *Leprosy Rev.,* v.73, n.3, p.276-8, Sep., 2002.

A case of borderline leprosy in type I reaction with cutaneous lesions on the prepuce is reported. The need to examine the genitalia in all male leprosy patients is stressed.

THAPPA, D.M.; DAVE, S.; KARTHIKEYAN, K.; LAXMISHA, C.; JAYANTHI, S. Localized lepromatous leprosy presenting as a painful nodule in a muscle. *Indian J. Leprosy*, v.74, n.3, p.237-42, Jul-Sep., 2002

Lepromatous leprosy is a generalized disease usually presenting with numerous macules, papules, nodules or plaques involving wide areas of the skin. It is generally believed that in India lepromatous leprosy often originates from the borderline spectrum (Jha et al, 1991). Localized lepromatous or borderline lepromatous disease is a rare variant of multibacillary leprosy (Yoder et al, 1985; Jha et al, 1991; Pfaltzgraff & Ramu, 1994; Vijaikumar et al, 2001). This variant usually presents as a single nodule or a localized area of nodules and papules, while most of the body surface appears normal (Pfaltzgraff & Ramu, 1994; Vijaikumar et al, 2001). Its occurrence in our case as a single painful nodule in the bicep muscle of left forearm was indeed intriguing, such presentation being rarely reported in the literature.

THAPPA, D.M.; KARTHIKEYAN, K.; VIJAIKUMAR, M.; KONER, B.C.; JAYANTHI, S. Leg ulcers in active lepromatous leprosy associated with cryoglobulinaemia. *Clin. Exp. Dermatol.,* v.27, n.6, p.451-3, Sep., 2002.

A 40-year-old male agricultural labourer presented with active lepromatous leprosy and painful leg ulcers of 2 months' duration. Biopsy from the ulcer showed nonspecific changes. Raised erythrocyte sedimentation rate and positive rheumatoid factor made us suspect underlying cryoglobulinaemia. Presence of cryoprecipitate in the serum, demonstration of cryoglobulins by serum electrophoresis and raised cryocrit were compatible with cryoglobulinaemia as the cause of atypical leg ulcers in this case. The ulcers healed with bed rest, aspirin and specific anti-leprosy treatment. Though 95% of lepromatous leprosy patients can have cryoglobulinaemia, the presence of atypical ulcers as seen in our patient has not previously been related to the presence of cryoglobulinaemia.

THOMAS, R.; THOMAS, S.; MULIYIL, J. Prevalence of glaucoma in treated multibacillary Hansen disease. *J. Glaucoma,* v.12, n.1, p.16-22, Feb., 2003.

PURPOSE: To determine the prevalence of glaucoma in a population of patients with multibacillary Hansen disease who had completed treatment. PATIENTS AND METHODS: The authors examined 386 of 446 patients with treated multibacillary Hansen disease residing in a geographically limited area. A complete ophthalmic examination including slit-lamp, applanation tonometry, gonioscopy, ophthalmoscopy, and stereobiomicroscopic examination of the optic disc was performed in all subjects. Glaucoma suspects were invited to the base hospital for further examination including automated perimetry. RESULTS: The overall prevalence of glaucoma was 3.6% (CI 1.9-5.3); 1.3% had primary open-angle glaucoma, 7% were primary angle-closure suspects (occludable angles), 1.8% had primary angle-closure glaucoma, and 0.5% had secondary glaucoma. CONCLUSION: The prevalence of primary glaucoma in patients with treated multibacillary Hansen disease was similar to that in the general population, and secondary glaucoma was rare.

WANDERLEY, R.R.; GOUVEIA, M.S.; SALES, M.N.A.; ARAUJO SOBRINHO, J.. Aids e Hansen / Aids and leprosy. *J. bras. Aids,* v.3, n.3, p.39-41, set. 2002.

Relata-se o caso de uma paciente do sexo feminino, 40 anos, portadora da Sindrome da Imunodeficiência Adquirida que apresentou lesões dermatológicas clinicamente diagnosticadas como hanseníase. Foi iniciado tratamento especifico e após quatro meses de uso não houve involução das lesões, sendo então realizado exame histopatológico que confirmou o diagnostico.

EPIDEMIOLOGIA

HATANO, K. [What is possible for us to corroborate developing countries in the leprosy field?] *Nihon Hansenbyo Gakkai Zassh,* v.71, n.3, p.215-21, Aug., 2002.

Developing countries have their own unique characteristics, histories, and situation. There are great differences from country to country. From the experiences worked in both Bangladesh and Myanmar which share their border, some similarities and dissimilarities among these two greatly different countries are discussed. Considering this, common problems on leprosy in the developing countries are analyzed. The needs of developing countries in the field of leprosy are studied, and the possible way of corroboration for us, Japanese leprosy workers, are suggested.

HEGAZY, A.A.; ABDEL-HAMID, I.A.; AHMED, E.L-S.F.; HAMMAD, S.M.; HAWAS, S.A. Leprosy in a high-prevalence Egyptian village: epidemiology and risk factors. *Int. J. Dermatol.,* v.41, n.10, p.681-6, Oct., 2002.

BACKGROUND: The epidemiology of leprosy in rural Egypt is unknown. This prospective household survey was conducted in a high-prevalence Egyptian village in order to explore the epidemiologic characteristics of the disease and to determine the possible socioeconomic and HLA genotype risk factors. METHODS: The subjects of the study were the residents of Kafr-Tambul village in the Dakahlia governorate, Egypt. There were 10,503 inhabitants of the village, of whom 9643 (91.8%) had a complete visual skin examination, and suspected leprosy patients were subjected to histopathological examination and slit skin smears. Each household was interviewed to record personal data on family members, family size, education, occupation, crowding index at sleep, social score and source of water supply. Human leukocyte antigen (HLA) class II genotypes were analyzed in all leprosy patients and in a number of both household (N = 124) and non-household (N = 30) contacts. RESULTS: The overall prevalence of clinical leprosy in the village studied was 24.9/10,000 (95%CI = 16.3-37.6). Individuals above the age of 40 years were 4 times more likely to develop leprosy (OR = 4, P= 0.01). The degree of education, crowding index at sleep, social score and source of water supply were found to be unlikely to increase the risk of leprosy (P > 0.05). The frequencies of HLA-DR2 and -DQ1 were significantly associated with leprosy (OR = 3.33 and 5.4; CI = 0.95-12.07 and 1.08-30.19, respectively, all P < 0.05). CONCLUSIONS: Our study provides the first picture of the epidemiology of leprosy in a high-prevalence village in rural Egypt. Leprosy detection campaigns should be initiated and directed towards high-prevalence villages. Provision of leprosy control activities in rural health units is necessary in order to detect new cases. The risk for leprosy is associated with HLA-DR2 and -DQ1 markers, and these

markers appear to increase personal susceptibility to leprosy in this village.

ISHII, N.; OBARA, A.; OZAKI, M.; KUMANO, K.; SUGITA, Y.; NAMISATO, M.; NOGAMI, R.; HOSOKAWA, A.; MAKINO, M.; SASAKI, S. [Survey of newly diagnosed leprosy patients in Japan (1993-2000)]. *Nihon Hansenbyo Gakkai Zasshi*, v.71, n.3, p.223-33, Aug., 2002.

We analyzed the medical and social problems of newly registered leprosy patients in the past 8 years from 1993 to 2000 in a low endemic country, Japan. There were 56 registered Japanese patients (males, 32; females, 24), and 76 registered foreign patients (males, 56; females, 20). The number of Japanese patients in each year was between 5 and 9, and 2/3 of them were from Okinawa Prefecture, located in subtropical zone. But the number of foreign patients in each year was between 5 and 18, and 2/5 of them were from Brazil. The number of foreign patients was greater than that of Japanese patients. Male/female ratio has decreased among the Japanese.

JAIN, S.; REDDY, R.G.; OSMANI, S.N.; LOCKWOOD, D.N.; SUNEETHA, S. Childhood leprosy in an urban clinic, Hyderabad, India: clinical presentation and the role of household contacts. *Leprosy Rev.,* v.73, n.3, p.248-53, Sep., 2002.

A retrospective case note study was done of children below the age of 14 years who attended Dhoolpet Leprosy Research Centre (DLRC) over the decade 1990-1999. The aim of the study was to describe the pattern of clinical presentation, the role of household or near neighbour contacts and the incidence of neuritis and reactions. In all, 3118 leprosy patients were registered during this period, of whom 306 were children [182 (60%) male]; 95 children had a single patch, 159 had five or fewer than five patches and 37 had multiple patches. The youngest case detected was 9 months old. The spectrum of leprosy in these children was: TT 62 (20.3%); BT 203 (66.3%); BB 3 (1%); BL 23 (7.5%); LL 5 (1.6%) and PNL 10 (3.3%). Twenty-nine cases (9.4%) were smear positive. Ninety-one children (29.7%) developed a reaction, 86 type I and five type II. A history of contact was present in 119 (38.8%) cases, family contact in 113 (95%) and other than family in six (5%). Classification of the contact was available in only 60 patients. Among the contacts of the index case, 21 (35%) suffered from PB leprosy and 39 (65%) from MB leprosy. All contacts were from the immediate family. This study shows that childhood leprosy cases continue to present in significant numbers to this outpatient clinic. There is a high level of family contact with leprosy in these cases, strengthening the strategy of screening children in leprosy-affected households. The high incidence of reactions and nerve damage in children emphasizes the importance of early detection and treatment.

PAIGE, C.F.; SCHOLL, D.T.; TRUMAN, R.W. Prevalence and incidence density of *Mycobacterium leprae* and Trypanosoma cruzi infections within a population of wild nine-banded armadillos. *Am. J. Trop. Med. Hyg.*, v.67, n.5, p.528-32, Nov., 2002.

A total of 415 wild 9-banded armadillos from the East Atchafalaya River Levee (Point Coupee, LA) were collected over 4 years to estimate the incidence and prevalence of *Mycobacterium leprae* and Trypanosoma cruzi and to discern any relationship between the 2 agents. *M. leprae* infections were maintained at a high steady prevalence rate year to year averaging 19%. T. cruzi antibody prevalence remained relatively low, averaging 3.9%, and varied markedly between years. Prevalence rates were independent, with only 3 armadillos coinfected with both agents. *M. leprae* incidence density ranged from 0.47 to 3.5 cases per 1,000 animal-days, depending on case definition, confirming active intense transmission of *M. leprae* among armadillos. No incident T. cruzi cases were found. These infections seem to occur independently and may be used in comparisons to understand better factors that may influence transmission of these agents.

MEIMA, A.; IRGENS, L.M;; VAN OORTMARSSEN, G.J.; RICHARDUS, J.H.; HABBEMA, J.D. Disappearance of leprosy from Norway: an exploration of critical factors using an epidemiological modelling approach. *Int. J. Epidemiol.*, v.31, n.5, p.991-1000, Oct., 2002.

BACKGROUND: By the middle of the 19th century, leprosy was a serious public health problem in Norway. By 1920, new cases only rarely occurred. This study aims to explain the disappearance of leprosy from Norway. METHODS: Data from the National Leprosy Registry of Norway and population censuses were used. The patient data include year of birth, onset of disease, registration, hospital admission, death, and emigration. The Norwegian data were analysed using epidemiological models of disease transmission and control. RESULTS: The time trend in leprosy new case detection in Norway can be reproduced adequately. The shift in new case detection towards older ages which occurred over time is accounted for by assuming that infected individuals may have a very long incubation period. The decline cannot be explained fully by the Norwegian policy of isolation of patients: an autonomous decrease in transmission, reflecting improvements in for instance living conditions, must also be assumed. The estimated contribution of the isolation policy to the decline in new case detection very much depends on assumptions made on build-up of contagiousness during the incubation period and waning of transmission opportunities due to rapid transmission to close contacts. CONCLUSION: The impact of isolation on interruption of transmission remains uncertain.

This uncertainty also applies to contemporary leprosy control that mainly relies on chemotherapy treatment. Further research is needed to establish the impact of leprosy interventions on transmission.

PETERS, E.S.; ESHIET, A.L. Male-female (sex) differences in leprosy patients in south eastern Nigeria: females present late for diagnosis and treatment and have higher rates of deformity. *Leprosy Rev*., v.73, n.3, p.262-7, Sep., 2002.

A study was undertaken to investigate the possibility that female leprosy patients in South Eastern Nigeria may be at a disadvantage with regard to early presentation for diagnosis and the prevention of disability. A hospital-based retrospective examination of case notes for the period 1988-1997 was undertaken, totalling 2309 adult patients of whom 1527 (66 degrees/a) were male and 782 (33%) were female (confirming the usual 2:1 male:female ratio for this disease). Data were collected on 1) the clinical type of leprosy, 2) the interval between the onset of symptoms or signs and presentation for diagnosis and treatment and 3) the patterns of physical deformity/disability. The results indicate that in this part of Nigeria, female leprosy patients have a much longer period (duration of illness) between first symptoms or signs and presentation for diagnosis, compared with males; on average, the period before diagnosis in women was almost twice as long as that in men. Furthermore, they suffered a higher proportion of disabilities. There was no evidence to support discrimination against females with leprosy by the health staff or community and female health workers were available in both hospital and primary health care centres to receive and examine female patients. The Discussion refers to the many studies already published on gender issues, identifying a wide range of social, cultural and economic variables attributed by social structure to men and women, and including the impact of stigma, which may be particularly damaging to women in some situations. The main factors that account for late presentation of females with leprosy in this area have however still to be defined. The consequent higher proportion of disability/deformity in women is obviously of considerable concern, underlining the need for further clinical and social research in this part of Nigeria.

STEARNS, A.T. Leprosy: a problem solved by 2000? *Leprosy Rev*., v.73, n.3, p.215-24, Sep., 2002.

It is now the year 2001, and in many endemic regions leprosy remains a public health problem by any definition. It is clear that defining leprosy purely by prevalence side-steps some of the real issues. There is still much to do to solve the problem of leprosy. Control programmes require better tests for early diagnosis if leprosy is to be reduced much further. Treatment of the infection and of reactions is still far from ideal, whilst an effective vaccine would be valuable in high-risk regions. Research into the true incidence in each endemic area is essential, and control programs of the future will need a more detailed understanding of the transmission of M. leprae to permit new logical interventions. Leprosy remains a devastating disease. Much of the damage that it inflicts is irreversible, and leads to disability and stigmatization. This is perhaps the greatest problem posed. It is easy to dwell on the successes of the elimination campaign, so diverting attention from those populations of 'cured' patients who still suffer from the consequences of infection. Leprosy should be regarded as a problem unsolved so long as patients continue to present with disabilities. WHO has carried out a highly successful campaign in reducing the prevalence of leprosy, and this needs to be acknowledged, but what is happening to the incidence in core endemic areas? Maintaining this success, however, may be an even greater struggle if funding is withdrawn and vertical programmes are absorbed into national health structures. We must take heed of the historian George Santayana, 'those who cannot remember the past are condemned to repeat it'. We should take the example of tuberculosis as a warning of the dangers of ignoring a disease before it has been fully controlled, and strive to continue the leprosy elimination programmes until there are no new cases presenting with disability. The World Health Organisation has shown that leprosy is an eminently treatable disease, and has prepared the ground. The leprosy elimination campaigns truly are 'at a height... ready to decline'. Can it be that this is the chance to take leprosy 'at the flood'? If so, perhaps an extension of the elimination programs beyond the year 2001 would indeed 'lead to fortune'.

EPIDEMIOLOGIA E CONTROLE

BUNDIT, C.; SAMPOONACHOT, P.; MAHOTARN, K. Present status and future vision of the International Medical Co-operation for Leprosy. *Nihon Hansenbyo Gakkai Zasshi*, v.71, n.3, p.211-3, Aug., 2002.

In the year 2002, leprosy situation in Thailand has been steadily progress. However, the prevalence rate and percentage of leprosy patients are still quite high in the North-Eastern part of Thailand. Therefore, we have focused our plan of action 2001-2 on "The strengthening of Leprosy Elimination and Prevention of Disability in the North-Eastern Region." The objective of which is to improve and sustain the ability of leprosy related staff to conduct activities such as case finding, complication diagnosis, treatment of disabilities, rehabilitation, supervision and evaluation. The International Medical Co-operation for Leprosy in 2001, we received funds from Netherland Leprosy Relief Association (NLR) for 9 programmes concerning training of leprosy for health officers and assessment of the quality of life for leprosy affected persons living in northeastern colonies. There are 3 training courses of leprosy for new medical doctors, lab technicians

from community and provincial hospitals and 2 workshops on Rehabilitation and Development of Leprosy Affected Persons "Quality of Life" under the Germany Leprosy Relief Association (GLRA) support. From Japan we received funding from Sasakawa Memorial Health Foundation (SMHF) for 4 projects in immunological studies since 1997 and 2 projects concerning dental services for Leprosy patients in the north and northeast regions from Umemoto Memorial Dental Service Group (UMDSG). The medical co-operation between Japan and Thailand should increase in many aspects especially, for new chemotherapy, immunotherapy and vaccine study in Leprosy. The future vision of Leprosy, we plan to set up the International Center of Leprosy for medical officers, technicians, etc. for the South-East Asian Countries. You are welcome to join and work together with us.

BYAMUNGU, D.C.; OGBEIWI, O.I. Integrating leprosy control into general health service in a war situation: the level after 5 years in eastern Congo. *Leprosy Rev*., v.74, n.1, p.68-78, Mar., 2003.

South Kivu Province of the Democratic Republic of Congo, plagued by a turbulent civil war, started a process of integrating leprosy into general health services in 1995. A questionnaire survey was carried out in September 2000 to assess the level of structural and functional integration, after 5 years of the integration process, in nine of its 14 health districts. The survey revealed that a total of 76 clinic nurses remained of those trained in leprosy since 1993. In all, 33-6% of the total 226 health facilities had a trained nurse, but according to the district supervisors who filled the questionnaires, nurses in only 28.3% of health facilities could diagnose leprosy. Less than 40% of the total 226 health facilities were structurally integrated with MDT and other leprosy services. Functionally, the clinic nurses were involved in dispensing MDT drugs and keeping leprosy records in 90.8 and 81.6%, respectively, of the integrated facilities, and diagnostic activities in 43.7%. The degree of involvement put health facilities into four grades of functional integration: 1) fully-functional integrated, 2) semi-functional integrated, 3) semi-integrated (structural but not functional), 4) not integrated (vertical). On this scale, 80% of 107 health facilities reported by the supervisors had some form of integration and 20% were not integrated. Treatment activities were significantly more functionally integrated than the diagnostic and POD activities, which require more skills. The presence of a trained nurse in a health facility made no significant difference to the involvement of clinic nurses in dispensing MDT drugs and performing POD activities, but significantly affected their performance of diagnostic activities and records keeping. The endemic districts had higher levels of structural integration, were not more likely to be functionally integrated. The levels of structural integration after 5 years are considered low in South Kivu Province, and reflect the significant negative effect of civil conflicts on integration of leprosy programmes in Africa.

CUNHA, A.Z.S. Hanseníase: aspectos da evolução do diagnóstico, tratamento e controle / Leprosy: evolution aspects of its diagnosis, treatment and control. *Ciênc. saúde coletiva*, v.7, n.2, p.235-242, 2002.

O trabalho descreve historicamente aspectos da evolução do diagnóstico, tratamento e controle da hanseníase na Antiguidade (300 anos a.C. até o século 18). Aborda desde o seu aparecimento na Europa até a sua institucionalização, apresentando o cenário onde ela se apresentava, as condições de disseminação, as dificuldades e tentativas de tratamento e controle, o envolvimento e as interferências do cristianismo, a preocupação dos profissionais da área da saúde diante dos poucos resultados em relação aos tratamentos adotados, que compreendiam desde a aplicação de cataplasmas de lama, sangue e ervas, até a extirpação dos nódulos e sangrias, culminando com o isolamento dos doentes em leprosários. Além disso, evidencia a diminuição do número de casos como resposta ao isolamento, dando início ao fim da epidemia e desaparecendo em alguns países. Aborda também as ações de controle e tratamento da doença no Brasil e a (des)preocupação das autoridades e profissionais médicos até a inclusão de ações e normas de controle pelo poder público instituídas por Oswaldo Cruz.

DANTAS, A.F.; PINHO, A.L.G.; ASSUNÇÄO, V.C.; RODRIGUES NETO, F.J.; CASTRO, P.C.F.; ANDRADE, R.S. Situação operacional do programa de controle da hanseníase na UBS - Guamá no período de janeiro a dezembro de 2000 / Operacional situation of the hansen's disease control program at the UBS-Guamá from january to december, 2000. *Rev. para. Med*., v.16, n.3, p.34-39, jul.-set. 2002.

Introdução: A hanseníase é uma moléstia infecto-contagiosa crônica que pode evoluir para graves deformações cutâneas e perda da condução neural, resultando em sérias incapacidades físicas, psíquicas e sociais, quanto mais tardio o seu diagnóstico e ineficiente o seu tratamento. Objetivo: Avaliar a operacionalidade do programa de controle da hanseníase na Unidade Básica de Saúde do Guamá (UBS-Guamá), no período de janeiro a dezembro de 2000. Método: Analisados 43 prontuários e o livro denotificação da doença na Unidade, segundo os critérios; registro do grau de incapacidade no ato do diagnóstico e no ato da alta; exame e vacinação (BCG) dos contatos; poliquimioterapia/OMS; acompanhamento de faltas e abandonos; e encaminhamento dos pacientes à assistente social. Resultados: Observou-se que o registro do diagnóstico é feito na sua totalidade, o que não ocorre no ato da alta; todos os pacientes são indagados quanto aos efeitos colaterais; nenhum paciente realizou a dose supervisionada em todos os atendimentos; a maioria dos casos é de

multibacilares, e nem todos são encaminhados à assistente social.Considerações finais: Conclui-se que a operacionalização do Programa da Hanseníase na UBS-Guamá obedece a apenas algumas determinações da Portaria 1.073/GM de 26 de Setembro de 2000 do Ministério da Saúde.

DURRHEIM, D.N.; FOURIE, A.; BALT, E.; LE ROUX, M.; HARRIS, B.N.; MATEBULA, M.; DE VILLIERS, M.; SPEARE, R. Leprosy in Mpumalanga Province, South Africa-eliminated or hidden? *Leprosy Rev*., v.73, n.4, p.326-33, Dec., 2002.

In South Africa, leprosy has been a notifiable condition since 1921. Although the WHO elimination target of less than one case per 10,000 population has been achieved at country level, the distribution of leprosy in the country is distinctly heterogeneous, with a prominent 'leprosy belt' of greater prevalence stretching across Mpumalanga Province into northern Kwa-Zulu Natal. The highest prevalence in this 'belt' has historically been in Ermelo District. Recent trends of few newly detected leprosy patients in this district raised concerns that health system changes may have resulted in failure to detect leprosy cases. Thus a large-scale community awareness campaign was conducted followed by an intensively advertised screening programme of 3-month duration at schools and central gathering points in villages and farms from 1 June to 31 August 2000. One thousand one hundred and seventy-seven people presented for clinical screening at designated points, while 790 scholars were screened at schools and an additional 1433 people were screened at their homes by the field team. Forty-four people with skin or nervous system lesions compatible with leprosy were referred for specialized assessment and biopsy where indicated. Four new leprosy patients were diagnosed, including an elderly lady with pronounced disability. Two of these patients had prior contact with the health service due to dermatological manifestations of leprosy without diagnosis being made. All patients provided a history of close prolonged contact with known leprosy patients. Ongoing intense tracing and follow-up of close contacts of proven leprosy cases may be a more efficient method of detecting leprosy cases in areas with relatively stable populations that have accomplished 'leprosy elimination', than resource intensive community surveys.

HIKITA, K.; BABA, H.; HASHIOMTO, C.; ISHIDA, Y.; TANIGUCHI, Y.; HATANO, K.; NAGAO, E. [Leprosy Control and Basic Health Services Project]. *Nihon Hansenbyo Gakkai Zasshi,* v.71, n.3, p.201-10, Aug., 2002.

Many tropical and subtropical communicable diseases are prevalent in Myanmar still now. Leprosy also is not completely controlled in spite of making exertions by the Government of Myanmar and more than 10,000 new leprosy patients were detected every year. In response to the pressure of World Health Organization (WHO), the government of Myanmar declared to eliminate this disease by the end of 2003, and all vertical staff concerned with leprosy control program concentrate to reach the goal of elimination (Prevalence rate: less than 1.0 per 10,000 population). Leprosy Control and Basic Health Services Project will be carried out in the project sites for 5 years, that is, from April, 2000 to March, 2001. Project purpose that was mentioned in the PDM were to support the leprosy control programme in Myanmar through the strengthening of Basic Health Service system by conducting training activities and other diseases' control programmes such as TB and Measles, by fully utilizing the above training opportunities. The Project started to conduct the main activities from 2001 as follows, 1. BHS training 2. Training of microscopic diagnosis 3. Sewing training as one of social rehabilitations 4. Training of reconstructive surgery 5. Survey on disabilities of leprosy patients, etc.

KEITA, S.; TIENDREBEOGO, A.; BERTHE, D.; FAYE, O.; N'DIAYE, H.T. Predictive value of consultation reasons in the diagnosis of leprosy in Bamako (Mali)] Valeur prédictive des motifs de consultation pour le diagnostic de lèpre à Bamako (Mali). *Ann. Dermatol. Venereol*., v.129, n.8-9, p.1009-11, Aug-Sep., 2002

INTRODUCTION: One of the weak points in the strategy for eliminating leprosy is the poor quality of screening. To overcome this, the World Health Organization (WHO) encourages endemic countries to run campaigns for the elimination of leprosy by circulating educational messages and mobilizing the medical community for early screening of cases. The aim of our study was to identify the motives for consultation with high predictive value for the diagnosis of leprosy and to determine the late diagnosis factors and hence assist the staff on site to improve the results of their leprosy elimination campaigns. PATIENTS AND METHODS: The study consisted, during the second trimester of 1999, in interviewing all the patients consulting for the first time the Marchoux Institute or the units screening for leprosy in the Bamako area. The interview recorded the motives for consultation, the delay before consulting and the reasons for late consulting. To assess their positive predictive value, the motives for consultation were related to the diagnosis retained (leprosy or not). RESULTS: One thousand one hundred and seventy seven patients were interviewed. The motive for consulting, "suspected leprosy", scored the highest positive predictive value (PPV) (80 p. 100): 12 cases of leprosy were diagnosed by 15 consultants having suspected leprosy. Neurological problems were the second motive for consultation (PPV=61.9 p. 100). The most frequent motive for consultation was spots or "macules" (20 p. 100 of consultations), but only provided a positive predictive value of 19 p. 100. Prior consultations and non-specialized treatments were identified as factors of delay in

diagnosing leprosy (P<0.001). CONCLUSIONS: Diagnosis of leprosy cannot be based on the motives for dermatological consultation alone. The macules are the most apparent signs, but of low predictive value. Nevertheless, they are an early but non-specific sign of leprosy and are often neglected by the patient. Other than macules, attention must be paid to the neurological signs (dysesthesia, motor disorders) when screening for leprosy. These signs may appear early on, or be observed at a late stage in the progression of the disease.

NWOSU, M.C.; NWOSU, S.N. Leprosy control in the post leprosaria abolition years in Nigeria: reasons for default and irregular attendance at treatment centres. *West. Afr. J. Med*., v.21, n.3, p.188-91, Jul-Sep., 2002.

A questionnaire was administered to all patients with leprosy seen at the four leprosy clinics in Anambra State in a face to face interview. The questions covered, among other items, the clinic attendance behaviour and the single most important reason, monthly, for absenteeism in the preceding year. The total and individual frequencies of the reasons for absenteeism were determined for the various behavioural subgroups. The differences in frequencies and associations were analysed. Values of P < 0.05 were considered as significant. The results showed that 27 females and 26 males were interviewed. 39.6% of the patients were irregular attenders 735% were defaulters. Attendance at meetings (P < .001); work at home (P < 0.01) fear/shame/indignation (P < 0.05); no confidence in treatment (P < 0.025) were significant reasons for absenteeism among irregular attenders inter-current illnesses as reasons for absenteeism did not differ significantly between regular and irregular attendees. The association between clinic attendance behaviour and lesion location (revealed Vs concealed) was not statistically significant (X(2)0.3). The findings in this study indicate that in the post leprosaria abolition years, default and irregular clinic attendance by patients with leprosy are numerically large and may compound the problems of control programmes, and thus negate the realization of the global goal of intercepting leprosy transmission.

MARTELLI, C.M.T.; STEFANI, M.M.A.; PENNA, G.O.; ANDRADE, A.L.S.S. Endemias e epidemias brasileiras, desafios e perspectivas de investigação científica: hanseníase/Brazilian endemisms and epidemics, challenges and prospects for scientific investigation: leprosy *Rev. bras. Epidemiol*., v.5, n.3, p.273-285, dez. 2002.

A endemia hansênica apresenta-se, na virada do milênio, no limiar da sua eliminação como problema global de saúde pública. O Brasil é o único país da América Latina onde a doença não foi eliminada, tendo sido a meta de eliminação postergada para 2005. Discute-se o declínio da prevalência após a introdução da poliquimioterapia (PQT) para o tratamento da hanseníase, não acompanhada pela redução da incidência no mesmo período. Os progressos na área de imunologia, biologia molecular e sequenciamento genômico do *M leprae* são apresentados enquanto perspectivas de pesquisa e de aplicação potencial para diagnóstico, prognóstico e vigilância na hanseníase. Apesar do êxito das atuais estratégias de controle tem-se observado com preocupação a redução do interesse e do apoio financeiro em pesquisa na hanseníase e na desestruturação dos serviços de saúde frente ao atual cenário de eliminação. A exclusão da hanseníase da lista de doenças prioritárias é prematura, representando um perigo concreto de não se eliminar a doença, mas a pesquisa em hanseníase. Fica evidente a necessidade de investigar na produção de conhecimentos de áreas básicas e aplicada que viabilizem uma maior compreensão dos mecanismos de transmissão da infecção, da efetividade dos métodos de prevenção e controle, serão essenciais na ôerradicação da infecção pelo *M leprae*.

MATSUOKA, M. [How to concern to international cooperation for the basic researcher] *Nihon Hansenbyo Gakkai Zasshi*, v.71, n.3, p.197-200, Aug., 2002.

The frame work of international cooperative work was discussed toward the solution current problems of the leprosy on the view point of researcher involved in fundamental study. Prevention of further reduction of research activity was stressed.

SAHOO, A.; SINGH, P.C.; PATTNAIK, S.; SINGH, N. Incidence of leprosy in school-children and their family members in Berhampur. *Indian J. Leprosy*, v.74, n.2, p.137-43, Apr-Jun., 2002.

A school survey, followed by a contact survey, was carried out in Berhampur, a city in southern Orissa. In a study of 8,870 school-children, leprosy was detected in 15, giving a prevalence rate of 16.91 per 10,000 with a male:female ratio of 8:7. Of these, 14 (93.99%) had paucibacillary leprosy. More cases [11 (73.33%)] were seen in the age-group of 10-15 years. Exposed parts, such as lower limbs, upper limbs and head and neck in that order, were the sites of predilection, accounting for 85.71% of total lesions. Nerve involvement was found in 2 (13.33%) girls with deformity (ulnar claw) in one of them (6.66%). BCG scar was present in 11 (73.33%) cases. Among the vaccinated cases, tuberculoid type was the most common, followed by indeterminate, pure neuritic and borderline, in that order. A contact survey detected 2 multibacillary cases in two families (13.33%). In each case, the father was the index source. The study revealed that a maximum number of students, 8 (53.3%), belonged to the middle socioeconomic class. Of the 15 affected, 60% were undernourished and the rest well nourished. No other systemic disease was found clinically associated with leprosy.

SCHREUDER, P.A.; LIBEN, D.S.; WAHJUNI, S.; VAN DEN BROEK, J.; DE SOLDENHOFF, R. A comparison of Rapid Village Survey and Leprosy Elimination Campaign, detection methods in two districts of East Java, Indonesia, 1997/1998 and 1999/2000. *Leprosy Rev*., v.73, n.4, p.366-75, Dec., 2002.

A Rapid Village Survey (RVS) was planned to estimate the extent of the leprosy problem in two well documented endemic districts of East Java, Indonesia. Furthermore, the aim was to investigate the efficacy of the routine programme in detecting new and early cases, as well as the feasibility of RVS in detecting disabled people affected by leprosy in the community. A random sample survey (RVS: a simple method compared to a Population Sample) was used to determine the extent of the leprosy problem. In addition, a Leprosy Elimination Campaign (LEC), was used particularly to detect new and backlog cases in the community. Both RVS and LEC involve a health education campaign followed by the examination of persons voluntarily reporting. Routine programme case finding, involving passive case finding and contact examinations, was also carried out. The RVS prevalence rate of 12 per 10,000 was more than twice the known prevalence rate of 5 per 10,000. The LEC prevalence rate was less than the rate found by RVS, but was within the RVS confidence interval. During the RVS, many children with leprosy were detected, and 10% of all RVS new cases already had disability grade II. The population disability grade II rate due to leprosy was 9 per 10,000. Despite the fact that an active leprosy control programme had been carried out in the surveyed endemic area over a period of many years, the actual prevalence rate found was more than twice the known prevalence. Many children were found during the RVS, thus indicating continuing widespread transmission. In general, it seems that there is still a serious delay in detecting new cases under the routine programme. Consequently, there are substantial numbers of persons affected by leprosy in those districts in need of rehabilitation.

YOWAN, P.; DANNEMAN, K.; KOSHY, S.; RICHARD, J.; DANIEL, E. Knowledge and practice of eye-care among leprosy patients. *Indian J. Leprosy*, v.74, n.2, p.129-35, Apr-Jun., 2002

In one hundred and thirty leprosy patients attending the Schieffelin Leprosy Research and Training Center, Karigiri, Tamil Nadu, India, the knowledge, attitude and practice of eye-care were ascertained using a questionnaire developed by Mathews & Mangalam. 74.6% the patients surveyed were aware of the disease, 60% knew about the early signs of leprosy, 74.6% considered leprosy curable and 36.9% knew the duration of treatment with MDT. Less than half of the patients (40.8%) knew that blindness occurred in leprosy and was preventable. More males had this knowledge (46.5%) than females (22.6%) (P = 0.001). Knowledge on how to take care of the eyes (26.9%), that eyes become anaesthetic due to leprosy (27.7%), and that precautions should be taken if sensation is lost (27. 7%) was very poor. Knowledge on prevention of damage in eyes (57.7%) and the fact that rubbing eyes could cause damage (55.4%) was found in more than half the patients. More males (64.6%) had knowledge on the prevention of damage in eyes than females (35.5%) (P = 0.008). Only 25.4% of the patients tried some measures to prevent eye injury, 21.5% used home remedies and all had the help of family members in their eye-care. More males (26.3%) used home remedies than females (6.5%). The older age group had better knowledge on taking care of the eyes than those aged 40 and below (P = 0.026). Although more patients with existing complications knew to take care of their eyes than those who did not have complications, the knowledge and practice of eye-care in both these groups were poor. Knowledge of leprosy in illiterate patients was not different from those who had some formal schooling, but the practice of eye-care differed significantly (P = 0.02). Health education must be undertaken to increase the knowledge of eye-care among leprosy patients, especially among illiterate persons, women and younger patients.

YUASA, Y. [Present and future of leprosy works]. *Nihon Hansenbyo Gakkai Zasshi.,* v.71, n.3, p.187-93, Aug., 2002.

Convinced with an effectiveness of MDT for curing leprosy as an infections disease since 1982, WHO has presented to the 44th World Health Assembly (WHA) in May 1991, a resolution on "The Elimination of Leprosy, as a public health problem, by year 2000", with a numerical target of achieving a prevalence of leprosy of one case per 10,000 population, and it was unanimously adopted. Since then all the leprosy endemic countries of the world has expanded their MDT programmes to cover the whole country, aided by free availability of MDT drugs through WHO since 1995, and succeeded in reaching the target on global basis at the end of 2000, with reduction of leprosy endemic countries down to 12 from nearly 100. At the WHA of 2000, WHO has put a new resolution to achieve the same target, at a national level, by 2005, and the programme is progressing reasonably well in terms of reducing the number of cases registered. However this single minded endeavor of WHO is causing some difficulties, in terms of more comprehensive care of patients, specially in POD and rehabilitation activities. In addition, WHO's public announcements give a strong impression that by the end of 2005 all leprosy problems will be solved with nothing more to do beyond that time. In this presentation, what has been achieved so far, and what needs to be done will be presented briefly. Then various issues facing us currently will be discussed in relation to a realistically perceived final goal, which the speaker defines as "A World without Leprosy related Problems, both medical and social", rather than more commonly accepted "Eradication of Leprosy" or "A World without Leprosy", and explains the

reasons. Finally leprosy within the context of human history is discussed rather briefly, pointing out that leprosy patients, throughout history and almost everywhere in the world, suffered a worst case of human rights violation to any minority groups, because they have been conceived as a group of people totally alien to the society. The speakers believe that true understanding of the basic nature of leprosy problems and efforts to solve them will contribute to improved human relationship in general in the world, where any minorities need not to suffer any more, and able to coexist with the surrounding majorities.

GENÉTICA

BEIGUELMAN, B. Genética e hanseníase / Genetics and leprosy. *Ciênc. saúde coletiva*, v.7, n.1, p.117-128, 2002.

As diferentes linhas de pesquisa utilizadas para investigar a importância dos fatores hereditários humanos na determinação da resistência/suscetibilidade à infecção pelo *Mycobacterium leprae* foram discutidas no presente trabalho. Uma síntese dessas abordagens permitiu analisar os resultados das investigações sobre associação da hanseníase com polimorfismos genéticos, distribuição familial da hanseníase, prevalência da hanseníase e distância genética, concordância da hanseníase em gêmeos e estudos genéticos sobre a reação de Mitsuda.

KALAISELVI, K.; RAJAGURU, P.; PALANIVEL, M.; USHARANI, M.V.; RAMU, G. Chromosomal aberration, micronucleus and Comet assays on peripheral blood lymphocytes of leprosy patients undergoing multidrug treatment. *Mutagenesis*, v.17, n.4, p.309-12, Jul., 2002.

To evaluate the genetic damage in leprosy patients, we carried out the alkaline Comet assay and chromosomal aberration (CA) and micronucleus (MN) tests in peripheral blood lymphocytes of 50 leprosy patients receiving multidrug treatment (MDT) and 50 healthy individuals. The Comet assay showed statistically higher mean values for length to width ratios of DNA mass ($P < 0.01$) and for mean frequencies of tailed cells ($P < 0.001$) in cells of leprosy patients than in those of controls. Similarly, the mean frequencies of micronucleated cells (per 1000 cytochalasin B-induced binucleated cells) were significantly greater ($P < 0.001$) in leprosy patients (19.92 +/- 2.564) than in controls (1.6 +/- 0.231). A statistically significant 10-fold increase in the frequency of CAs (11.16 +/- 0.411) was observed in leprosy patients compared with controls (1.28 +/- 0.242). In multiple regression analyses, when patients and controls were considered together, disease factor alone significantly influenced the genotoxicity markers. In the control group, age and alcohol consumption significantly influenced MN and length to width ratios and CA frequency, respectively. However, in MDT-treated leprosy patients none of the other confounding factors (sex, age, smoking and alcohol drinking) significantly affected the extent of genetic damage.

TOSH, K.; MEISNER, S.; SIDDIQUI, M.R.; BALAKRISHNAN, K.; GHEI, S.; GOLDING, M.; SENGUPTA, U.; PITCHAPPAN, R.M.; HILL, A.V. A region of chromosome 20 is linked to leprosy susceptibility in a South Indian population. *J. Infect. Dis.,* v.186, n.8, p.1190-3, Oct. 15, 2002.

A major susceptibility locus for leprosy has recently been mapped on chromosome 10 (10p13) by genome-wide linkage analysis. Microsatellite markers from this genome screen that showed suggestive evidence of linkage to leprosy were evaluated in an additional 140 families with affected sib pairs. A second region of linkage has thus been identified on chromosome 20 (20p12). The peak of linkage lies at marker D20S115, which has a significant single-point maximum logarithm of odds score of 3.48 ($P=.00003$). Transmission disequilibrium testing of the microsatellite markers in 20p12 showed that the marker D20S835 is associated with protection against leprosy ($P=.021$), which suggests that a locus controlling susceptibility lies close to this marker.

GENÉTICA E BIOLOGIA MOLECULAR

HONORE, N. [The *Mycobacterium leprae* genome: from sequence analysis to therapeutic implications]. Le génome de *Mycobacterium leprae*: de l'analyse de la séquence aux enjeux thérapeutiques. *Med. Trop.* (Mars), v.62, n.5, p.473-9, 2002.

The genome of *Mycobacterium leprae*, the causative agent of leprosy, was analyzed by rapid sequencing of cosmids and plasmids prepared from DNA isolated from one patient's strain. Results showed that the bacillus possesses a single circular chromosome that differs from other known mycobacterium chromosomes with regard to size (3.2 Mb) and G + C content (57.8%). Computer analysis demonstrated that only half of the sequence contains protein-coding genes. The other half contains pseudogenes and non-coding sequences. These findings indicate that *M. leprae* has undergone a major reductive evolution leaving a minimal set of functional genes for survival. Study of the coding region of the sequence provides evidence accounting for the particular pathogenic properties of *M. leprae* which is an obligate intracellular parasite. Disappearance of numerous enzymatic pathways in comparison with *M. tuberculosis*, an intracellular pathogen comparable to *M. leprae*, could explain the differences observed between the two organisms. Genomic analysis of the leprosy bacillus also provided insight into the molecular basis for resistance to various antibiotics and allowed identification of several potential targets for new drug treatments.

SANTOS, A.R.; SUFFYS, P.N.; VANDERBORGHT, P.R.; MORAES, M.O.; VIEIRA, L.M.; CABELLO, P.H.; BAKKER, A.M.; MATOS, H.J.; HUIZINGA, T.W.; OTTENHOFF, T.H.; SAMPAIO, E.P.; SARNO, E.N. Role of tumor necrosis factor-alpha and interleukin-10 promoter gene polymorphisms in leprosy. *J. Infect. Dis*., v.186, n.11, p.1687-91, Dec. 1, 2002.

Single-nucleotide polymorphisms within the genes coding for tumor necrosis factor (TNF)-alpha and interleukin (IL)-10 have been associated with several infectious diseases. To determine whether such polymorphisms are associated with leprosy, genotyping was performed at the -308 and -238 positions of the promoter of the TNF-alpha gene in 210 and 191 patients with multibacillary (MB) leprosy, respectively; 90 and 79 patients with paucibacillary (PB) leprosy; and 92 control subjects. For the -592 and -819 positions within the promoter of the IL-10 gene, 143 patients with MB leprosy, 79 patients with PB leprosy, and 62 control subjects were included in the analysis. TNF2 allele frequency was significantly higher among control subjects than among all patients with leprosy or in the MB group (P<.05 and P<.01). For the IL-10 gene, the frequency of the homozygous -819TT genotype was significantly higher among patients than among control subjects. These data indicate that a relationship exists between TNF-alpha and IL-10 promoter polymorphisms and the development of PB leprosy.

HISTÓRIA

GRIFFIN, J.P. The Leper Hospital of St Mary Magdalene at Baldock, Hertfordshire. *Adverse Drug. React. Toxicol. Rev.,* v.21, n.1-2, p.109-111, 2002.

The remains of the old Leper Hospital in Baldock have been identified. In the parish church of St Mary's in Clothall, medieval glass roundels show Mary Magdalene with left sided facial palsy. This is the oldest visual art depiction of this condition.

PAI, S.A. V.R. Khanolkar: father of pathology and medical research in India. *Ann. Diagn. Pathol.,* v.6, n.5, p.334-7, Oct., 2002.

Vasant Ramji Khanolkar was the first pathologist in India. He made major contributions to the epidemiology and understanding of cancer, blood groups, and leprosy. He was the first to show the existence of dhoti cancers, and was among the earliest to demonstrate the carcinogenicity of tobacco and the use of needle aspiration cytology for the diagnosis of neoplasms. He was an acclaimed teacher and was on the boards of numerous international organizations. He was a bibliophile and his writings are Oslerian in style. He serves as a role model to the few in India who are aware of him. He deserves to be called the "Father of pathology and medical research in India."

IMUNOLOGIA

GOULART, I.M.B.; PENNA, G.O.; CUNHA, G. Imunopatologia da hanseníase: a complexidade dos mecanismos da resposta imune do hospedeiro ao *Mycobacterium leprae* / Immunopathology of leprosy: the complexity of the mechanisms of host immune response to *Mycobacterium leprae*. *Rev. Soc. Bras. Med. Trop.,* v.35, n.4, p.365-375, Jul.-Aug. 2002.

Leprosy, whose etiologic agent *Mycobacterium leprae*, is an illness of ample clinical and immunopathological spectrum. Its clinical manifestations are correlated with distinct immunologic forms, varying from a vigorous immune response mediated by cells to *M. leprae*, with Th1 standard in the tuberculoid polar region, to an absence of specific cellular response to antigens of M. leprae in the lepromatous polar region, with predominance of Th2 response and exacerbation of humoral response. It is probable that different polymorphic genes determine susceptibility to *M. leprae*. Additional studies are necessary to clarify the complex interactions between cytokines and the role of the phenotypic diversity of cells network that contribute to the host defense. The comprehension of such mechanisms will provide new insights for the identification of agonists and/or antagonists for pro- or anti-inflammatory effects, and also will indicate possible situations for its appropriate use in immunologic and/or immunotherapeutic interventions.

IMUNOPATOLOGIA

ARVIEUX, J.; RENAUDINEAU, Y.; MANE, I.; PERRAUT, R.; KRILIS, S.A.; YOUINOU, P. Distinguishing features of anti-beta2 glycoprotein I antibodies between patients with leprosy and the antiphospholipid syndrome. *Thromb. Haemost.,* v.87, n.4, p.599-605, Apr., 2002.

Anticardiolipin (ACA), anti-beta2 glycoprotein I (beta2GPI), and antiprothrombin antibodies of IgG and IgM classes were quantitated by enzyme-linked immunosorbent assays in 176 untreated leprosy patients across the histopathological spectrum. Positivity rates ranged from 21% (IgG ACA) to 30% (IgM anti-prothrombin) versus 4% in healthy controls (p <10(-2) to 10(-3)). Levels of IgM anti-beta2GPI and IgG ACA were significantly higher in lepromatous leprosy and multibacillary patient subgroups. IgG3 was the most common subclass reactive to both beta2GPI and prothrombin in selected high-titer leprosy sera, unlike antibodies from patients with the antiphospholipid syndrome (APS) largely restricted to IgG2. In leprosy patients, but not in the APS control group, there was no statistical correlation between ACA and anti-beta2GPI antibody levels. Likewise, a large fraction of anti-beta2GPI positive sera (36/45 and 28/44 for IgG and IgM, respectively) were unreactive in the standard ACA assay. Most assayed anti-

beta2GPI antibodies from leprosy patients showed (i) ability to recognize both human and bovine beta2GPI immobilized on non-irradiated polystyrene plates, (ii) concentration-dependent inhibition of binding by cardiolipin, and (iii) relatively high avidity binding to fluid-phase beta2GPI, thereby differing from those found in APS. Finally, the location of the major epitopic region on the beta2GPI molecule targeted by autoantibodies was different in leprosy and APS, as assessed by direct binding to domain I- and V-deleted mutants and competition with the mouse monoclonal antibody 8C3, directed at domain I. Thus, leprosy-related antiphospholipid antibodies comprise persistent IgG and IgM anti-beta2GPI that differ from APS-related ones with respect to IgG subclass, avidity and epitope specificity, possibly reflecting distinct pathophysiological significance.

BALA, L.; ANAND, S.; SINHA, S. Enhancement of human T cell response to a peptide epitope of 38 kDa antigen of *Mycobacterium tuberculosis* by liposomes. *Immunopharmacol Immunotoxicol;* v.24, n.2, p.2, p.255-63, May, 2002.

Diagnosis of tuberculosis a problem, specially in the regions harboring an abundance of both pathogenic and non-pathogenic mycobacteria. This study was undertaken to assess in such a situation the predictive value of proliferative T cell response to a peptide epitope ('38G') of the 38 kDa membrane protein of *Mycobacterium tuberculosis*. 3[H]-thymidine incorporation assays were done with peripheral blood mononuclear cells of tuberculoid leprosy and pulmonary tuberculosis patients. The donors were also classified as PPD responders (Stimulation Index, SI> 3) or non-responders (SI < or = 3) on the basis of their T cell response to the 'Purified Protein Derivative (PPD)' of M. tuberculosis. 38G peptide was used in either free or liposome-associated form prepared by the technique of 'Dehydration-rehydration Vesicles' (Kirby and Gregoriadis, 1984). While free peptide failed to induce a positive response in study subjects, its liposomal form was T cell stimulatory and distinguished, to certain extent, between PPD responders (corresponding SI > 3 in 54% subjects) and non-responders (SI > 3 in 29% subjects). However, it did not differentiate between leprosy and tuberculosis. The study supports use of liposomes as adjuvant vehicles for antigenic peptides designed to activate human T cells.

GOULART, I.M.; PENNA, G.O.; CUNHA, G. [Immunopathology of leprosy: the complexity of the mechanisms of host immune response to *Mycobacterium leprae*] Imunopatologia da hanseníase: a complexidade dos mecanismos da resposta imune do hospedeiro ao *Mycobacterium leprae*. *Rev. Soc. Bras. Med. Trop*., v.35, n.4, p.365-75, Jul-Aug., 2002.

Leprosy, whose etiologic agent *Mycobacterium leprae*, is an illness of ample clinical and immunopathological spectrum. Its clinical manifestations are correlated with distinct immunologic forms, varying from a vigorous immune response mediated by cells to *M. leprae*, with Th1 standard in the tuberculoid polar region, to an absence of specific cellular response to antigens of M. leprae in the lepromatous polar region, with predominance of Th2 response and exacerbation of humoral response. It is probable that different polymorphic genes determine susceptibility to *M. leprae*. Additional studies are necessary to clarify the complex interactions between cytokines and the role of the phenotypic diversity of cells network that contribute to the host defense. The comprehension of such mechanisms will provide new insights for the identification of agonists and/or antagonists for pro- or anti-inflammatory effects, and also will indicate possible situations for its appropriate use in immunologic and/or immunotherapeutic interventions.

KISZEWSKI, C.A.; BECERRIL, E.; BAQUERA, J.; AGUILA, L.D.; HERNÁNDEZ-PANDO, R. Expression of transforming growth factor-beta isoforms and their receptors in lepromatous and tuberculoid leprosy. *Scand. J. Immunol.,* v.57, n.3, p.279-85, Mar., 2003.

Leprosy is an infectious disease with two polar forms, tuberculoid leprosy (TT) and lepromatous leprosy (LL), that are characterized by strong cell-mediated immunity (CMI) and CMI anergy, respectively. Transforming growth factor-beta (TGF-beta) belongs to a family of pleiotropic cytokines (TGF-beta1, TGF-beta2 and TGF-beta3) that participate in the control of cell differentiation and proliferation, as well as tissue repair. This cytokine family is unique because it suppresses CMI. In this study, we compared the expression of the three TGF-beta isoforms and their receptors in skin biopsies from LL and TT patients (LL = 20; TT = 20) using immunohistochemistry and automated morphometry. The percentage of cells immunostained for the three TGF-beta isoforms and cells positive for the three TGF-beta receptors in the inflammatory infiltrate located in the papillary dermis, reticular dermis and periadnexal tissue were significantly higher in LL than that in TT, with macrophages being the most common and strongest immunoreactive cells. Some lymphocytes, fibroblasts, keratinocytes and epithelial cells from sweat glands and hair roots were also positive. In situ reverse-transcription polymerase chain reaction corroborated the capacity of these cells to synthesize TGF-beta1 and TGF-beta receptor 2. This high expression of TGF-beta isoforms and their receptors could contribute to CMI anergy and other clinical characteristic features of leprosy, like skin atrophy.

OLIVEIRA, R.B.; OCHOA, M.T.; SIELING, P.A.; REA, T.H.; RAMBUKKANA, A.; SARNO, E.N.; MODLIN, R.L. Expression of Toll-like receptor 2 on human Schwann cells: a mechanism of nerve damage in leprosy. *Infect. Immun.*, v.71, n.3, p.1427-33, Mar., 2003.

Nerve damage is a clinical hallmark of leprosy and a major source of patient morbidity. We investigated the possibility that human Schwann cells are susceptible to cell death through the activation of Toll-like receptor 2 (TLR2), a pattern recognition receptor of the innate immune system. TLR2 was detected on the surface of human Schwann cell line ST88-14 and on cultured primary human Schwann cells. Activation of the human Schwann cell line and primary human Schwann cell cultures with a TLR2 agonist, a synthetic lipopeptide comprising the N-terminal portion of the putative *Mycobacterium leprae* 19-kDa lipoprotein, triggered an increase in the number of apoptotic cells. The lipopeptide-induced apoptosis of Schwann cells could be blocked by an anti-TLR2 monoclonal antibody. Schwann cells in skin lesions from leprosy patients were found to express TLR2. It was possible to identify in the lesions Schwann cells that had undergone apoptosis in vivo. The ability of *M. leprae* ligands to induce the apoptosis of Schwann cells through TLR2 provides a mechanism by which activation of the innate immune response contributes to nerve injury in leprosy.

RAJESH, M.; SULOCHANA, K.N.; SUNDARAM, A.L.; KRISHNAKUMAR, S.; BISWAS, J.; RAMAKRISHNAN, S. Presence of a 88 kDa Eales protein in uveitis, tuberculosis, leprosy and rheumatoid arthritis. *Med. Sci. Monit.*, v.9, n.2, p.95-9, Feb., 2003.

BACKGROUND: Eales disease (ED) is an idiopathic retinal vasculitis affecting young adult males. We have earlier reported the identification, purification and partial characterization of a novel 88 kDa protein found in the serum of patients with ED. The aim of the present study was to look for the 88 kDa protein in serum samples obtained from cases of retinal vasculitis mimicking ED and in other systemic inflammatory diseases. MATERIAL/METHODS: Serum samples from healthy volunteers and from patients with ED, uveitis, parsplanitis ocular sarcoidosis, toxoplasmosis, leprosy, diabetic retinopathy, viral hepatitis, and rheumatoid arthritis were analyzed for the presence of the 88 kDa protein by polyacralymide gel electrophoresis (PAGE). The immunological identity of the 88 kDa protein found in ED and in other diseases was investigated by Western blot. Immunohistochemistry was performed on epiretinal membranes (ERM) obtained from ED patients to localize the 88 kDa protein. RESULTS: 88 kDa protein were detected in serum samples obtained from patients with posterior uveitis, tuberculosis, leprosy and rheumatoid arthritis. The 88 kDa protein found in serum from patients with ED is immunologically identical to that found in other systemic inflammatory conditions. 88 kDa protein was localized in inflammatory cells and in nonvascular endothelium in ERMs obtained from patients with ED. CONCLUSIONS: We have identified a novel acute phase reactant, which is elaborated in ocular and systemic inflammatory conditions other than Eales disease. Further work is necessary to decipher the precise role of the 88 kDa protein in the pathophysiology of these inflammatory diseases.

IMUNOTERAPIA EXPERIMENTAL

GORMUS, B.J.; BASKIN, G.B.; XU, K.; RATTERREE, M.S.; MACK, P.A.; BOHM, R.P.; MEYERS, W.M.; WALSH, G.P. Anti-leprosy protective vaccination of rhesus monkeys with BCG or BCG plus heat-killed *Mycobacterium leprae*: lepromin skin test results. *Leprosy Rev.*, v.73, n.3, p.254-61, Sep., 2002.

Groups of rhesus monkeys (RM) were vaccinated and boosted with living *Mycobacterium bovis* Bacillus Calmette-Guerin (BCG) or BCG + low dose (LD) heat-killed *Mycobacterium leprae* (HKML) or high dose (HD) HKML or were unvaccinated. Animals vaccinated with BCG + LD and HD HKML were lepromin skin tested 2 weeks after boosting. All groups were lepromin tested 37 and 46 months after challenge with live *M. leprae*. Fernandez (72 h) and Mitsuda (28 day) responses were recorded. Ten of 10 rhesus monkeys in each of the two BCG + HKML-vaccinated groups significantly converted to strong positive Fernandez status within 2 weeks of boosting, compared to one of six positives in the unvaccinated unchallenged normal control group. Both BCG + HKML groups were significantly protected from clinical leprosy. Six of 10 in each of the two BCG + HKML groups significantly converted to Mitsuda positivity within 2 weeks of boosting compared to zero of six in the normal control group. The sizes of the Mitsuda responses were larger in the LD group than the HD HKML vaccinated/boosted group, suggesting suppression by vaccination with higher doses of HKML in combination with BCG. Fernandez responses were negative in normal RM as well as in the unvaccinated, ML-challenged group and the BCG-vaccinated, ML-challenged group at 37 or 46 months after ML inoculation, although the BCG-vaccinated group was significantly protected from leprosy and the unvaccinated group was not. In contrast, at 37 months the Fernandez reaction was positive in the BCG plus LD and the BCG plus HD HKML-vaccinated groups, both of which were significantly protected from clinical leprosy. By 46 months, the Fernandez responses were below significance in all groups. Thus, Fernandez reactivity is not a reliable correlate to protection from experimental leprosy in RM. Mitsuda responses became strongly positive in all four ML-challenged groups by 37 months and remained strongly positive at 46 months after ML inoculation, suggesting that strong Mitsuda

reactivity reflects responses to living ML. BCG or BCG + LD or HD HKML vaccination/boosting of RM produced significant clinical protection from leprosy and there was a good correlation between protection from LL forms of leprosy and positive Mitsuda skin test responses after challenge with live ML. Positive Mitsuda responses were generated in essentially all individuals after challenge with live ML, and this response was primed by prior vaccination/boosting with BCG + HKML as shown by conversion to positivity 2 weeks after boosting. The data show that resistance to clinical leprosy is reflected by Mitsuda responses in ML-exposed RM, similar to results from human studies, and confirm the suitability of RM as a model for leprosy vaccine studies.

NGAMYING, M.; SAWANPANYALERT, P.; BUTRAPORN, R.; NIKASRI, J.; CHO, S.N.; LEVY, L.; BRENNAN, P.J. Effect of vaccination with refined components of the organism on infection of mice with *Mycobacterium leprae*. *Infect. Immun*., v.71, n.3, p.1596-8, Mar., 2003.

Only native products of *Mycobacterium leprae*, whether cell wall, cytosol, or membrane derived, can confer protective immunity against challenge in the mouse footpad. Previously, recombinant proteins were shown to be ineffective. The cell wall skeleton-the mycolyl-arabinogalactan-peptidoglycan complex-devoid of proteins is not protective.

NOMAGUCHI, H.; MUKAI, T.; TAKESHITA, F.; MATSUOKA, M.; MAEDA, Y.; AYE, T.M.; JAHAN, N.; YOGHI, Y.; ENDO, M.; SATO, Y. Effect of hsp65 DNA vaccination carrying immunostimulatory DNA sequences (CpG motifs) against *Mycobacterium leprae* multiplication in mice. *Int. J Leprosy*, v.70, n.3, p.182-90, Sep., 2002.

A DNA expressing hsp65 of Mycobacterium leprae (pACB/hsp65) was constructed by using a vector containing immunostimulatory DNA sequences (pACB). At 12 weeks post-immunization, spleen cells from BALB/cA mice immunized with pACB/hsp65, produced a significantly higher amount of IFN-gamma than mice immunized with pACB in the absence of any in vitro stimulation, and further enhanced its production upon secondary in vitro stimulation with *M. leprae* lysate and hsp65. On the other hand, while production of IL-12 was observed in mice immunized with pACB/hsp65 12 weeks before, the cytokine production was inhibited by in vitro secondary stimulation with M. leprae or hsp65. At 18 weeks post-immunization, the production of both IFN-gamma and IL-12 was apparently down-regulated, but that of IL-10 was up-regulated. IL-10 seemed to suppress the IFN-gamma and IL-12 productions, because their production was recovered by neutralization of IL-10 with anti-IL-10 mAb. Furthermore, when the efficiency of pACB/hsp65 as a vaccine against M. leprae was evaluated in vivo, the mice immunized with pACB/hsp65 suppressed the multiplication of subsequently challenged *M. leprae*. These results suggest that a DNA containing *M. leprae*-derived hsp65 and immunostimulatory sequences might be a potent vaccine candidate against *M. leprae* infection.

INVESTIGAÇÃO LABORATORIAL

DOLO, A.; DIANE, K.; COULIBALY, I.; SOW, S.; KONARE, DIAWARA H.; FOMBA, A.; THERA, M.A.; DIALLO, A.; KEITA, S.; DOUMBO, O. [Systematic search for parasites among leprosy patients in Mali]. Recherche systématique de parasites chez les lépreux au Mali. *Med. Trop*. (Mars), v.62, n.5, p.503-6, 2002.

Practice of multidrug therapy in leprosy (combination Dapsone + Rifampicine + Clofazimine) established since 1981, has significantly reduced the incidence of the disease. However, immunosuppression due to treatment of multi-drugs therapy induced adverse reactions with glucocorticoid and the change in host immune response due to the leprosy itself, might increase the risk of parasitic infections. To test this hypothesis, we carried out a case-control study at the "Institut Marchoux" in Bamako. Stool and urine samples from all patients included in the study were examined for parasites identification. In addition, we performed thick and thin blood film to identify malaria infection and skin biopsy (snip) to detect onchocerciasis. A total of 121 cases of leprosy and 219 controls aged 10-84 years old were included in the study from March 1999 to February 2000. Sixty two percent (n = 121) of cases were treated with glucocorticoid. The prevalence of infection due to Entamoeba coli and Entamoeba histolytica were higher in cases than in controls (p = 0.02). The prevalence of infection due to hookworms was higher in cases than in controls. There was no difference of the infections to the other intestinal parasites. Three cases of cryptosporidiosis and one case of isosporosis were observed in leprosy group vs none in the control group. There was no significant difference between cases and controls with regard to prevalence of Schistosoma haematobium, Trichomonas vaginalis and Onchocera volvulus. The prevalence of Plasmodium falciparum was 4.9% (6/121) in the leprosy case and 7.8% (17/219) in the control group. In conclusion, despite the corticotherapy and immunosuppression due to leprosy, there was no difference in prevalence of pathogenic parasites. Entomoeba coli, Entamoeba histolytica which have significantly higher prevalence among the cases were not pathogen therefore there was no higher risk of severe intestinal parasitosis among the cases of leprosy. Treatment with glycocorticoid in patients with leprosy did not suggest any impact on the prevalence of this parasitic infections. In addition, multidrug therapy did not show any effect on the carriage of Plasmodium falciparum.

MARTINUZZO, M.E.; DE LARRAÑAGA, G.F.; FORASTIERO, R.R.; PELEGRI, Y.; FARIÑA, M.H,; ALONSO, B.S.; KORDICH, L.C.; CARRERAS, L.O. Markers of platelet, endothelial cell and blood coagulation activation in leprosy patients with antiphospholipid antibodies. *Clin. Exp. Rheumatol.,* v.20, n.4, p.477-83, Jul-Aug., 2002.

OBJECTIVE: To evaluate plasma levels of markers of platelet, endothelial cell and blood coagulation activation in leprosy patients with or without antiphospholipid antibodies (aPL) and to compare them to those found in patients with antiphospholipid syndrome (APS). METHODS: 42 patients with leprosy (35 lepromatous and 7 borderline): 29 aPL(+) and 13 aPL(-), as well as 26 healthy subjects as normal controls (NC) and 79 control aPL patients without leprosy (59 with and 20 without APS) were included in the study. Plasma soluble P and E selectin (sPsel and sEsel), and VCAM-1 (sVCAM-1), prothrombin F1 + 2 fragment (F1 + 2), thrombin-antithrombin complexes (TAT) and D dimer (DD) were measured by ELISA. The protein C pathway was assessed by the ProC global test. RESULTS: Leprosy patients with aPL presented increased median levels of sPsel [ng/ml (82.0 vs 36.0, $p < 0.001$)] and sVCAM-1 [ng/ml (495 vs 335, $p < 0.001$)] compared to NC, as observed in control aPL patients without leprosy. Levels of sPsel in aPL(+) patients with leprosy were significantly higher than in aPL(-) ones (52.5 ng/ml), $p = 0.005$. However, plasma markers of thrombin generation were increased in control aPL patients without leprosy but not in those with leprosy. ProcC global test was abnormal in 24.1% of leprosy patients with aPL compared to 4.4% of NC ($p < 0.024$), and to 57.2% of control patients with aPL without leprosy ($p = 0.005$). CONCLUSIONS: We demonstrated that although patients with leprosy present a high prevalence of aPL, and platelet and endothelial cell activation in vivo to the same extent than patients with APS, they do not show a procoagulant state.

REA, T.H. Elevated platelet counts and thrombocytosis in erythema nodosum leprosum. *Int. J. Leprosy*, v.70, n.3, p.167-73, Sep., 2002.

Changes in peripheral blood platelet counts associated with the onset of symptomatic erythema nodosum leprosum (ENL) were studied by comparing, in each patient, the value obtained on the day thalidomide therapy commenced with the average of the three preceding values. In the 11 patients studied, the mean platelet count rose from 235 to 322 x 10(3)/mm3, $p < 0.001$. In 3, the platelet count was above the normal limit, qualifying as thrombocytosis, in 7 the rise was appreciable, and in 2 it was negligible. In the 3 patients studied 1-2 weeks after beginning thalidomide, the mean count was 414 x 10(3)/mm3. Counts obtained after 3 or more weeks of thalidomide therapy were within normal limits. This study provided no direct evidence as to the mechanism responsible for the elevated platelet count, but mediation by interleukin-6 (IL-6) was concluded to be an attractive hypothesis, consistent with prior studies of IL-6 in reactive thrombocytosis and of IL-6 in ENL.

MEDICINA TROPICAL DIAGNOSTICO POR IMAGEM

BRAGA, F.J.H.N. Nuclear medicine in tropical disease: an overview. *Rev. med. nucl. alasbimn j*., v.4, n.15), abr. 2002.

Leprosy is an infectious granulomatous disease. Incidence is again increasing and millions of people are affected in the world. Ga-67 scintigraphy is a good tool to identify active disease; bone scintigraphy is useful in the evaluation of mutilation and 99mTc-DTPA is good to evaluate kidney function. Paracoccidioidomycosis is a deep mycosis that affects nearly all organs. The following scintigraphic exams are useful to evaluate such patients: Ga-67, bone scintigraphy, liver / spleen / bone marrow scintigraphy, 99mTc-DISIDA scintigraphy, lymphoscintigraphy. Mycetoma is bone and soft tissue mycosis and gallim-67 and bone studies are very useful for the detectio of active disease. Tuberculosis is the most well studied tropical disease and dozens of radiopharmaceuticals and techniques were described to evaluate such patients. Jorge Lobo's disease is a rare mycosis that affects mainly indians from the Amazon region and gallium-67 was shown to accumulate in active disease. Neurocysticercosis is spread worldwide and brain SPECT (99mTc-ECD or 99mTc-HMPAO) is a very good tool for the functional evaluation of the disease. Patients suffering from Cutaneous and mucous leishmaniosis may benefit from Gallium-67 scintigraphy. Chagas' disease may affect the heart and/or the digestive tract and several scintigraphic exams may be helpful in the evaluation of such cases (gated blood pool, heart perfusion tests, pharyngeal transit tests, gastric emptying tests, intestinal transit tests, hepato-billiary scintigraphy, among others). Scintigraphy should be more largely used in the functional evaluation of organs and systems of patients affected by topical diseases.

MICROBIOLOGIA E BIOLOGIA MOLECULAR

TORRES, P.; CAMARENA, J.J.; GOMEZ, J.R.; NOGUEIRA, J.M.; GIMENO, V.; NAVARRO, J.C.; OLMOS, A. Comparison of PCR mediated amplification of DNA and the classical methods for detection of Mycobacterium leprae in different types of clinical samples in leprosy patients and contacts. *Leprosy Rev*., v.74, n.1, p.18-30, Mar., 2003.

Traditional staining and microscopic examination techniques for the detection of Mycobacterium leprae, DNA amplification by polymerase chain reaction (PCR) of a 531-bp fragment of the M. leprae specific gene encoding the 36-kDa antigen, and serodiagnosis with M. leprae specific

antigens (PGL-1 and D-BSA) were compared on different clinical specimens (serum samples, slit-skin smears, biopsies and swabs) from 60 leprosy patients attending the Sanatorium of Fontilles. Patients were divided into groups; (i) 20 multibacillary patients (MB) with positive bacteriological index (BI) by conventional methods and on WHO multidrug therapy (MDT); (ii) 30 MB patients with negative BI and completed minimum 2 years treatment MDT; (iii) 10 paucibacillary (PB) patients who had completed 6 months MDT at least 8 years ago. Control groups included four non-leprosy patients for PCR methods and 40 health control patients and 10 tuberculosis patients for serological methods. In the multibacillary BI positive group, there was a good correlation between all methods. All tests were negative in the paucibacillary group, although only a few patients were tested and all had been treated many years ago. One must be cautious concerning the diagnostic potential of these techniques in this type of leprosy. We also studied different combinations of leprosy diagnosis methods to determine the potential risk in a leprosy contact individuals group. The prevalence of antibodies to M. leprae antigens in serum was measured, together with the presence of M. leprae DNA in the nose and lepromin status in a group of 43 contacts of leprosy patients (12 household and 31 occupational) to evaluate the maintenance of infection reservoirs and transmission of the disease. Only two individuals were found to form a potential high risk group.

NEUROLOGIA

CROFT, R.P.; NICHOLLS, P.G.; STEYERBERG, E.W.; RICHARDUS, J.H.; WITHINGTON, S.G.; SMITH, W.C. A clinical prediction rule for nerve function impairment in leprosy patients-revisited after 5 years of follow-up. *Leprosy Rev*., v.74, n.1, p.35-41, Mar., 2003.

Nerve function impairment (NFI) commonly occurs during or after chemotherapy in leprosy. We previously described a clinical prediction rule to estimate the risk of NFI occurring within 2 years of diagnosis, based on 2510 patients who are followed up in the Bangladesh Acute Nerve Damage Study (BANDS). This prediction rule assigns new leprosy patients to one of three risk groups based on leprosy group and the presence or absence of NFI at registration. Updated data with up to 5 years of follow-up showed that 95% of all NFI occurred within 2 years. This study confirms the validity of the rule and supports the conclusion that there is little value for the detection of NFI in extending follow-up beyond 2 years.

KOELEWIJN, L.F.; MEIMA, A.; BROEKHUIS, S.M.; RICHARDUS, J.H.; MITCHELL, P.D.; BENBOW, C.; SAUNDERSON, P.R. Sensory testing in leprosy: comparison of ballpoint pen and monofilaments. *Leprosy Rev*., v.74, n.1, p.42-52, Mar., 2003.

The 10 g monofilament has been replaced by the ballpoint pen in routine sensory testing of nerves in leprosy control in Ethiopia. Results of sensory testing between the ballpoint pen and different monofilaments on hands and feet were compared. Ballpoint pen underdiagnosis of loss of sensation was defined to occur when the pen was felt and the monofilament was not. Differences were evaluated both for individual test points (test point level) and for the test points of extremities collectively (extremity level). An extremity (either a hand or a foot) was defined as having sensory nerve function impairment (SNFI) if a supplying nerve had SNFI, which was the case when sensation was absent in two or more test points in the area supplied by that nerve. At test point level, the percentages with ballpoint pen underdiagnosis relative to the 2, 10, 20 and 50 g monofilaments were 40, 21, 9 and 7%, respectively, in the hands, and 47, 30, 15 and 7% in the feet. Ballpoint pen underdiagnosis percentages of SNFI at extremity level were 32, 18, 8 and 9% in the hands, and 37, 26, 14 and 6% in the feet. The risk of ballpoint pen underdiagnosis appears to be higher in extremities without visible damage. In conclusion, substantial levels of underdiagnosis of sensory loss with the ballpoint pen were observed. However, the consequences for the prognosis of treatment with corticosteroids in patients with the more subtle sensation loss noted here need to be established. Development and testing of guidelines is a prerequisite for the use of the ballpoint pen.

MALAVIYA, G.N. Median nerve palsy following claw finger correction in leprosy: effect of M. leprae or a consequence of surgery. *Indian J. Leprosy,* v.74, n.3, p.217-20, Jul-Sep., 2002

Median nerve palsy, though not a frequent occurrence after claw finger correction, does exist as a post-operative complication after claw finger correction. A retrospective study was carried out to examine the occurrence of post-operative median palsy, in cases of isolated ulnar palsy, where the transferred motor tendon was routed through the carpal tunnel. We noted that six patients developed median nerve palsy following claw finger correction. Median palsy developed at different times after surgery—the "early onset" type developing within three weeks post-operatively, "reactional" type developed when patient was undergoing physiotherapy exercises and learning to use the transfer and "delayed insidious" type presenting six months or more after operation. We could not succeed to get the true prevalence of such occurrences because all the operated hands could not be re-examined.

TOLEDANO FERNÁNDEZ, N; GARCÍA SÁEZ, S.; ARTEAGA SÁNCHEZ, A.; DÍAZ VALLE, D. [Bilateral lagophthalmos in lepromatous leprosy. Case report] Lagoftalmos bilateral en paciente con lepra lepromatosa. Caso clínico. *Arch. Soc. Esp. Oftalmol.*, v.77, n.9, p.511-4, Sep., 2002.

CASE REPORT: A case of bilateral facial palsy with paralytic ectropion, lagophthalmos and corneal damage secondary to corneal exposure in a long-standing patient with lepromatous leprosy is presented. Correction of paralytic ectropion was performed by medial cantoplasty, tarsal strip and Medpor lower eyelid spacer implantation. Lagophthalmos was corrected by gold weight implant in the upper tarsus. DISCUSSION: Ocular findings in leprosy appear in 72% of patients. Facial nerve palsy occurs in 3-19.8%, being bilateral in 5%. In long standing cases with corneal complications secondary to exposure, surgical treatment is required.

TURKOF, E.; RICHARD, B; ASSADIAN, O.; KHATRI, B.; KNOLLE, E.; LUCAS, S. Leprosy affects facial nerves in a scattered distribution from the main trunk to all peripheral branches and neurolysis improves muscle function of the face. *Am. J. Trop. Med. Hyg.,* v.68, n.1, p.81-8, Jan., 2003.

Current literature rejects nerve release in leprous facial neuropathy and states that lesions are restricted to the peripheral zygomatic branches. Since there are approximately 500,000 patients with this disease throughout the world, we wanted to clarify the precise location of facial nerve's affection and the benefit of neurolysis. Our study showed that in patients with leprosy, the facial nerve's main trunk, the peripheral zygomatic branches, and all other branches were affected. Follow-up showed improvement in lagophthalmos and in misreinnervation, with no improvement in the control cohort. Nerve release improves muscle function in leprous facial neuropathy, provided surgery is performed on all affected segments. Intraoperative electroneurodiagnostics is an effective tool for detecting the most proximal site of lesion and ensuring effective surgery.

ULVI, H.; YOLDAS, T.; YIGITER, R.; MÜNGEN, B. R-R interval variation and the sympathetic skin response in the assessment of the autonomic nervous system in leprosy patients. *Acta Neurol. Scand.,* v.107, n.1, p.42-9, Jan., 2003.

OBJECTIVES: The aim of this study was to evaluate possible autonomic nervous system (ANS) dysfunction in leprosy patients with the sympathetic skin response (SSR) and the heart rate (R-R) interval variation (RRIV) measurements which are easy and reliable methods for evaluation of autonomic functions. MATERIAL AND METHODS: We studied 37 lepromatous leprosy patients (mean age: 38 +/- 17 years, range 23-62 years, 20 females and 17 males) and 35 age-matched healthy subjects (mean age: 34.19 +/- 12.74 years, range 24-48 years, 20 females and 15 males). Non-invasive bedside tests (orthostatic test, Valsalva ratio), R-R interval variation (RRIV) during at rest and deep breathing, the SSR latency and amplitude from both palms, and nerve conduction parameters were studied in all the subjects. RESULTS: The mean values of RRIV in leprosy patients during at rest [mean RRIV in patients, 17.42 +/- 8.64% vs controls, 22.71 +/- 3.77% ($P < 0.05$)] and during deep breathing [mean RRIV in patients, 21.64 +/- 9.08% vs controls, 30.70 +/- 5.99% ($P < 0.005$)] was significantly lower compared with the controls. The mean latency of SSR in leprosy patients [mean SSR latency in patients, 1.72 +/- 1.13 ms vs controls, 1.30 +/- 0.41 ms ($P < 0.05$)] was significantly prolonged compared with the controls. The mean amplitude of SSR in leprosy patients [mean SSR amplitude in patients, 0.54 +/- 0.57 microV vs controls, 1.02 +/- 0.56 microV ($P > 0.05$)] was smaller compared with the controls, but this difference was not significant. The mean Valsalva ratio in leprosy patients [mean in patients, 1.11 +/- 0.13 vs controls, 1.16 +/- 0.07 ($P > 0.05$)] was smaller compared with the controls, but not statistically significant. The mean difference of systolic and diastolic blood pressure between supine rest and during standing in leprosy patients were higher compared with the controls [mean systolic pressure in patients, 7 +/- 6 mmHg vs controls, 6 +/- 8 mmHg ($P > 0.05$) and mean diastolic pressure in patients, 3 +/- 3 mmHg vs controls, 3 +/- 2 mmHg ($P > 0.05$)], but they did not reach statistical significance. Furthermore, lower RRIV and the prolonged SSR latencies in leprosy patients were closely correlated to some parameters of sensorimotor nerve conduction and each other [median nerve distal latency and RRIV, $r = -0.67$ ($P < 0.05$), ulnar nerve distal latency and RRIV, $r = -0.59$ ($P < 0.05$), RRIV and SSR latency, $r = -0.33$ ($P < 0.02$)]. These data indicate that leprosy patients have the functional abnormalities of ANS. CONCLUSION: We conclude that combined use of these two tests, both of which can be easily and rapidly performed in the electromyogram (EMG) laboratory using standard equipment, allows separate testing of parasympathetic and sympathetic function, and are very sensitive methods in assessing of ANS function in peripheral neuropathy in leprosy patients.

NEUROLOGIA EXPERIMENTAL

HAGGE, D.A; OBY ROBINSON, S.; SCOLLARD, D.; MCCORMICK, G.; WILLIAMS, D.L. A new model for studying the effects of *Mycobacterium leprae* on Schwann cell and neuron interactions. *J. Infect. Dis.*, v.186, n.9, p.1283-96, Nov., 2002.

Millions of patients with leprosy suffer from nerve damage resulting in disabilities as a consequence of *Mycobacterium leprae* infection. However, mechanisms of nerve damage have not been elucidated because of the lack of a model that maintains *M. leprae* viability and mimics disease conditions. A model was developed using viable M.

leprae, rat Schwann cells, and Schwann cell-neuron cocultures incubated at 33 degrees C. *M. leprae* retained 56% viability in Schwann cells for 3 weeks after infection at 33 degrees C, compared with 3.6% viability at 37 degrees C. Infected Schwann cells had altered morphology and expression of genes encoding cellular adhesion molecules at 33 degrees C but were capable of interacting with and myelinating neurons. Cocultures, infected after myelination occurred, showed no morphological changes in myelin architecture after 1 month of incubation at 33 degrees C, and *M. leprae* retained 53% viability. This article describes a new model for studying the effects of *M. leprae* on Schwann cells.

REABILITAÇÃO

BARI, M.M. Surgical reconstruction of leprotic foot drop. *Mymensingh Med. J.,* v.12, n.1, p.11-2, Jan., 2003.

We have operated 152 patients for correction of foot-drop due to leprosy from March 1992 to July 1999. The method used was circumtibial transfer of the tibial is posterior to the tendons of extensor hellucis longus and the extensor digitorum longus in the foot together with lengthening of the Achilles tendon. The results were satisfactory in 135 of these cases as judged by adequate restoration of heel—toe gait and of active dorsiflexion. The follow up period ranged from 6 months to 8 years. Inadequate post-operative physiotherapy was the reason for unsatisfactory results in seventeen cases..

OZKAN, T.; OZER, K.; YUKSE, A.; GULGONEN, A. Surgical reconstruction of irreversible ulnar nerve paralysis in leprosy. *Leprosy Rev*., v.74, n.1, p.53-62, Mar., 2003.

Twenty-five patients with irreversible leprotic ulnar nerve palsy having undergone lumbrical replacement with two different tendon transfer techniques were assessed 6-120 months after surgery. Nineteen patients were reconstructed with the flexor digitorum four-tail procedure (FDS-4T), and six with Zancolli's lasso procedure (ZLP). Mean paralysis times were 103 months for FDS-4T, and 68 months for ZLP. Mean age of the patients was 36 years (21-57). Grip strength measurements, improvement in active range of motion at the PIP joints, patients' ability to open and close their hands fully, as well as sequence of phalangeal flexion, were noted. Mean grip strength measurements during follow-up were 76% of the contralateral extremity in the FDS-4T group and 82% in the ZLP group. Comparison of the follow-up grip strength with the preoperative value revealed 1% improvement in the FDS-4T group and 20% in the ZLP group. Claw hand deformity was completely corrected in 12 patients in FDS-4T group, and in five patients in the ZLP group. Residual flexion contracture remained in five patients after surgery. Swan-neck deformity subsequently developed in seven fingers. Age, sex, mean follow-up and surgical technique did not relate statistically to the functional outcome. However, preoperative extensor lag of the PIP joint and mean paralysis time significantly affected the functional outcome. ZLP was found to be a more effective procedure in restoring grip strength, whereas FDS-4T was more effective in correcting claw hand deformity.

MALAVIYA, G.N. Rehabilitation of insensitive hands. *Indian J. Leprosy*, v.74, n.2, p.151-7, Apr-Jun., 2002.

This article highlights the physical, social and emotional problems faced by persons with insensitive hands and problems of disuse, misuse and overuse. Evaluation of sensation and residual functional capabilities is the first step in planning the process of rehabilitation. Acceptance of disability by the patients and their attitude are important for successful rehabilitation. Possible solutions are suggested.

MALAVIYA, G.N. Some more about unfavourable results after corrective surgery as seen in leprosy. *Indian J. Leprosy*, v.74, n.3, p.243-57, Jul-Sep., 2002.

The paper describes unfavourable outcomes of some of the commonly performed surgical procedures in leprosy affected persons and the underlying causes. An awareness about unfavourable outcomes of surgery is helpful to the beginners because they can anticipate the problems and take appropriate measures to prevent that and failing which prepare themselves to face and sort that out. Careful pre-operative evaluation of the patient is an important first step.

MALAVIYA, G.N. Radial half of extensor carpi radialis longus tendon as graft to elongate muscle tendon unit for correction of finger clawing. *Plast. Reconstr. Surg*., v.111, n.6, p.1914-7, May, 2003.

In 12 patients, the extensor carpi radialis longus muscle tendon unit was elongated using the radial half of the parent tendon so that it could reach the site of new insertion, the A1-A2 pulley of flexor sheath or lateral bands, after routing the transfer through the carpal tunnel. The tendon was of appropriate thickness and could be split into two halves to be used as a graft. Further splitting of the tendon into four tails was possible. The transferred slips retained adequate strength to activate the fingers after the operation. It is suggested that splitting of the extensor carpi radialis longus tendon to use one half as a tendon graft be considered in patients in whom extensor carpi radialis longus transfer is planned to correct finger clawing. This technique is simple, needs minor modification in the sequence of operative steps, reduces operating time, and saves the patient from postoperative discomfort, muscle herniation, and scarring at the donor site (usually the thigh).

MCEVITT, E.; SCHWARZ, R. Tendon transfer for triple nerve paralysis of the hand in leprosy. *Leprosy Rev.,* v.73, n.4, p.319-25, Dec., 2002.

Paralysis of ulnar, median and radial nerves is seen in less than 1% of those affected with leprosy. This condition is a particular challenge for the surgeon, physiotherapist, and patient. A retrospective chart review was conducted at the Green Pastures Hospital and Rehabilitation Centre (GPHRC) and Anandaban Leprosy Hospital (ALH) in Nepal, and results were graded by the system outlined by Sundararaj in 1984. Thirty-one patients were identified, and 21 charts were available for review. Excellent or good results were obtained in 93% of patients for wrist extension, 85% of patients for finger extension, 90% of patients for thumb extension, 71% of patients for intrinsic reconstruction, and 63% of patients for thumb opposition reconstruction. These results are reasonable but inferior to those obtained by Sundararaj in his study. Surgical intervention offers a very significant improvement in function in these very difficult hands. Intensive physiotherapy is required both pre- and postoperatively.

OOMMEN, A.T.; MANNAM, E.; PARTHEEBARAJAN, S.; SAMUEL, S. Excision arthroplasty: an effective method in the management of plantar ulcers with metatarsophalangeal joint infection in anaesthetic feet. *Leprosy Rev.,* v.74, n.1, p.63-7, Mar., 2003.

The cases of 30 patients with septic arthritis of the metatarsophalangeal (MTP) joints as a complication of plantar ulceration in leprosy who underwent excision arthroplasty and primary closure of the plantar ulcer were reviewed. Twenty-two of these patients were male. The commonest site of MTP joint involvement was the first MTP joint. The average longitudinal diameter of ulcers was 2cm, and most ulcers were oval in shape. Diagnosis was made on the basis of signs of infection over the MTP joint, discharge from the ulcer and examination with a probe. Infection in the joint ranged from simple synovial discharge to seropurient or purulent discharge. Treatment involved excision arthroplasty of the MTP joint, excision of the ulcer with primary closure of the plantar incision and dorsal or lateral drainage depending upon the direction in which the infection extended. In two patients, the plantar wound could not be closed as it was too large. Healing of the plantar incision took 2 weeks in 12 patients and 3 weeks in 14 patients. In four patients, healing did not occur by primary intention. In a follow up of 1-2 years, there was no recurrence in 24 patients, while four patients had recurrent simple ulceration. Two patients were lost to follow up. Review of the results of this procedure dealing with septic arthritis of MTP joints secondary to plantar ulceration shows that primary healing of the plantar incision could be achieved in 3 weeks. With regard to recurrence, even though only four out of 28 ulcers treated by this procedure recurred, other contributing factors should be considered in a prospective control study to support the view that this procedure has contributed to non-recurrence.

REAÇÃO A DROGAS

COSTA QUEIROZ, R.H.; DE SOUZA, A.M.; SAMPAIO, S.V.; MELCHIOR, E. Biochemical and hematological side effects of clofazimine in leprosy patients. *Pharmacol. Res*., v.46, n.2, p.191-4, Aug., 2002.

Gastrointestinal toxicity and red skin discoloration were the major side effects observed in leprosy patients undergoing long-term treatment with clofazimine (CFZ). Hematological and biochemical alterations have been cited among other side effects; however, their real magnitude and clinical significance at the doses currently employed in therapy have not been sufficiently documented. We therefore investigated the correlation between CFZ plasma concentration and biochemical (transaminases, bilirubins, alkaline phosphatase, gamma-glutamyltransferase, amylase, urea, creatinine, and potassium plasma levels) as well as hematological changes blood and reticulocyte counts, osmotic fragility, detection of Heinz bodies and methemoglobinemia (MHM), following in two regimes of treatment: CFZ as a single drug and CFZ as part of multidrug (MDT) therapy, in combination with dapsone and rifampicin. MHM and hemolytic anemia were detected in the MDT group only. Eosinophilia was found in patients of either group. Determination of hepatic, pancreatic and renal biochemical parameters showed rare, occasional changes of apparently no clinical significance. We conclude that CFZ is a generally well tolerated and safe drug when given as a daily dose of 50mg, which is currently used in leprosy patients.

GOULART, I.M.; ARBEX, G.L.; CARNEIRO, M.H.; RODRIGUES, M.S.; GADIA, R. [Adverse effects of multidrug therapy in leprosy patients: a five-year survey at a Health Center of the Federal University of Uberlândia] Efeitos adversos da poliquimioterapia em pacientes com hanseníase: um levantamento de cinco anos em um Centro de Saúde da Universidade Federal de Uberlândia. *Rev. Soc. Bras. Med. Trop*., v.35, n.5, p.453-60, Sep-Oct., 2002.

The introduction of multidrug therapy (WHO/MDT)-composed by the drugs dapsone, clofazimine and rifampicin has enabled the cure of Hansen's disease, however, the adverse effects of these drugs were not given priority by the health team. Aiming to determine MDT's adverse effects' magnitude and relate them to the non-adhesion of patients to the treatment, a study of 187 charts of patients treated with MDT from January of 1995 to May 2000, was carried out at a Health Center of the Federal University of Uberlândia. Side effects were recorded in 71 patients' charts. Among the 113 side effects found, 80 (70.7%) were related

to dapsone, 7 (6.2%) were caused by rifampicin and 26 (20.5%) were attributed to clofazimine. These effects induced 28 (14.9%), patients to change the therapeutic scheme, representing 39.4% from the 71 patients with adverse effects. Throughout this study, the importance is discussed of considering MDT's adverse effects when training the health team to heighten the patient's adhesion to the treatment and thereby collaborating to eliminate Hansen's disease as a public health problem.

HALIM, N.K.; OGBEIDE, E. Haematological alterations in leprosy patients treated with dapsone. *East Afr. Med. J.*, v.79, n.2, p.100-2, Feb., 2002 Feb.

OBJECTIVE: To evaluate the haemoglobin concentration (Hb); total white blood cell count (WBC), differential WBC count; platelet count and reticulocyte count in leprosy patients already treated with dapsone. DESIGN: A case-control study. SETTING: Specialist Hospital Ossiomo, which is a Leprosarium and Haematology laboratory, University of Benin Teaching Hospital (UBTH), Nigeria. SUBJECTS: Seventy six leprosy patients (forty males and thirty six females) age range 13-40 years on single dose dapsone. RESULTS: The haemoglobin concentration showed a marked decrease while the reticulocyte count was markedly elevated which was suggestive of haemolytic anaemia. There was also lymphocytosis in patients during pre and post dapsone therapy. CONCLUSION: Leprosy patients on a dosage of 100 mg dapsone, are prone to haemolytic anaemia. Leprosy patients should routinely have their Hb, WBC, platelet count and reticulocyte count determined, while on dapsone therapy in order to ascertain the presence of haemolysis.

TERAPÊUTICA

DE CARSALADE, G.Y.; ACHIRAFI, A.; FLAGEUL, B. Pentoxifylline in the treatment of erythema nodosum leprosum. *J. Dermatol*., v.30, n.1, p.64-8, Jan., 2003.

Erythema nodosum leprosum (ENL) is a well-known serious complication affecting 10% of lepromatous multibacillary leprosy patients. In the chronic form, its morbidity may be considerable. Thalidomide and systemic steroids are the two current effective drugs for the management of ENL. However, their use in endemic countries is often difficult and hazardous, and a search for new therapies is needed. We report our experience on the effects of pentoxifylline, a methylxanthine derivative, which has recently been suggested as a possible effective treatment for ENL attacks.

GIRDHAR, A.; CHAKMA, J.K.; GIRDHAR, B.K. Pulsed corticosteroid therapy in patients with chronic recurrent ENL: a pilot study. *Indian J. Leprosy*, v.74, n.3, 233-6, Jul-Sep., 2002

A pilot study has been undertaken to compare the efficacy of small dose pulsed betamethasone therapy with need based oral steroids in chronic recurrent erythema nodosum leprosum (ENL) patients. Though this mode of therapy was well tolerated, no advantage with intermittent steroid administration was observed. This could have been on account of small dose of steroid given monthly. Treatment of chronic recurrent erythema nodosum leprosum (ENL) patients continues to be unsatisfactory, particularly, because of nonavailability of thalidomide. Though corticosteroids are effective in suppressing all the manifestations and even restoring partially or fully the functional impairment, their side effects and dependence are equally troublesome. Based on (a) the reported efficacy and safety of intermittent use of corticosteroids in several immune complex mediated disorders (Cathcart et al 1976, Kimberly et al 1979), Liebling et al 1981 and Pasricha & Gupta 1984) and (b) ENL (type II) reactions having similar pathology, a pilot study has been undertaken to see the efficacy and the tolerance of pulsed steroids in chronic ENL patients.

ISHII, N. Recent advances in the treatment of leprosy. *Dermatol. Online J.*, v.9, n.2, p.5, Mar., 2003.

Leprosy, a chronic infectious disease caused by *Mycobacterium leprae*, was identified by G. H. A. Hansen in 1873. The different clinical presentations of the disease are determined by the quality of the host immune response. The bacteria have affinity for the peripheral nerves and are likely the cause of neuropathy, a cardinal manifestation of the disease. WHO recommends a protocol of multidrug therapy (MDT), which effectively controls the disease, hence contributing to the global elimination program. Early detection of leprosy and treatment by MDT are the most important steps in preventing deformity and disability.

KAUR, I.; DOGRA, S.; KUMAR, B.; RADOTRA, B.D. Combined 12-month WHO/MDT MB regimen and *Mycobacterium w*. vaccine in multibacillary leprosy: a follow-up of 136 patients. *Int. J. Leprosy*, v.70, n.3, p.174-81, Sep., 2002.

A total of 136 patients with BI > or = 2 having been followed up for at least 2 years or more were included in the analyses. Seventy-seven out of 136 patients had completed three years follow up. All patients were given WHO/MDT MB regimen for 12 months and additionally 4 doses of Mycobacterium w. vaccine at 3-month intervals. The age of the patients varied from 6 to 77 years (mean 34 +/- 11.3 years) and they had the disease varying from 3 months to 7 years (mean = 1.9 +/- 1.4 years). The mean of the BI before starting treatment was 3.6 +/- 1.3. At the end of 2 years follow-up, a total of 54 patients out of the 136 (39.7%) had become smear-negative. A larger proportion of patients, 39/46 (84.8%) with BI

of < or = 3 had become smear-negative, whereas, only 10/32 (31.3%) patients with BI between 3.1 to 4 and 5/58 (8.6%) highly bacillated patients having initial BI > 4 had become smear-negative at the end of 2 years. Out of the 77 patients who were available for follow up at 3 years, 30/33 (90.9%) patients with BI of < or = 3, 15/20 (75%) patients with BI between 3.1 to 4 and 13/24 (54.2%) patients having initial BI > 4, respectively, had attained smear negativity. Reactions occurred more frequently after 6 months of therapy and over a period of time their frequency gradually decreased, however, they continued to occur even two years after RFT. During the course of MDT and thereafter in follow up 4.6% and 1.3% of the patients developed new deformities or an increase in the existing grade of deformities, respectively. Three relapses (2 in LL and 1 in BL) occurred in patients having initial BI of > 4. One patient relapsed in the second year and the other two relapsed in the third year of follow up and were successfully treated with reintroduction of the same MDT MB regimen. Local ulceration healing with scar formation and regional lymphadenopathy were the only local reactions to the vaccine seen in 47/136 (34.5%) patients. All the patients showed histopathological improvement in the form of a gradual reduction of granuloma fraction. Although the results of this limited period follow up are satisfactory, a long-term follow-up in larger number of patients will settle the issue of safety and efficacy of shortened MDT MB regimen and the place of immunotherapy with M. w. vaccine in multibacillary patients.

MATOS, R.O.; MONTEIRO, A.P.S.; PONTES, L.B.; CAMPOS, M.S.S.; RIBEIRO, R.T. Tratamento da hanseníase em uma unidade básica de saúde / Hansen's disease treatment at a basic health center. *Rev. para. Méd.*, v.16, n.4, p.37-40, out.-dez. 2002.

Introdução: A eliminação da hanseníase na Região Norte está prevista para longo prazo, após 2005, sendo a taxa de prevalência da doença na região igual ou maior a 10 casos para cada 10.000 habitantes. Objetivo: Analisar os resultados do tratamento de hanseníase na Unidade Básica de Saúde da Sacramenta (UBS-Sacramenta) de janeiro de 2000 a julho de 2001. Método: Análise descritiva dos prontuários de 65 pacientes matriculados no programa de tratamento de hanseníase da UBS-Sacramenta, realizado no consultório de doenças transmissíveis, de janeiro de 2000 a julho de 2001. Os dados foram coletados através da aplicação de protocolo sobre os prontuários e análise do livro da ata. Resultados: A maioria dos pacientes (86 por cento) residia na própria Sacramenta e apenas 9 por cento repetia o tratamento. Observou-se 68 por cento de assiduidade e, em 37 por cento de casos, os familiares recebiam a medicação. Durante o tratamento, 52 por cento dos pacientes não relataram queixas quanto ao seu estado geral. Houve apenas 2 por cento de abandonos, obtendo-se 44 por cento de altas. Persitiram lesões em 62 por cento dos pacientes que receberam alta. Considerações Finais: O esquema polioquimioterápico de tratamento está sendo bem conduzido na UBS-Sacramenta, e suas poucas deficiências resultam tanto da falta de estrutura da Unidade quanto da indisciplina dos pacientes.

NAMISATO, M.; GOTO, M.; GIDOH, M.; HOSOKAWA, A.; SUGITA, Y.; ISHII, N.; NAGAO, E.; OZAKI, M. [Clinical cure of leprosy - a criteria in Japan (2002)]. *Nihon Hansenbyo Gakkai Zasshi*., v.71, n.3, p.235-8, Aug., 2002.

In Japan, a cautious definition of clinical cure of leprosy has been used since 1988. This report presents a new definition of clinical cure for leprosy patients after multi-drug treatment is completed. When the patients complete the standard treatment published in 2000, they are defined as "clinically cured". The doctor in charge should inform the patient of the cure of the disease clearly. On the release from the treatment, it is important to explain necessary cares for protection against injuries and prevention from deformities. The patient should be careful about signs of relapse and reactions.

OLIVEIRA, M.L.; PIERRO, A.P.; SILVEIRA, P.A.; CAMPOS, M.M.; VILELA, M.F. Relapse of lepromatous leprosy after WHO/MDT with rapid bacterial growth. *Leprosy Rev.,* v.73, n.4, p.386-8, Dec., 2002.

The authors report a case of relapse in a lepromatous patient 6 years after he had been cured by MDT/WHO/24 doses. The atypical aspect emphasized in this case is the bacterial load increase in a short period of time of 1 year after the smear count was negative, and the case reinforces the importance of patient education on release. No leprosy cases were identified in the patient's close contacts. It seems that relapse was a result of bacillary persistence, since a significant improvement was noted in relapsed lesions after two doses of MDT/WHO.

PATTYN, S.; GRILLONE, S. Relapse rates and a 10-year follow-up of a 6-week quadruple drug regimen for multibacillary leprosy. *Leprosy Rev*., v.73, n.3, p.245-7, Sep., 2002.

Between 1989 and 1993, 136 multibacillary leprosy patients received a 6-week treatment regimen consisting of daily rifampicin 600 mg, ofloxacin 400 mg, clofazimine 100 mg and a weekly dose of 100 mg minocycline. A previous analysis after a mean follow-up of 4-7 years revealed a relapse rate of 2%, involving six late (after more than 5 years of follow-up) relapses. During the following years, 12 more relapses appeared during years 8-9 of follow-up. A mean follow-up period of 5 years is insufficient to evaluate treatment regimens in multibacillary leprosy. The present regimen cannot be recommended.

SEKAR, B.; ELANGESWARAN, N.; JAYARAMA, E.; RAJENDRAN, M.; KUMAR, S.S.; VIJAYARAGHAVAN, R.; ANANDAN, D.; ARUNAGIRI, K. Drug susceptibility of *Mycobacterium leprae*: a retrospective analysis of mouse footpad inoculation results from 1983 to 1997. *Leprosy Rev*., v.73, n.3, p.239-44, Sep., 2002.

We analysed the results of mouse foot pad (MFP) tests performed between 1983 and 1997 in our laboratory for the cases referred with clinical suspicion of relapse/drug resistance. A total of 214 cases, with clinical suspicion of relapse/drug resistance were investigated for susceptibility to the drugs of MDT by MFP inoculation. Among 96 inoculations that showed conclusive results, 81 (84%) were fully sensitive to dapsone, suggesting that most of the clinically suspected relapse is due to drug susceptible *Mycobacterium leprae*. Of the remaining 15 strains (16%) found resistant to dapsone, 13 (87%) were of high grade resistance and one strain each of intermediate grade and low grade dapsone resistance, suggesting that most of the dapsone resistance is secondary in nature. No case of rifampicin resistance was found. Only one case of combined dapsone and unconfirmed clofazimine resistance was found. No other combined multidrug resistance was observed in our analysis.

TEO, S.K.; RESZTAK, K.E.; SCHEFFLER, M.A.; KOOK, K.A.; ZELDIS, J.B.; STIRLING, D.I.; THOMAS, S.D. Thalidomide in the treatment of leprosy. *Microbes Infect*., v.4, n.11, p.1193-202, Sep., 2002.

Leprosy is a chronic infection of the skin and nerves caused by *Mycobacterium leprae*. Erythema nodosum leprosum (ENL) is a reactive state in lepromatous leprosy. Thalidomide has been used to treat ENL since the 1960s. One of its mechanisms of action is anti-inflammatory through selective inhibition of the pro-inflammatory cytokine TNF-alpha produced by monocytes.

WU, K.L.; SONNEVELD, P. [Thalidomide: new uses for an old drug] Thalidomide: nieuwe toepassingen voor een oud geneesmiddel. Comment On: Ned. Tijdschr. Geneeskd., v.146, n.31, p.1445-8, Aug. 3, 2002. Ned Tijdschr Geneeskd., v.146, n.31, p.1438-41,

Thalidomide was withdrawn from the market in the early sixties because of its teratogenic effects. Despite forty years of research, the mechanism of thalidomide embryopathy has remained unsolved. Thalidomide has various immunomodulatory effects. Thalidomide inhibits TNF alpha production, has T-cell costimulatory properties and modulates the expression of cell surface molecules on leukocytes in vivo. Thalidomide also has anti-angiogenic activity in vivo. Angiogenesis plays an important role in the pathogenesis of both solid tumours and hematologic malignancies such as multiple myeloma and lymphoma. In clinical studies, thalidomide has been used as an inhibitor of angiogenesis. Erythema nodosum leprosum is the only registered indication for the use of thalidomide in the United States of America. Thalidomide is also effective in the treatment of chronic graft-versus-host disease, mucocutaneous lesions in Behçet's syndrome and HIV infections, and multiple myeloma.