LITERATURA CORRENTE - CURRENT LITERATURE

CLÍNICA - CLINICS

DATE, A., et al. Leprosy and renal transplantation. *Leprosy Rev.,* v.69, p.40-45, 1998.

Nine cases of leprosy in patients treated at a large renal transplant centre in South Asia are described. Three had leprosy diagnosed before transplantation and had either completed or were continuing chemotherapy at the time of transplantation. One showed exacerbation of undisclosed leprosy after transplantation. Five patients developed the disease for the first time 22 months to 12 years after transplantation. Immunosuppression did not adversely affect the treatment of leprosy in any of the patients though concurrent liver disease required cessation of rifampicin in one patient.

EBENSO, B.E., Seizures following chloroquine treatment of type II lepra reaction: a case report. *Leprosy Rev.,* v.69, p.178-181, 1998.

A case of tonic-clonic seizures following chloroquine treatment for leprosy reactions in a Nigerian male is reported. Seizures were controlled with phenytoin sodium capsules. A causal relationship between the seizures and chloroquine is suggested. There have been no previous reports of this adverse reaction in leprosy patients receiving chloroquine for treatment of reactions. The author recommends that chloroquine be used with caution especially in patients with seizures.

LASTORIA, J. C., et al. Serial Mitsuda tests for identification of reactional tuberculoid and reactional borderline leprosy forms. *Int. J. Leprosy,* v.66, p.190-200, 1998.

The authors studied the Mitsuda reaction in 37 leprosy patients (18 reactional tuberculoid, 19 reactional borderline cases) and compared the results with clinical findings, histopathology and bacilloscopy. Evaluation of the Mitsuda reaction was carried out on days 30, 60, 90 and 120. Most of the reactional tuberculoid patients showed a Mitsuda reaction of +++ in opposition to the reactional borderline patients who showed only +. Bacilloscopic analysis revealed that in 75% of the reactional tuberculoid cases there were rare or no bacilli; bacilli were present in 95% of the reactional borderline cases. The authors conclude that reactional tuberculoid cases have a greater ability to clear bacilli than reactional borderline cases, and that the Mitsuda reaction is a useful tool for the differentiation between these two types of leprosy.

SCHEEPERS, A., Correlation of oral surface temperatures and the lesions of leprosy. *Int. J. Leprosy,* v.66, p.214-217, 1998.

A short review of the literature on the optimum temperature for the growth of *Mycobacterium leprae* is followed by a report of an investigation into the correlation of oral surface temperatures with oral leprous lesions. It is concluded that the oral lesions of leprosy occur more frequently in areas of the mouth with a lower surface temperature.

SCHREUDER, P.A.M., The occurrence of reactions and impairments in leprosy: experience in the Leprosy Control Program of three provinces in Northeastern Thailand, 1978-1995. I. Overview of the study. Int. J. Leprosy, v.66, p.149-158, 1998.

Aim: This paper is the first in a series of three reports on the occurrence of reactions and impairments in leprosy in Thailand. This first paper gives a general overview about the methodology of the study, some epidemiological observations, delay in detection, multidrug therapy (MDT) completion rates and relapses. The other two papers report on: II. Reactions and Ill. Neural and Other Impairments. This study was carried out from 1987 until 1995 in three neighboring provinces in northeastern Thailand.

Study design: A population-based, prospective cohort study.

Study population: All 640 newly diagnosed leprosy patients in the three provinces, registered between October 1987 and September 1990, were included [420 paucibacillary (PB) and 220 multibacillary (MB). This group was followed up (actively and passively) until the end of 1995.

Methods: Patients were found by active and passive case finding. All new, untreated leprosy patients from the area were enrolled and started on the World Health Organization (WHO) MDT (WHO/MDT) regimen. A vertical control service was run by specialized leprosy workers. During treatment the patients received their monthly doses at home. During surveillance the patients were followed up once a year by a special team. Patients were questioned about delay in detection. Treatment completion rates were calculated. The occurrence of reactions and neural and other impairments at the beginning of, during and after treatment was ascertained. After treatment, the occurrence of late reactions and relapses was recorded.

Results: A higher frequency of leprosy was found among the male patients, especially in the MB group. However, in the PB group a higher female/male ratio was found in the age group 55 years and older. There was an increase in the detection rate from the youngest age group to the age group 55 years and older, which showed the highest detection rate. Treatment completion rates were high, 95% in both in the PB and MB treatment groups. About 50% of the new cases reported a delay between onset and registration of 1 year or more. By 1995, 93% of the original patient group was still available for follow up.

By the end of 1995. 8 PB and 2 MB relapses were recorded.

SCHREUDER, P.A.M., The occurrence of reactions and impairments in leprosy: experience in the Leprosy Control Program of three provinces in Northeastern Thailand, 1978-1995. II. Reactions. Int. J. Leprosy, v.66, p.159169, 1998.

Aim: This is the second paper in a series of three papers on the occurrence of reactions and impairments in leprosy in Thailand, and focuses on the prevalence and incidence of reactions, including silent neuropathy.

Study design: A population-based, prospective cohort study.

Study population: All 640 newly diagnosed and registered leprosy patients in three neighboring provinces in northeastern Thailand registered between october 1987 and September 1990 were included [420 paucibacillary (PB) and 220 muitibacillary (MB)]. This group was followed up (actively and passively) until the end of 1995.

Methods: Clinical data and data on the sensibility and motor function of the eyes hands and feet were obtained when appropriate. The occurrence of reactions, including silent neuropathy, at the beginning of, during and after treatment was ascertained. During surveillance mild late reactions were also recorded.

Results: Severe reversal reactions (RR) at the start of and during treatment were seen in 2.6% [confidence interval (CI) 1.1-4.11 of the PB and 29% (CI 23-35) of the MB patients. In

the PB group the majority (82%) of severe RR were found at the start of treatment. In the MB group 35% of the severe RR were found at the start of treatment and another 59% during the first year of treatment. It is shown that there is a statistically highly significant increasing proportion of patients with severe RR starting from tuberculoid and going toward borderline lepromatous. The incidence rate of severe RR during treatment was 1.4 (CI 0.46-4.5) per 100 person-years at risk (PYAR) for PB patients and 12 (CI 9.0-16) per 100 PYAR for MB patients. Late (mild and severe) RR were seen in 2.7% of the PB and 9% of the MB patients (35% of these reactions being considered severe). Late reactions were mainly seen in borderline tuberculoid (PB group) and in borderline lepromatous patients. Recent silent neuropathies were seen at first examination and during treatment in 1.4% of the PB and 4.1% of the MB patients. During surveillance only a few silent neuropathies were seen. If all severe RR, severe erythema nodosum leprosum and silent neuropathies at the start of, during and after treatment were added together, then 53% of the borderline lepromatous and 42% of the lepromatous patients had or developed one or another serious complication in need of steroid treatment.

SCHREUDER, P.A.M., The occurrence of reactions and impairments in leprosy: experience in the Leprosy Control Program of three provinces in Northeastern Thailand, 1978-1995. III. Neural and other impairments. Int. J. Leprosy, v.66, p.170-181, 1998.

Aim: This the third paper in a series of three papers on the occurrence of reactions and impairments in leprosy in Thailand, and focuses on the prevalence and incidence of neural and other impairments in leprosy.

Study design: A population-based, prospective cohort study.

Study subjects: All 640 newly diagnosed and registered leprosy patients in three provinces of northeastern Thailand between October 1987 and September 1990 were included [420 paucibacillary (PB) and 220 multibacillary (MB)]. This group of patients was followed up until the end of 1995.

Methods: Clinical data; data on the sensibility and motor function of eyes, hands and feet, and data on wounds and bone loss were obtained where appropriate. The occurrence of neural and other impairments at first examination, during treatment and during surveillance was ascertained.

Results: The relationship between impairment prevalence (grades 2 of the combined PB and MB groups and grades 1 and 2 together of the combined PB and MB groups) and duration of disease (before diagnosis) was found to be statistically significant. Increased delay in detection led to increased problems of impairments. Too many patients still develop new/additional impairments while on treatment and thereafter. The incidence rate of nerve function impairment (NFI) among patients without impairments at first examination while on treatment was 1.7 [95% confidence interval (CI) 0.45-4.4] per 100 person-years at risk (PYAR) for the PB group and 12 (CI 8.4-17) per 100 PYAR for the MB group. Additionally, 2% of the PB and 11% of the MB patients who already had impairments at first examination developed new NFI while on treatment. The outcome, comparing the first examination with the last examination during/after surveillance [changes in the voluntary muscle test (VMT), the sensory test (ST), wound count and bone loss], indicated that of the PB patients 3.7% improved, 3.7% got worse and 3.9% kept the same impairment; of the MB patients 19% improved, 18% got worse and 2.9% kept the same impairment. During treatment most of the new/additional impairments were due to new/increase in NFI; during surveillance slightly more than 50% were due to new/increase in NFI. Eighty-three percent of the MB patients without impairments at first examination who developed NFI during treatment improved (completely or partially) after receiving prednisolone. Only 62% of the MB patients with a grade 1 impairment at first examination

and who developed a severe reaction or recent silent neuropathy improved after receiving prednisolone.

There is a need for an indicator to measure new/additional impairments while on treatment and thereafter. It is proposed to measure changes in impairment by measuring changes in VMT, ST, wound count and bone loss.

SHARMA, V.K., et al. Computed tomographic study of paranasal sinuses in lepromatous leprosy. Int. J. Leprosy, v.66, p.201-207, 1998.

Twenty patients (18 males, 2 females) with lepromatous leprosy and 10 age- and sex- matched controls were subjected to computed tomographic (CT) scans of the paranasal sinuses (PNS). The mean bacterial (BI) and morphological indexes were 3.4+ and 1%, respectively. Nasal symptoms were present in nine (45%) patients; 15 (75%) out of 20 patients showed significant abnormalities on CT scans of the PNS compared to none of the 10 controls. The maxillary and ethmoid sinuses were affected in 11 (55%) patients each, followed by the sphenoid sinus in four (20%) patients.

Frontal sinus involvement was least frequent, only one (5%) patient showed CT changes. Mucosal thickening was the most common finding followed by soft-tissue densities and, rarely, a fluid level was seen in the PNS. Involvement of the PNS correlated with a high BI of 4+ or more (75% vs 37.5%). Paranasal sinus involvement is an integral part of lepromatous leprosy since histological involvement was present even when the CT scan was apparently normal.

CONTROLE – CONTROL

CREE, I.A., SMITH, W.C., Leprosy transmission and mucosal immunity: towards eradication? Leprosy Rev., v.69, p.112-121, 1998.

The declining prevalence of leprosy has not been matched by a declining incidence. Widespread adoption of mutliple drug therapy (MDT) in closely monitored control programmes has not prevented transmission of Mycobacterium leprae. Despite the rarity of lepromatous patients, most of those living in endemic areas have immunological evidence of exposure to M. leprae. This paradox could be explained if, for many such individuals, infection was transient, did not result in disease development, but did allow the transmission of infection to other individuals. There is increasing evidence from nasal PCR studies that such sub-clinical transmission may exist and that mucosal immune responses to M. leprae may develop during resolution of initial infection. Sub-clinical infection appears to occur in clusters and may require close contact over a prolonged period for optimal transmission. Control of transmission may be feasible through identification and treatment of individuals within infection clusters, allowing progress towards the eradication of leprosy.

GREEN, A.T., JOCHEM, K., Sustaining leprosy services in the changing context of health sector reform. Leprosy Rev., v.69, p.134-144, 1998.

National leprosy control programmes currently face a number of changes to the environment within which they operate. This paper examines the issues arising from these. It focuses, in particular, on those arising from changes in the structure of the health sector as a result of policies of health sector reform which are being considered or adopted in many developing countries. These include decentralization, financing strategies, greater role for the private and NGO sectors and the integration of vertical programmes. The paper is structured around a number of key steps in the development of a strategy for sustainability of appropriate leprosy services. These are the assessment of the epidemiological, social and health services context, development of programme objectives, planning of human and financial resources, development of the strategy, mapping the roles of potential actors,

development of regulatory and incentive mechanism, action planning and managing change and, finally, re-evaluation of the programme objectives and service delivery organization. The paper stresses the importance of process in developing ownership of a strategy. It concludes with a set of key questions which it suggests need to be addressed by leprosy programme managers in the development of a proactive response to the changes.

LADHANI, S., Leprosy in Pakistan: lepra elective study. Leprosy Rev., v.69, p.164-167, 1998.

As part of the curriculum, medical students at the United Medical and Dental Schools of Guy's and St Thomas's Hospitals (UMDS), London, are encouraged to spend an elective period of 8 weeks in their final year anywhere in the world studying any field of medicine they are interested in. Having lived in Tanzania for 10 years, I have had contact with people suffering from leprosy and my interest in leprosy continued after I moved to Europe to continue my education. I therefore decided to use my elective to gain hands-on experience with the disease so that I could understand and appreciate the impact of leprosy in developing countries such as Pakistan.

LEVER, P., et al. Health Systems Research in leprosy control-what contributions can it make? Leprosy Rev., v.69, p.122-127, 1998.

The paper describes a Health Systems Research (HSR) training programme which took place at the All Africa Leprosy, Tuberculosis and Rehabilitation Training Centre (ALERT) in Ethiopia. The training consisted of three stages: an initial workshop focussing on protocol development, followed by a fieldwork period and a data analysis and report writing workshop. Twenty participants, divided over four groups, took part in the training and carried out the research alongside theirday-to-day professional commitments. Three of the projects were concerned with prevention of disabilities, one with integration of the leprosy programme into the general health services. Based on the findings of their research, each group produced a set of recommendations and a plan of action for the implementation of these recommendations. The contribution of HSR to leprosy control is discussed.

ROCHE, P. , DOCKRELL, H., BRENNAN, P., Progress in research towards a world without leprosy. Report of a WHO meeting in Ethiopia, february 1998. Leprosy Rev., v.69, p.151-159, 1998.

A UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases meeting to discuss the future role of biomedical research in leprosy, was held at the Armauer Hansen Research Institute in Addis Ababa, on February 27 and 28, 1998. This was attended by more than 20 scientists from 10 countries, who met to discuss progress towards a world without leprosy.

SCHAFER, J., Leprosy and disability control in the Guéra Prefecture of Chad, Africa: do women have access to leprosy control services? Leprosy Rev., v.69, p.267-278, 1998.

In a retrospective study, data from the Guéra Leprosy and Disability Control Project in Chad, covering the years from 1992 to 1996, were analysed in order to determine whether there was any indication that the quality of care provided to female leprosy sufferers is inferior to the care provided for male patients. Data from a total of 741 patient registered for MDT, of whom 351 were newly diagnosed cases, are presented and discussed. The data indicate that women have access to diagnosis and treatment and health education. They do not present for treatment later than men, disability rates are lower and they have slightly higher treatment completion rates. Both women and men benefit from

footwear and loan programs. More women than men are involved in patient self-help groups. The study shows that in this part of central Chad, there is no evidence of disadvantage for women with leprosy in either diagnosis, treatment or follow-up, but more qualitative data is needed to confirm these findings.

Van Den BROEK, J., et al. Evaluation of a sustained 7-year health education campaign on leprosy in Rufiji District, Tanzania. Leprosy Rev., v.69, p.57-74, 1998.

To assess the impact of a 7-year intensive health education campaign about leprosy delivered by workers of the Kindwitiwi Leprosy Trust to schoolchildren and general public in Rufiji District, knowledge, attitude and beliefs towards leprosy were measured in Rufiji and compared to neighbouring Kisarawe District as control. Lessons learned from this analysis may be useful for the planning and evaluating of health education campaigns.

Interview of schoolchildren, general public, community leaders, traditional healers and medical staff in both districts.

A stratified randomized sampling scheme was used, with stratification for urban and rural settings. A representative sample of schoolchildren, general public, community leaders, traditional healers and medical staff in Rufiji District and in the control area of Kisarawe District was interviewed. The interviews were partly structured and partly open. The results of the interwiews were analysed in the context of epidemiological leprosy data from 1985 till 1995, and demograpfic data of both districts. Data entry and statistical analysis was done using FileMaker Pro, Stata and Excel computer packages.

We did not observe positive effects of the health education campaign on the indicators regarding early diagnosis of leprosy with less disability. Leprosy case detection was declining in both districts.

We found that the campaign had a favourable impact on the knowledge and the attitude of schoolchildren in Rufiji District. We could demonstrate a relationship between increased knowledge of leprosy and a positive, less stigmatizing attitude. Knowledge of leprosy was better in Rufiji as compared to Kisarawe, but only among schoolchildren. We found indications that low level of education, rural residence, older age, female gender and Moslem religion were associated with stigmatizing attitudes and beliefs towards leprosy. Knowledge about leprosy reactions among medical staff Interviewed was not optimal.

The exact outcome of the sustained campaign in Rufiji District was difficult to assess because no comparison could be made with the situation prior to the campaign. However, the health education campaign was associated with increased knowledge and diminished tendency to stigmatize leprosy among schoolchildren. Health education campaigns have to be sustained and have to cover a broad sector of the society in order to induce behavioural changes in the community. The focus of health education should be rural communities and schools, and pay special attention to women, religious leaders and traditional healers. Awareness of diagnosis and treatment of leprosy reactions among medical staff should be improved.

VIJAYAKUMARAN, P., et al. Does MDT arrest transmission of leprosy to household contacts? Int. J. Leprosy, v.66, p.125-130, 1998.

The multidrug therapy program with the World Health Organization (WHO)-recommended treatment (WHO/MDT) regimens has given the hope of early case detection and rendering a leprosy patient, especially a multibacillary (MB) patient, noninfectious within a short period of time. Hence, the duration of exposure for household contacts to infection is expected to be remarkably less when compared to exposure to MB leprosy patients on dapsone monotherapy. A total of 1661 household

contacts of skin smear-positive leprosy patients were recorded from 1984 to 1994. Follow up of these individuals [8403 person-years at risk (PYR)] revealed that the incidence of leprosy was 7.7 per 1000 PYR, which was 8 times more than that of the general population. The risk was more if there was a coprevalent case in the family. The incidence of leprosy declines from the third year of surveillance onward, and declines more so in children. Although disease transmission should have been arrested as soon as the index case was started on MDT, the incidence of leprosy among the household contacts was still high when compared to that of the total population. Effective intervention needs to be introduced to reduce the risk of contacts developing leprosy.

WITTENHORST, B., et al. The National Leprosy Control Programme of Zimbabwe: a data analysis, 1983-1992. Leprosy Rev., v.69, p.46-56, 1998.

Prevalence and detection rates of leprosy in Zimbabwe as well as patient characteristics were reported by the National Leprosy, Control Programme over the 10-year period 1983-1992. The control programme made a new start in 1983 when multidrug therapy was introduced. Prevalence per 10,000 population declined steeply from 3.78 in 1983 to 0.52 in 1987. Prevalence continued to decline to 0.22 in 1992 and was highest in the north-eastern provinces. After an initial increase, the detection rate per 10,000 had declined from 0.19 in 1985 to 0.08 in 1992. The proportion of refugees among new cases had gradually increased since 1988 and amounted to one third in 1991 and 1992.

An analysis of records of 802 cases who were newly detected from 1983 to 1992 showed that 51% were of the multibacillary (MB) type, 33% had visible disabilities at detection, 5% were under 15 years of age while the average delay time was 2.6 years. Patients with disabilities reported a longer delay time, were more often men and had more often the MB type of leprosy.

The data suggest that transmission of leprosy is low but that cases are not diagnosed early enough to prevent transmission altogether.

EPIDEMIOLOGIA - EPIDEMIOLOGY

ABRAHAM, S., et al. Epidemiological significance of first skin lesion in leprosy. *Int. J. Leprosy,* v.66, p.131-139, 1998.

The epidemiological significance of monolesions in leprosy and the possible inferences on the mode of entry by *Mycobacterium leprae* into the body are presented based on data from the clinical records of the Leprosy Control Programme of Gudiyatham Taluk in India; 660 children with monolesions (335 males, 305 females) younger than 15 years of age and detected during the period 1990-1995 were included in the study. Detailed investigations on the location of monolesions were carried out and compared with a random sample of 669 normal rural children matched for age and sex. A large majority of the leprosy monolesions were in the uncovered parts of the body, with special predilection for the posterior aspects of the upper extremities and the anterior aspects of the lower extremities. Based on observation of normal children, these happen to be precisely the sites vulnerable for trauma since they are exposed to the environment where M. *leprae* could enter through abraded skin and manifest as a patch. The need for further studies is emphasized.

TERENCIO DE LAS AGUAS, J., Consideraciones epidemiológicas sobre la *lepra. Fontilles - Rev. Leprol.,* v.21, p.435-460, 1998.

The transmission of leprosy, emision and different routes of penetration of bacilli reviewed. The different aspects of the interation between Bacillus-Host, such as Age, Sex, Race, Climate, Genetic factors and Socio-economical factors with special emphasis on

the importance of age and quality of life.

The global situation of leprosy is analized together with the epidemiological indicators, mencioning the decrease in prevalence but still high levels of incidence.

Finally, the factors that influence the prevalence and incidence, the efficacy of Multidrugtherapy and the difficulties encountered in some countries for the slimination of leprosy in the year 2000.

KEY WORDS: Transmission. Global situation. Elimination.

EXPERIMENTAL

De SOLDENHOFF, R., HATTA, M., SIRO, T.W., Choosing the decolourizer and its strength to stain Mycobacterium leprae. Does it actually matter? Leprosy Rev., v.69, p.128-133, 1998.

Leprosy bacilli are more easily decolourized during staining than tuberculosis bacilli, so a weaker concentration of decolourizer is usually recommended. In Indonesia, the same 'strong' decolourizer is used for identifying both organisms. In a study to compare the results using different concentrations of different decolourizers, no difference could be found in the bacterial index (BI). It is suggested that the same staining technique can be used for tuberculosis and leprosy.

SINGH, N., et al. Fine-needle aspiration cytology of lepromatous leprosy. Leprosy Rev., v.69, p.145-150, 1998.

A prospective study correlating cytopathology with clinical morphology and histopathology in 22 patients with lepromatous leprosy was performed. Aspirates were taken from skin lesions in all patients. Lymph node aspirates were also performed in four patients with lymphadenopathy. Fine-needle aspirates yielded sufficient cellular material with excellent preservation of morphological detail. Diagnosis and correlation with bacillary index, clinical and histopathological findings was possible in all patients. In addition, the two patterns, partial and diffuse, of lymph node involvement could be recognized. Fine-needle aspiration cytology is a simple method for the laboratory assessment of leprosy.

SING, N., et al. In vitro studies on extracellular matrix production by M. leprae infected murine neurofibroblasts. Leprosy Rev., v.69, p.246-256, 1998.

Fibroblasts and a host of macrophage secretory products have been implicated in a number of diseases where excess extracellular matrix (ECM) deposition is the main pathological feature. Fibrosis characterized by excessive deposition of collagen also contributes to the irreversible nerve damage observed in leprosy. Since M. leprae are seen within neurofibroblasts (NO in the advanced stages of the disease and macrophages form a common infiltrating cellular constituent of leprous nerves at all stages, secretion of ECM proteins by Nf was studied, in vitro following infection with M. leprae and in the presence of macrophage secretory products. These studies were compared in cells derived from two strains of mice, Swiss White (SW) and C57BL/6, as they differ in their response to M. leprae infection and parallel those observed in lepromatous and tuberculoid patients, respectively. On infection with M. leprae, Nfs showed a decrease in secretion of collagen type IV in SW and type I in C57B1/6 strain. Macrophages caused a further decrease in the secretion of collagen types affected by M. leprae infection per se, while the other collagen types, viz. I and III in SW strain and III and IV in C57B1/6 strain, were unaffected. This study indicates that neural collagenization in nerves in advanced leprosy may be of Nf origin. However, unlike other diseases with excess collagen deposition, ECM proteins produced by Nfs in response to nerve damage may not be of prime importance in the progression of leprous neuropathy and occur as a general response to loss of cellular content in leprous nerves.

VALVERDE, C.R., et al. Spontaneous leprosy in a wild-caught cynomolgus macaque. Int. J. Leprosy, v.66, p.140-148, 1998.

Naturally occurring Mycobacterium leprae has been previously documented in only two species of nonhuman primates from West Africa-the chimpanzee and the sooty mangabey. We report here the first known case of spontaneous leprosy in an Asian macaque. A wild-caught cynomolgus macaque imported from the Philippines developed a reaction to a tuberculin skin test after 3 years at the California Regional Primate Research Center (CRPRC), University of California-Davis, Davis, California, U.S.A. Biopsies of concurrent skin lesions suggested a cutaneous mycobacterial infection. Diagnosis of the infection was obtained by a polymerase chain reaction (PCR) assay specific for M. leprae. Clinical presentation, histopathological findings, and ELISA serology for M. leprae-specific PGL-I and to the LAM mycobacterial antigens were consistent with those of human borderline (BB) leprosy. Longitudinal serologic data suggest that the cynomolgus macaque had subclinical leprosy at the time of arrival in the CRPRC quarantine. Intradermal tuberculin testing is the traditional method for screening nonhuman primate populations for mycobacterial infections. Exposure to nontuberculous mycobacteria, such as M. leprae, may sensitize some individual primates to nonspecific mycobacterial antigens, resulting in false-positive tuberculin reactions.

Susceptibility of the cynomolgus macaque and other nonhuman primates to M. leprae should be re-evaluated. Cynomolgus macaques and, possibly, other nonhuman primates may serve as valuable experimental models of leprosy in humans.

IMUNOLOGIA - IMMUNOLOGY

GORMUS, B.J., et al. Experimental leprosy in rhesus monkeys: transmission, susceptibility, clinical and immunological findings. Leprosy Rev., v.69, p.235-245, 1998.

A total of 46 Rhesus monkeys (RM) was inoculated with Mycobacterium leprae (ML) and followed clinically and immunologically for extended periods. Twenty-one (45.7%) of the RM developed leprosy spanning the known leprosy spectrum, with six of 21 (28.6%) having disease in the borderline lepromatous to lepromatous area of the spectrum. RM with paucibacillary forms of leprosy produced predominantly IgG anti- *phenolic glycolipid (PGL-I) antibodies and positive lepromin skin test and/or in vitro blastogenesis responses; IgM anti-PGL-I predominated in animals with BB-LL leprosy and correlated with negative immune responses to lepromin. IgG anti-PGL-I antibodies persisted in a number of RM for several years without histopathological evidence of leprosy, suggesting possible persisting subclinical infection. The data show that RM are a valuable model for the study of leprosy. Eleven of the 46 RM were inoculated with ML from sources infected with simian immunodeficiency virus (Sly), the monkey counterpart to the human immunodeficiency virus (HIV). The possible effect of SIV on the clinical outcome of ML infection could not be determined due to insufficient numbers of animals to yield statistically significant results.

GORMUS, B.J., et al. Impaired response to *Mycobacterium leprae* antigens in rhesus monkeys experimentally inoculated with simian immunodeficiency virus and M. leprae. *Leprosy Rev*., v.69,p.24-39. 1998.

Seven of eight rhesus monkeys (RM) coinfected with simian immunodeficiency virus (SIV) and *Mycobacterium leprae* harboured acid-fast bacilli (AFB) at sites of dermal inoculation and/or at disseminated sites at times of humane sacrifice (up to 270 days post-M. leprae inoculation) due to SIV-induced debilitation or, in one long term survivor's case, to date over 3 years post-M. leprae inoculation.Detectable AFB were cleared in biopsies of inoculation sites of RM inoculated with M. leprae alone after 63 days

postinoculation; these sites have, so far, remained AFB-negative, thereafter.

Compared to animals infected with M. leprae alone, RM coinfected with SIV plus M. leprae showed: 1, completely suppressed serum antibody responses to M. leprae specific PGL-I antigen, but strong anti-SIV Gpl 20 antibody responses; 2, impaired sensitization of blood mononuclear cells (MNC) to in vitro recognition of M. leprae specific antigens in blastogenic stimulation assays; 3, impaired in vitro responses of blood MNC to nonspecific (ConA) blastogenic stimuli; and 4, early post- M. leprae inoculation, there was a significant incremental diminution of percentages of blood CD4+CD29+T-cell in addition to the existing SIV-induced diminished percentages of CD4+CD29+T-cells.

The results indicate that humoral and cellular immune responses to M. leprae antigens are compromised in M. leprae-inoculated RM previously infected with Sly. These results provide an immunologic basis for the demonstration of enhanced M. leprae persistence or leprosy susceptibility in SIV-M. leprae coinfected RM.

NAITO, M., IZUMI, S., YAMADA, T., Two-dimensional electrophoretic analysis of humoral responses to culture filtrate of Mycobacterium bovis BCG in patients with leprosy and tuberculosis. Int. 1. Leprosy, v.66, p.208-213, 1998.

Sera from 3 lepromatous (LL), 3 borderline lepromatous (BL), 3 mid-borderline (BB), 3 borderline tuberculoid (BT), 2 tuberculoid (TT) and 4 tuberculosis (TB) patients and 3 healthy individuals were examined for their reactivities against the proteins in the culture filtrate of BCG separated by two-dimensional electrophoresis (2-DE). The sera were obtained from patients who were untreated. Sera from LL and BL patients reacted strongly with the antigen 85 (Ag85) complex and MPB51. Sera from LL and BL patients also weakly reacted with the newly identified 29-, 24- and 23-kDa spots. Sera from the other patients reacted similarly, but the levels of reaction were remarkably lower than those from LL and BL patients. Mycobacterium leprae antigens that are analogous to BCG Ag85 and MPB51 are suggested as the main targets for the humoral immunity of untreated patients. The reactivities of sera with newly identified antigens may provide the potential for predicting the severity and prognosis of diseases.

WEIR, R.E., et al. Use of a whole blood assay to monitor the immune response to mycobacterial antigens in leprosy patients: a predictor for type 1 reaction onset? Leprosy Rev., v.69, p.279-293, 1998.

Longitudinal studies are more appropriate than cross-sectional studies for investigating changes in the immune response to Mycobacterium leprae during leprosy, such as occur in type 1 (reversal) reactions. A test for predicting the onset of reactions in leprosy would greatly reduce disability associated with leprosy. Whole blood assays are appropriate for longitudinal studies of the in vitro T-cell response, as they are robust and reproducible, and require only a small volume of blood. Whole blood assays were used to assess the natural variation in the 'normal' T- cell response to mycobacterial antigens in healthy UK donors, and healthy Nepali donors, tested over 6 months. This was compared with variation in T-cell responses measured over 6 months in 22 leprosy patients in Nepal, including eight who developed type 1 reactions during this time. The in vitro T-cell response to M. leprae sonicate, M. tuberculosis PPD, the mitogen PHA, and (in the UK study) recombinant mycobacterial antigens (70 kD and 30/31 kD proteins) was measured by lymphoproliferation and interferon-gamma (IFNy) responses, and variation in responses over time in each subject calculated as a coefficient of variation (CV). The baseline high, low or non-responder status of the healthy UK donors remained stable. The magnitude of IFNy responses

varied by mean CV ranging from 26% (to PPD) to 63% (to Mtb 70 kD); proliferation responses showed less variation, ranging from mean CV of 18% (to PHA) to 47% (to Mtb 70kD). Response variation was independent of lymphocyte number in culture. Similiar variation in lymphoproliferation responses to MLS, PPD and PHA was observed in the group of healthy Nepali subjects, and in Nepali leprosy patients who did not experience reactions during the study. Of the eight leprosy patients who developed type 1 reactions, four (two BT, one BB, one BL) showed significantly increased proliferation to MLS at the time of reaction (74-300% above baseline); four (one BB, two BL, one LL) remained low or non- responders to MLS throughout. An alternative marker of immune response - anti-phenolic glycolipid-1 (PGL-I) antibody titre - was not predictive of reaction onset in these patients. This study demonstrated that whole blood assays provide reproducible in vitro measurements that can be used to monitor changes in T-cell responses to M. leprae antigens; their practical use as a diagnostic marker of type 1 reaction onset is discussed.

OFTALMOLOGIA - OPHTALMOLOGY

BATISTELLA, G.G.G, MAAKAROUN, M., VILELA DE CASTRO, A., Extracapsular cataract extraction and intraocular lens implantation in leprosy patients: visual outcome and complications. Indian J. Leprosy, v.70, p. 5-10, 1998.

In Belo Horizonte, Brazil, 70 eyes of 53 leprosy patients had extracapsular cataract extraction and intraocular lens implantation done during a period of four years. The authors analyzed the outcome regarding restoration of vision and complications after this procedure. The visual acuity improved in 92.9% of the eyes and in 65.7% the acuity had improved by four lines or more on the Snellen chart.The post-operative complications could not be associated only to leprosy infiltration; in any case, they were not too serious and could be controlled.

CAMPOS, W.R., ORÉFICE, F., SUCENA, M.A., RODRIGUES, C.A.F., Bilateral irido-cyclitis caused by Mycobacterium leprae diagnosed through paracentesis. Indian J. Leprosy, v.70, p.27-31, 1998.

The authors conducted an anterior chamber paracentesis in a patient with lepromatous leprosy showing bilateral iridocyclitis. The paracentesis was performed in the outpatients department. The aqueous humor was studied by Ziehl-Nielsen staining method and the result was the isolation of the M. leprae in the anterior chamber.

This study shows that M. leprae can promote uveitis in leprosy patients. Therefore, it should be looked for in patients having this type of disease.

FFYTCHE, T.J., The prevalence of disabling ocular complications of leprosy: a global study. Indian J. Leprosy, v.70, p.49-59, 1998.

A world-wide study on the ocular complications of leprosy has been carried out over the past ten years. The data from 4772 patients, designed to give baseline information for a five-year incidence study, have been analysed. Blindness due to leprosy was seen in 3.2% of the sample and 7.1% had Grade 2 visual disability. The causes of visual impairment in the disease are discussed and it is enmphasized that a high proportion of these are preventable, particu - larly through the early use of multidrug therapy.The active participation of ophthalmo logists in the management of the disease is still required since many of the blinding complications respond well to surgery.

HOGEWEG, M.,Strategies for improvement of management of ocular complications in leprosy. Indian J. Leprosy, v.70, p.61-70, 1998.

Responsibility for eye care of leprosy- affected persons should be shared between leprosy and eye care staff.

Leprosy and PHC staff should be responsible for:

– treatment of reversal reactions in the face, and of recent lagophthalmos, with prednisolone,

- conservative treatment of mild lagophthalmos,

- referral of patients with severe lagophthalmos and/or exposure keratitis, unless there is sufficient expertise within the programme,

- recognition of the acute red eye and treatment of acute conjunctivitis,

– referral of all other conditions of acute red eye, unless there is sufficient expertise within the programme,

- recognition of severe visual empairment and referral as needed,

- recognition of the need for reading glasses in patients aged over 40 years, in rehabilitation services,

– encouraging medical colleges, Control of Blindness Societies, and staff of general eye care facilities, to actively take part in the treatment of eye complications in patients affected by leprosy, and

– encouraging charitable organizations to provide special eye care programmes for patients affected by leprosy, in particular for those who are disabled and are living in leprosy settlements.

Eye care services (a visiting Ophthalmologist or paramedical ophthalmic assistant to the specialized leprosy centres for consultation is an appropriate alternative and may sometimes be even more feasible) should take the responsibility for:

- eyelid surgery in patients with large lid gaps (> 6 mm), or, signs of exposure keratitis, and

– treatment and follow-up of acute iritis, corneal ulcers, foreign bodies, and other causes of 'the acute red eye', in cooperation with the leprosy service or PHC staff.

– The eye care services should offer positive discrimination' in the treatment of cataract-blind leprosy patients, realizing the great difficulties that these patients have in avoiding injuries or taking care of injuries once they have occurred, especially in the case of limbs that have lost protective sensation.

JIANWEN, Y., et al. Blindness and low vision in leprosy patients in Sichuan Province, China. Indian J. Leprosy, v.70, p.139-143, 1998.

The acuity of vision of 2145 leprosy patients was examined. Twenty-six patients had bilateral blindness and 80 had diminution of vision bilaterally, according to WHO'S standard. The vision disability rate was 4.94%. In addition, 136 patients (6.34%) had blindness or low vision involving one eye. The causes of blindness and low vision were leukoma and corneal ulcer.

KNUUTTILA, J.P., Van BRAKEL, W.H., ANDERSON, A.M., Ocular impairments in an impairment survey of leprosy-affected persons in Nepal. Indian J. Leprosy, v.70, p.93-96, 1998.

An impairment survey was carried out in Nepal. The study subjects (n=318) were a mixture of out-patients and patients admitted less than one month before the survey. Of the subjects, 101 were attending the hospital out-patients clinic or were admitted and the rest were examined in the field. The patients studied included those on MDT and care-after-cure cases. Ocular impairments, were found in 25% of these cases. The most common ocular impairment was poor vision followed by lagophthalmos and insensitive cornea.

ORÉFICE, F., MIRANDA, D., BORATTO, L.M., Presence of M. leprae in the conjunctiva, vitreous body and retina of a patient having lepromatous leprosy. Indian J. Leprosy, v.70, p.97-102, 1998.

Histopathological study of the ocular globe of a lepromatous leprosy patient revealed the presence of lepra bacilli in the conjunctiva, sclera, episclera, cornea, iris, ciliary body, vitreous body and retina.

PASSEROTTI, S., SALOTTI, R.A., VIETH, H., Assessment and treatment of the dry eye in leprosy. Indian I. Leprosy, v.70, p.103108, 1998.

During the period of existence of the Ophthalmologic Prevention Centre we have come across a large number of patients with corneal dehydration (dryness cornea, dry eye) due to various causes. We find that majority of the patients had a big improvement in their symptoms and the signs of the dry eye with just a simple prevention technique.

REABILITAÇÃO - REHABILITATION

BRANDSMA, J.W., et al. Intertester reliability of manual muscle strength testing in leprosy patients. Leprosy Rev., v.69, p.257-266, 1998.

This study reports the results of a study on the intertester reliability of manual muscle strength testing in leprosy patients with confirmed motor function loss of at least one nerve. Three testers graded the muscle strength of 72 patients in random order. Both hands and feet were graded. Strength was graded on a modified Medical Research Council Scale (9 points, 5, 4+, 4, 3+, 3, 2+, 2, 1, 0). The following movements were tested for strength: little finger and index finger abduction, intrinsic position of all four fingers, thumb abduction and opposition, foot dorsiflexion and eversion and extension of the big toe. The weighted kappa statistic was used to calculate the chance-corrected percentage of agreement between observers. Overall agreement for each of the 11 tests appeared to be good or very good (0.61-1.00). However, when data for hands or feet with normal strength or complete paralysis were excluded from the analysis, the reliability of the remaining midrange scale was not acceptable (kappa 0.550.88, direct agreement range 11-41%). While the reliability of this scale could possibly be improved by special training, we feel that, for the evaluation of nerve function for leprosy patients with (suspected) nerve function loss, the extended 9-point VMT scale should only be used when direct intra or intertester agreement is more than 80%.

TERAPÊUTICA - THERAPEUTIC

CHAUDHURI, S., et al. Why relapse occurs in PB leprosy patients after adequate MDT despite they are Mitsuda reactive: lessons from Convit's experimental on bacteria-clearing capacity of lepromin-induced granuloma. Int. J. Leprosy, v.66, p.182-189, 1998.

It is amazing how after years of scientific research and therapeutic progress many simple and basic questions about protective immunity against Mycobacterium leprae remain unanswered. Although the World Health Organization (WHO) has recommended short-term multidrug therapy (WHO/MDT) for the treatment of paucibacillary (PB) leprosy patients, from time to time several workers from different parts of the globe have reported inadequate clinical responses in a few tuberculoid and indeterminate leprosy patients following adequate WHO/MDT despite the fact that they are Mitsuda responsive. A few borderline tuberculoid patients harbor acid- fast bacilli (AFB) in their nerves for many years even though they become clinically inactive following MDT, a fact which has been ignored by many leprosy field workers. Keeping these patients in mind, we have attempted to investigate the cause of the persistence of AFB in PB cases and have looked into the question of why Mitsuda positivity in tuberculoid and indeterminate leprosy patients, as well as in healthy contacts, is not invariably a guarantee for protectivity against the leprosy bacilli. We have: a) analyzed the histological features of lepromin-induced granulomas, b) studied the bacteria-clearing capacity of the macrophages within such granulomas, and c) studied the in vitro leukocyte migration inhibition factor released by the blood leukocytes of these subjects when M. leprae sonicates have been used as an elicitor. The results of these three tests in the three groups of subjects have been

compared and led us to conclude that the bacteria-clearing capacity of the macrophages within lepromin-induced granuloma (positive CCB test) may be taken as an indicator of the capability of elimination of leprosy bacilli and protective immunity against the disease. This important macrophage function is not invariably present in all tuberculoid and indeterminate leprosy patients or in all contacts even though they are Mitsuda responsive and are able to show a positive leukocyte migration inhibition (LMI) test. It is likely but not certain that this deficit of the macrophage is genetically predetermined and persists after completion of short-term WHO/MDT. Thus, after discontinuation of treatment slowgrowing, persisting M. leprae multiply within macrophages leading to relapse.