

RESUMOS/ABSTRACTS

ASPECTOS SOCIAIS

KAUR, Harvinder., RAMESH, V. Social problems of women leprosy patients - a study conducted at 2 urban leprosy centres in Delhi. *Leprosy Rev.*, v.65, n.4, p.361-375, December, 1994.

Leprosy seems to afflict women less commonly than men, but for cultural reasons this difference may be more apparent than real. Unfortunately, the effects are as equally devastating, if not more so, in women than in men. This study, carried out at the Urban Leprosy Centres of Safdarjung Hospital and Dr Ram Manohar Lohia Hospital in Delhi, showed that the impact of stigmata attached to leprosy had more effect on educated women belonging to a higher socioeconomic group than on less fortunate women. Discriminative attitudes were more common in joint than nuclear families. Although many got support from their families, the disease had definite psychological effects. Because of the fear of infecting the family members, women sufferers kept themselves aloof and were constantly worried about divorce. Fear of social ostracism prevented the disclosure of disease to the community. Deformities and disabilities led to a deterioration in their functional capabilities and their psychological state of mind. Pregnancy did not affect regularity of treatment. Many women needed an escort to attend the clinic. Solutions to minimize some problems have been suggested.

CLÍNICA

ABBOT, N.C. et al. Circulation and sensation at the fingertips of claw hands. *Leprosy Rev.*, v.65, n.4, p.341-349, December, 1994.

Measurements of skin blood flow (by laser Doppler flowmetry) and temperature were made under environmental conditions promoting peripheral vasodilatation at the fingertips of a disfigured 'clawed' hand in 12 leprosy patients long-resident at Baba Baghi Leprosy Hospital, Tabriz, Iran. Sensory function was assessed by measuring the responses to light touch, pain and temperature of each finger, and peripheral autonomic function was gauged by estimating palmar sweating and by measuring skin vasomotor reflexes in response to inspiratory gasp.

In 2 patients all measured fingers had laser Doppler flux (LDFlux) values and skin temperatures lower than the 95% confidence limits for the mean of 20 healthy controls, i.e. were impaired; in 2 patients all fingers had normal values for LDFlux and temperature; and in 8 patients there was a combination of impairment with most fingers normal for these parameters but with the small finger most commonly impaired. There were 10 (67%) fingers with impaired LDFlux and temperature values who had significant sensory impairment, whereas only 5 (18%) of the fingers with normal LDFlux values and temperatures had a similar sensory deficit. Overall, the fingers with the most impaired sensation had significantly ($P < 0.05$) lower LDFlux and temperature values than those with no sensory deficit. Microcirculatory impairment was not related to disordered skin vasomotor reflexes or dysfunction of sweating.

We concluded that the relationship between motor (skeletal muscle) nerve paralysis and any subsequent sensory neuropathy and/or microcirculatory impairment is more complex than might be expected from previous understanding of the disease.

SHATIA, V.N. Morphology of cystic structures seen in leprosy biopsy suspensions kept at cooler temperatures. *Indian J. Leprosy*, v.66, n.4, p.293-298, July-Sep, 1994.

Cystic structures were seen in good numbers in biopsy suspensions obtained from leprosy patients and kept at cooler temperature. The structures were found arranged in singles, clusters or straight lines. In clusters, small round structures were seen surrounding a large spherical body. The small cystic bodies appeared empty, the medium sized bodies showed fine particles while the large ones showed spherules in and around them. It appears that the seed structure of the cycle emerges from the large spherical bodies.

DANIEL, Ebenezer., DAVID, Alice., RAO, P.S.S. Quantitative assessment of the visibility of unmyelinated corneal nerves in leprosy. *Int. J. Leprosy*, v.62, n.3, p.374-379, September, 1994.

Unmyelinated corneal nerve were counted in 383 leprosy patients whose eyes looked normal on clinical examination and in an equal number of healthy controls. Visibility of these nerves was decreased significantly ($p < 0.01$) in the nasal half of the cornea in both patients and controls. There was a significant ($p < 0.01$) inverse correlation between age and the visibility of these nerves in patients and controls. There was a significant ($p < 0.05$) reduction in the visibility of these nerves as the spectrum of the disease moved from the tuberculoid to the lepromatous pole. There was no significant correlation between visibility of these nerves and the smear positivity of the patient. Neither did duration of the disease nor the duration of antileprosy treatment alter the visibility of these nerves significantly. Overall, there was a reduction in the visibility of these nerves in patients who had had leprosy reactions.

DE LAS AGUAS, J. Terencio., LOPES PLA, Jorge. Tumores malignos y lepra. *Rev.*

Fontilles de Leprol., v.19, n.4, p.387-400, Enero-Abril, 1994.

Después de comentar las diversas opiniones sobre la mayor o menor frecuencia de las tumoraciones malignas en la lepra, se expone la experiencia personal sobre esta observación patológica en Fontilles desde 1945 con un total de 83 casos de cáncer.

Se exponen las localizaciones más frecuentes y se observa el aumento en los últimos años de la mortalidad por cáncer en los enfermos de lepra.

Palabra Clave: Tumores malignos y Lepra. Aumento de su frecuencia.

GRAUWIN, M.Y. et al. Cancérisation des plaies chroniques plantaire chez les anciens malades de la lèpre. *Acta Leprologica*, v.9, n.1, p.25-20, 1994.

Entre 1988 et 1992, 21 biopsies pour examen anatomo-pathologique on été pratiquées chez 20 anciens malades de la lèpre sénégalais, porteurs de maux perforants plantaires (MPP) ou de plaies chroniques suspects de transformation maligne. Le diagnostic de carcinome a été porté chez 13 malades et celui d'hyperplasie pseudo-épithéliomateuse (HPE) chez les 8 autres. Le délai moyen d'apparition de la transformation maligne a été de 10 ans (extrêmes: 1 à 15 ans) et la fréquence annuelle moyenne de cette transformation a été de 2 pour 1000 MPP.

Dans pays où le recours à l'examen anatomo-pathologique pour diagnostic de certitude n'est pas possible, on devrait pouvoir proposer (amputation au-dessous du genou pour toute suspicion de transformation maligne. Quand le recours à cet examen existe, (attitude thérapeutique varie en fonction du diagnostic: en cas de carcinome, amputation au-dessous du genou avec curage ganglionnaire le plus systématique possible; en cas d'HPE, la décision thérapeutique dépend du volume de la tumeur et de l'état fonctionnel du pied.

JAYAKUMAR, J., ASCHHOFF, M., JOB, C.K.

Pathogenesis of generalized nodular type I reaction in a borderline leprosy patient. *Indian J. Leprosy*, v.66, n.4, p.477-482, Oct-Dec, 1994.

In an earlier communication we reported a case of borderline tuberculoid leprosy presenting with multiple subcutaneous nodules during a type I reactive phase (Jayakumar et al 1993). The histopathological examination showed that the nodules were composed of a granulomatous inflammation and oedema with areas of necrosis. It was hypothesized that the eruption of nodules was due to the release of *M.leprae* antigens into the circulation resulting in the formation of generalised lesions throughout the body. We report here another such case which seems to unfold the true pathogenesis of such lesions.

JAYASHEELA, M. et al. HIV infection amongst leprosy patients in south India. *Indian J. Leprosy*, v.66, n.4, p.249-433, Oct-Dec, 1994.

In a pilot study, 463 leprosy patients (374 males and 89 females) were investigated for HIV- 1 and HIV-2 antibodies by screening tests. Sera positive by the screening tests were subjected to confirmatory tests. Three cases were confirmed to be positive for HIV, two for HIV-1 and one for HIV-2. All the three positive cases were young males, who had visited commercial sex workers. No correlation was found between the type of leprosy and HIV infection. This is the first report of HIV infection amongst leprosy patients from South India.

JOHN, S., ROUL, R.K., ANDERSON, G.A. Cancer associated with leprosy. *Indian J. Leprosy*, v.66, n.3, p.321-325, July-Sep, 1994.

Eighty-seven leprosy patients with cancer, seen between 1960 to 1984, were studied.

Cancer in patients with leprosy occurred in a younger age group compared to the general population. The most common type of malignancy seen among males was squamous cell carcinoma of the lower extremity while in hospital patient population it was cancer of head and neck. Among the females, carcinoma cervix was the most common as in the hospital patients. The types of malignancy occurring among leprosy patients was similar of that of the hospital patient population with the exception of an increase in incidence of squamous cell carcinoma of extremities.

KAR, P.K. et al. A clinico-pathological study of macular lesions in leprosy. *Indian J. Leprosy*, v.66, n.4, p.435-442, Oct-Dec, 1994.

One hundred twenty histologically confirmed cases of leprosy having macular lesions were evaluated clinically and histopathologically according to Ridley - Jopling classification. Of these 120 cases, the majority (91 or 75.8%) were young adults. The main clinical findings were: a single macule in 42 patients (35%), multiple macules 2-5 in numbers in 35 patients (29.1%), 610 macules in 17 patients (14.1%) and more than 10 macules in 26 patients (21.6%). Impairment of sensation over the macular lesions was present in 62 cases (51.6%), total loss of sensation was noticed in 31 patients (25.8%) and sensation was intact in 27 patients (22.5%). Acid-fast bacilli were detected in 11 cases (9.1%) by slit-skin smear examination.

Clinical examination of the 120 cases revealed features of TT in 16 (13.3%), BT in 41 (34.1%), BB in 11 (9.1%), BL in 13 (10.8%), LL in 7 (5.8%) and indeterminate leprosy (IL) in 32 patients (26.6%). On the contrary, histologically there were 22 cases of TT (18.3%), 38 cases of BT (31.6%), 8 (6.5%) BB, 10 BL (8.3%), 7 LL (5.8%) and 35 cases of IL (29.1%). Histopathological features were consistent with the clinical picture in 84 patients (70%).

KAWUMA, Herman Joseph., BWIRE, Robert., ADATU-ENGWAU, F. Leprosy and infection with the human immunodeficiency virus in Uganda; a case-control study. *Int. J. Leprosy*, v.62, n.4, p.521-526, December, 1994.

Both leprosy and infection with the human immunodeficiency virus (HIV) are endemic in Uganda. Various speculations about a possible interaction between the two infections have been put forward but not confirmed.

A case-control study involving 189 new leprosy patients and 481 matched controls, resident in eight Ugandan districts, was carried out to investigate if any relationship exists between leprosy and infection with HIV-1 in Uganda. Serum samples from 23 (12.2%) of the 189 leprosy patients tested positive for HIV-1 antibodies as compared to 88 (18.3%) of the 481 control sera. The two proportions of HIV seropositivity are not different statistically. A stratified analysis of the data by districts was done and showed a negative relationship between leprosy and HIV infection in the case of Rakai District ($0.04 < \text{odds ratio} < 0.61$, $p = 0.002$).

It is recommended that studies seeking to observe the clinical progress of dually infected patients might help to reveal new knowledge about a possible relationship between HIV and leprosy and about the immunology of leprosy in general.

KOYUNCU, M. et al. Audiovestibular system, fifth and seventh cranial nerve involvement in leprosy. *Indian J. Leprosy*, v.66, n.4, p.441-428, Oct-Dec, 1994.

Thirty-nine patients with leprosy and fifteen sex- and age-matched controls were investigated for disorders of the fifth and seventh cranial nerves and that of the audiovestibular system. Sensorineural hearing loss found to be of cochlear origin was detected in eight (22%) of the patients with leprosy compared to none in the control group ($p > 0.05$). Vestibular dysfunction was noted in four patients (11.1%) compared

none in the control group ($p \leq 0.05$). Two cases were found to have fifth nerve involvement and one (2.8%) had seventh nerve involvement. None in the control group had fifth or seventh nerve deficit.

KUIPERS, M., SCHREUDERS, T. The predictive value of sensation testing in the development of neuropathic ulceration on the hands of leprosy patients. *Leprosy Rev.*, v.65, n.3, p.253-261, September, 1994.

The early detection of the loss of protective sensation in leprosy patients is vital if neuropathic ulceration and subsequent disabilities are to be avoided. The aim of this study was to find protective value of sensory thresholds in the hands of leprosy patients.

Thresholds for touch-pressure, vibration and temperature were assessed in areas on leprosy-affected hands, near ulcers or ulcer scars (LU-group), in areas without lesions (LN-group), and in controls (N-group). Semmes-Weinstein monofilaments were used for testing the touch-pressure threshold (PST), a biothesiometer for the vibration threshold (VST) and a Thermo Sensation Tester for the temperature threshold (TST).

The distribution of ulcers was about equal on palmar and dorsal aspects of the hands. In the LU-group there was a negative response to SWF of 2.0g in all patients, while 74% could feel the 2.0g in LN-areas and in N-areas 100% could detect the 2.0g SWF. In the LU-group about 11% felt 8 V VST, in the LN-group about 60% and in the N-group 89%. Testing temperature sensation was given up prematurely because the results in controls were unsatisfactory.

Both palmar and dorsal sides of the hands should be tested for sensation. The thresholds for protective sensation are 2.0g SWF and 8 V for vibration sense. It is recommended that Semmes-Weinstein monofilaments should always be used for early detection of loss of protective sensation.

LEE, Seok Jong et al. Lipid composition of the stratum corneum of the sole in patients with leprosy. *Int. J. Leprosy*, v.62, n.4, p.574-579, December, 1994.

Several reports support the view that changes of composition of the stratum corneum (SC) lipids may be the cause of impaired barrier function which, in turn, gives rise to xerosis and ichthyotic skin in leprosy. Many reports about abnormalities of serum lipids and cutaneous manifestations, such as xerosis and ichthyotic changes in leprosy, led us to the idea that the composition of SC lipids in patients with leprosy may be different from that in normal subjects. However, the many studies done in the past do not sufficiently account for this.

To investigate the composition of SC lipids in patients with leprosy, thin-layer chromatography (TLC) was undertaken. Extraction of the SC lipids with a methanolchloroform-H₂O mixture (4:2:1.6, v/v/v, Bligh-Dyer solvent) was carried out after shaving of the SC from the sole. TLC was performed and the composition of lipids was quantitated by photodensitometry. Our study revealed that the composition of SC lipids in the anesthetic lesions of leprosy patients was higher in cholesterol sulfate and triglycerides and lower in sphingolipids and cholesterol esters than that of normal subjects.

LEVEE, Geraldine et al. Genetic control of susceptibility to leprosy in French Polynesia; No evidence for linkage with markers on telomeric human chromosome 2. *Int. J. Leprosy*, v.62, n.4, p.499-511, December, 1994.

Several lines of evidence have suggested a role of genetic factors in susceptibility to leprosy. In the mouse, natural susceptibility to infection with mycobacteria is controlled by the chromosome 1 Bcg locus, a region which is syntenic with a fragment of the human chromosome 2q, region q31-q37. It has been postulated that a human homolog of the Bcg gene controls susceptibility to

leprosy per se, and may be located on chromosome 2q. In order to test the influence of this putative gene on leprosy per se, we performed linkage analyses in a set of seven multigenerational French Polynesian pedigrees, using an affected sib pair method and the LOD score method employing different modes of inheritance. Family members were typed for eight polymorphic loci on chromosome 2q: CRYGP1, FN, TNP1, VIL, DES, INH, PAX3, and UGT1AQ1. Our data provide evidence against the presence of a gene controlling susceptibility to leprosy per se on human chromosome 2q in the French Polynesian population.

LOMBARDI, C. et al. Agreement between histopathological results in clinically diagnosed cases of indeterminate leprosy in São Paulo, Brazil. *Acta Leprologica*, v.9, n.2, p.83-88, 1994.

Histopathological slides from skin biopsies of fifty-seven self-reporting patients diagnosed as indeterminate leprosy by the Leprosy Control Programme in São Paulo, were sent to three independent histopathologists. Agreement between the reports were based on the following diagnosis: "indeterminate leprosy", "suggestive leprosy" or "no leprosy". A great variation was observed in the interpretation of the histopathological examination. The three pathologists reported "indeterminate leprosy" respectively in 7.0%, 54.4% and 84.2%, of the cases studied. A kappa index of agreement between any two pathologists ranged from 0.08 to 0.32, showing poor agreement between observers. Agreement improved by pooling together the reports "suggestive leprosy" and indeterminate leprosy". The three pathologists agreed in the results of 24 biopsies of the 27 classified as leprosy by any one of the three observers. Eight cases were considered as "no leprosy" by all pathologists. Higher agreement indices were obtained for positive and negative proportionate concordance between any two examiners. The implications of the variation in the diagnosis of

indeterminate leprosy and early leprosy are discussed in the context of public health and case-management.

LUBBERS, W.J. et al. Eye disease in newly diagnosed leprosy patients in eastern Nepal. *Leprosy Rev.*, v.65, n.3, p.231-238, September, 1994.

To determine the magnitude of eye lesions in newly diagnosed leprosy patients we examined their eyes.

The Eastern Leprosy Control Project was supported by The Netherlands Leprosy Relief Association; we used the regional clinic in Biratnagar and 5 mobile clinics in surrounding districts as our survey area.

All patients who presented at the clinics over 10 weeks, diagnosed as having untreated leprosy were included.

Of the 260 examined patients 97 (37.3%, 95% confidence interval 28.3-40.3%) had an eye lesion; 12/260 patients (4.6%, 95% confidence interval 2.0-7.2%) had sight-threatening lesions (lagophthalmos, iris involvement, corneal anaesthesia), directly related to leprosy; 46 (17.7%) patients were diagnosed as having some degree of cataract; 2 patients were aphakic; 3 patients (1.2%) were blind according to the WHO definition.

In this series of new and untreated leprosy patients many eye lesions found are not relevant or leprosy related. There were 9 new patients with lagophthalmos, some too longstanding to treat with steroids. We found 3 patients with iris involvement. The figures we found for eye lesions, sight-threatening lesions and blindness are low when compared to other studies. The number of patients with any grade of cataract is high. The average total of leprosy patients who were blind can be compared with the average total who are blind in the general population.

MAUTALEN, Carlos A. et al. Calcium metabolism and its regulating hormones in patients with

leprosy. *Int. J. Leprosy*, v.62, n.4. p.580585, December, 1994.

Calcium metabolism was studied in 47 patients with borderline or lepromatous leprosy. Total and ionized calcium, phosphorus, creatinine, total alkaline phosphatase, parathyroid hormone (PTH), 25-hydroxy vitamin D [25(OH)D], and 1, 25-dihydroxy vitamin D [1,25(OH)2D] were measured in serum; calcium and total hydroxyproline were determined in urine. Total subperiosteal diameter and medullar cavity diameter were measured on an X-ray of the hand of all patients.

Average values were within normal ranges for all of the biochemical determinations. Total serum calcium was moderately below the normal range in eight patients but ionized calcium levels were within the normal ranges in all of the patients. Four patients, all of them with lepromatous leprosy, had levels of 1, 25(OH)2D higher than normal but none of them was hypercalcemic and PTH levels were within normal range. Although all values were within the normal ranges, lepromatous leprosy patients had lower total calcium, higher alkaline phosphatase, and higher urinary hydroxyproline than borderline leprosy patients (9.1 ± 0.4 vs 9.4 ± 0.3 mg%, $p < 0.001$; 10.3 ± 2.9 vs 7.4 ± 2.3 King-Armstrong units, $p < 0.02$ and 27.2 ± 12 vs 19.4 ± 5.6 mg/24 hr, $p < 0.02$, respectively). No differences were found between patients and controls in the average micrometric measurements of the second metacarpal bone but significant osteopenia was found in 19% of the patients.

The main finding of the present study in a representative sample of leprosy patients is that the average total serum calcium was in the lowest limit of the normal range, but the ionized serum calcium was in the middle of the normal range. Some patients had levels, of 1, 25(OH)2D higher than normal but in none of them was the serum calcium increased. Therefore, it is possible that calcium homeostasis is normal in most patients with leprosy and only in exceptional patients would it be possible to find significant alterations.

NAGARAJU, B., GUPTE, M.D. Diagnostic problems of early leprosy in field studies. *Indian J. Leprosy*, v.66, n.4, p.463-472, Oct-Dec, 1994.

A series of exercises were undertaken in order to develop methodology for consistency and reliability of clinical diagnosis of leprosy under field conditions in longitudinal studies. It was observed in initial studies that the field investigators could miss about 35% of cases of leprosy, mostly those with early manifestations. After training and experience, the proportion of missed cases came down to about 20%. In about 14% of females with patches suggestive of leprosy the patches were present in the covered areas of the body and so are likely to be missed during examination in field situations. One hundred forty two individuals with suspicious and definite leprosy lesions detected by paramedical workers were examined by a senior medical officer experienced in leprosy on two different occasions at an interval of three months for leprosy diagnosis. The concordance rates for diagnosis and classification of leprosy were about 80% and 70% respectively; and corresponding values for kappa were 0.59 and 0.62 similar to earlier experiences in inter-observer variation studies.

NOUIRA, R. et al. A propos d'un cas de mal perforant plantaire lépreux survenu à l'âge de 15 ans. *Acta Leprologica*, v.9, n.1, p.31- 34, 1994.

Les maux perforants plantaires lépreux sont fréquents, chroniques, invalidants et évoluent souvent vers les mutilations. Ils touchent habituellement l'adulte. La survenue à l'âge de 15 ans d'un mal perforant plantaire lépreux chez une jeune patiente atteinte de lèpre tuberculoïde nous a incités à la rapporter.

PAVITHRAN, K. Palatal palsy in a case of lepromatous leprosy. *Leprosy Rev.*, v.65,

n.3, p.248-252, September, 1994.

A male patient with lepromatous leprosy developed nasal regurgitation of food due to palatal palsy during Type 2 reaction. Early high-dose administration of corticosteroid achieved a prompt therapeutic response and he completely recovered from palatal palsy. The associated lagophthalmos, foot drop and ulnar paralysis persisted.

SEKAR, B. et al. Indeterminate leprosy: a seroimmunological and histochemical evaluation. *Leprosy Rev.*, v.65, n.3, p.167-174, September, 1994.

An effort was made to differentiate indeterminate (IND) leprosy from other types of the paucibacillary (PB) group of leprosy and to identify among indeterminate leprosy cases those which may evolve to multibacillary (MB) leprosy, using serological, immunological and histochemical parameters. A total of 92 untreated, histologically classified (TT-19, BT-30, IND-32) patients, including 11 cases diagnosed as nonspecific dermatitis (NSD), which were clinically strongly suspected to be leprotic, were screened for antibodies against PGL-I, 35-kDa and LAM antigens. Lepromin tests and antigen demonstration in tissue by indirect immunoperoxidase staining were also carried out. Though a qualitative analysis did not differentiate, a quantitative analysis in terms of a cumulative index (CI) showed a higher antibody level amongst the indeterminate group of patients than the other groups included in PB leprosy. Also, the lepromin negative indeterminate group patients showed a higher CI than the lepromin positive cases, indicating that perhaps these may be the cases which may develop into MB leprosy. Thus, the semiquantification of antibody levels in the form of a CI may be a useful parameter to predict the possible evolution of a given case of indeterminate leprosy. Interestingly 64% of NSD cases had either antigen or antibody which indicated that they were probably cases of leprosy.

VERMA, K.K., GAUTAM, S. Psychiatric morbidity in displaced leprosy patients. *Indian J. Leprosy*, v.66, n.3, p.339-343, July-Sep, 1994.

One hundred confirmed leprosy patients, all of them migrated from elsewhere, were examined for psychiatric co-morbidity. Forty-six of them were from an 'ashram' and the others were from a slum area. 76% of the patients were found to be having psychiatric illness. Of these, 55% were having neurotic depression and 21% had anxiety neurosis.

Single, unemployed, socio-economically backward and patients with physical deformities were suffering significantly more often with psychiatric symptoms. Psychiatric morbidity was found to be more frequent in the patients staying in slum than in those in the 'ashram' where they had some security.

TERENCIO DE LAS AGUAS, J. Patología del pie en la lepra. *Rev. Fontilles de Leprol*, v.19, n.5, p.543-555, Mayo-Agosto, 1994.

La afección de la lepra por afectar la piel y el sistema nervioso periférico de las partes más acras, conduce a que el pie sea, frecuentemente, afectado, tanto de lesiones cutáneas como neurales.

Se exponen las diferentes lesiones, siendo las más importantes las neurotróficas como úlceras plantares, tarso disociado y lesiones osteo-articulares, que son causa de discapacidad y necesidad de hospitalización e importantes escollos para la reinserción social.

Palabra clave: Pie Lepra. Lesiones cutáneas. neurotróficas y osteo-articulares.

EPIDEMIOLOGIA

JACOB, M.S. et al. Transmission of health information on leprosy from children to their families in a urban centre. *Leprosy Rev.*

v.65, n.3, p.272-278, September, 1994.

A health education study utilizing a homework assignment was carried out in a private secondary school in Bangalore, South India, to determine whether health information about leprosy would be transferred from children to their families. After a pre-test questionnaire on knowledge and attitude about leprosy was administered to 3 Standard VII classes and their family members, a different comprehensive health education session was given to each class: (i) leprosy plus a homework assignment; (ii) leprosy alone; and (iii) tuberculosis alone. A post-test questionnaire was administered to all participants 1 month later.

Of the 118 children and 229 family members who entered the study, almost 80% of the participants completed it. The children in the leprosy-educated groups showed significant improvement in knowledge compared with controls, but no change in their attitude towards leprosy. Although post-test responses of household members showed modest improvement in knowledge about leprosy, attitudes remained the same or worsened. The homework assignment did not appear to improve the transmission of health information to household members.

This study showed that the knowledge level of family members in South India could be improved modestly by educating their children about leprosy. However, attitudes towards leprosy were unaffected or worsened.

KYRIAKIS, P. Kyriekos., KONTOCHRIS TOPOULOS, George J., PANTELEOS, Demetrius N. Current profile of active leprosy in Greece; a five-year retrospective study (1988-1992). *Int. J. Leprosy*, v.62, n.4, p.547-551, December, 1994.

The epidemiological characteristics of newly diagnosed, active leprosy cases (incidence, N = 16 Greeks and 4 expatriates) and relapsed cases (recurrences, N = 25, all Greeks) were studied. Most of the cases were multibacillary,

over 50% being lepromatous. The relapses were analyzed by sex, disease duration and residence (rural or urban). Most of the newly diagnosed cases presented with nonreactional skin lesions (70%). The relapses were self-reported and detected mainly because of type 2 leprosy reactions (56%). The main source of the infection for new cases was members of their former extended family. The statistical trend of leprosy in Greece is a continuing decline in a country which already has a very low endemicity.

LOMBARDI, Clovis., RAMÍREZ, Rolando., GIL SUÁREZ, Reinado Eugenio. Tendencia temporal de la detección de la lepra en el Estado de São Paulo (Brasil) 1934-1983. *Rev. Fontilles de Leprol*, v.19, n.4, p.369-386, Enero-Abril, 1994.

A partir de una muestra de casos de lepra detectados en el Estado de São Paulo, Brasil, entre 1934 y 1983, se describe y se evalúa la tendencia temporal de la epidemia en el Estado.

La tendencia de las tasas de detección ha sido estudiada por sexo y grupo de edad, así como también las proporciones de las distintas formas clínicas, incluso por comparación con otros países de tendencia secular parecida.

En el período estudiado, la tendencia global de las tasas de detección es decreciente; sin embargo, solamente las dos décadas subsiguientes a la introducción de la sulfonoterapia podrían considerarse como de calda real de la incidencia.

Dado que el lapso abarcado incluye límites importantes en la terapéutica y el enfoque de las políticas de control de la lepra, se intenta una interpretación del fenómeno epidemiológico observado en función de las características organizativas y estratégicas del programa de control en las diferentes etapas consideradas.

PONNIGHAUS, Jorg M. et al. Extended schooling and good housing conditions are associated with reduced risk of leprosy in rural Malawi.

Int. J. Leprosy, v.62, n.3, p.345-352, September, 1994.

Incidence rates of leprosy in Karonga District, northern Malawi, are analyzed by duration of schooling and housing conditions, controlling for age, sex, BCG scar and geographical zone of the household. There is a strong inverse relationship between the number of completed years of schooling and leprosy risk. Good housing conditions are also associated with a decreased risk of developing leprosy in this population. The effect of housing is seen most strongly in young people. It is hypothesized that schooling changes behavior and housing determines environment in ways which are relevant for the transmission of *Mycobacterium leprae* or for the appropriate priming of the immune system.

RAO, P.S., SUBRAMANIAN, M., SUBRAMANIAN, G. Deformity incidence in leprosy patients treated with multidrug therapy. *Indian J. Leprosy*, v.66, n.4, p.449-454, Oct-Dec, 1994.

The records of 2,285 (2,007 paucibacillary (PB) and 278 multibacillary (MB)) cases of leprosy which were declared as released from treatment (R FT) after multidrug therapy (MDT) and under surveillance as per the National Leprosy Eradication Programme (NLEP) guidelines in the rural field practice area of Central Leprosy Teaching & Research Institute (CLTRI), Chengalpattu, between September 1986 and September 1993 were analyzed for collecting data on the incidence of deformity. Of the 2,285 cases 2,053 (1,947 PB and 106 MB) did not have deformity at the commencement of treatment. Three MB cases and one PB case out of the 2,053 developed deformity (all grade II) during the course of treatment. No patient developed deformity during surveillance. Thus the deformity incidence in the population of patients was 0.681 per 1000 person-years of observation. Age, sex, type of disease, prior dapsone monotherapy and nerve involvement at the commencement of treatment

appear to influence the deformity incidence. The risk of development of deformity in patients treated with MDT appear to be very low and analysis of larger data sets is suggested to corroborate the above findings as the information would be useful for planning prevention and management of deformity services.

SCHIPPER, A. et al. Disabilities of hands, feet and eyes in newly diagnosis leprosy patients in eastern Nepal. *Leprosy Rev.*, v.65, n.3, p.239-247, September, 1994.

The objective of the study was to determine the magnitude of hand/feet/eye disabilities in newly diagnosed leprosy patients by examining all newly diagnosed leprosy patients who presented at the Eastern Leprosy Control Project (supported by The Netherlands Leprosy Relief Association), made up of a regional clinic in Biratnagar and 5 mobile clinics in surrounding districts.

The study comprised of all new and previously untreated patients who presented at the clinics over a 10-week period who were diagnosed as leprosy sufferers.

Of the leprosy patients examined 12 (4.6%) had sight-threatening lesions (lagophthalmos, iris involvement, corneal anaesthesia); 3 patients were blind due to cataract; 96/260 patients (37.0%, 95% confidence interval 35.0-43.0%) had 1 or more disabilities of their hands and/or feet. The most frequently found disabilities were sensory loss of the hands and feet, claw hand and plantar ulcers. According to the WHO disability grading 60% had no disabilities, 19% had grade 1 and 21% had grade 2 disability.

Disability assessment is very important not only to evaluate the effectiveness of the control programme but also for the patient, whose most important worry is the stigmatizing deformities leprosy patients suffer. The earlier detection of sensory loss might reduce these secondary deformities.

SCOLLARD, David M. et al. Epidemiologic characteristics of leprosy reactions. *Int. J. Leprosy*, v.62, n.4, p.559-567, December, 1994.

An 8-year prospective study of a cohort of 176 newly diagnosed leprosy patients was conducted to examine the possible influence of age, sex, multidrug therapy (MDT), and duration of illness on the risk of either type 1 or type 2 reactions. Patients were enrolled over a 5-year period (1984-1989) and followed for a minimum of 3 years. All reactions studied were severe enough to warrant hospital admission. Overall, 45% of this cohort developed a reaction; 32% of patients considered at risk developed type 1 reactions, and 37% of patients considered at risk developed type 2 reactions. Despite the predominance of men among the leprosy patients, type 1 reactions occurred with significantly greater frequency in women, and did not appear to be influenced by age of onset of leprosy. Individuals experiencing one type 1 reaction were not likely to experience a recurrence, suggesting that the immunologic mechanisms of this reaction may be limited or regulated by genetic or immunologic factors.

Type 2 reactions, on the other hand, occurred with equal frequency in both males and females, but were highly associated with onset of leprosy in the second decade of life. Individuals who experienced type 2 reactions often had one or more recurrence of the reaction. No increased risk was seen for either reactions with longer duration of leprosy or longer duration of treatment. The mechanisms by which these differences relate to the pathogenesis of leprosy reactions remains unclear, but future studies of clinical and immunological parameters of leprosy reactions may benefit from stratification of data by gender and age of onset of leprosy in addition to the routine grouping of results by leprosy classification.

SEKAR, Balaraman et al. Prevalence of HIV infection and high-risk characteristics among leprosy patients of south India; a case-control study. *Int J. Leprosy*, v.62, n.4, p.257-531.

December, 1994.

With the observation of the occurrence of the human immunodeficiency virus (HIV) infection among leprosy patients in our pilot study carried out in Tamil Nadu, South India, a case-control study was planned to explore whether HIV infection is a risk factor for leprosy and to understand the characteristics of HIV infection and high-risk behaviors among leprosy patients. We screened 556 patients and 1004 nonleprosy controls (matching 502 cases for age, sex and area of residence) for HIV-1 and HIV-2 antibodies. They also were interviewed for personal information on history of blood transfusion, intravenous drug abuse, high-risk sexual behavior, and sexually transmitted diseases. Of the 1019 total cases screened (of both pilot and extended studies), 5 were found to be positive for HIV antibodies (HIV-1 = 4, HIV-2 = 1); of the 1019 nonleprosy controls, 6 were positive for HIV-1 antibodies. An analysis by odds ratio revealed no association between leprosy and HIV infection (OR = 0.824, 95% CI = 0.201-3.593). A strong association was found only between high-risk behavior and HIV infection (OR = 5.186, 95% CI = 1.717-15.667). However, unmarried, unmarried after 30 years of age, exposure to spouses of the leprosy patients, and a history of surgery were all observed to be significantly more common among leprosy patients than the controls.

SHAH, Damayanti H. et al. Epidemiological studies in children of a low-endemic region, a high-endemic region, and dwellers of a leprosy colony: evaluation of anti-ND-BSA antibodies and lepromin response. *Int. J. Leprosy*, v.62, n.4, p.439-546, 1994.

Children residing in a low-endemic region (LER), a high-endemic region (HER), and a leprosy colony contact population (CP) were evaluated for lepromin response as well as reactivity to the *Mycobacterium leprae*-specific synthetic antigen, ND-BSA. The mean reactivity to ND-BSA in the LER group (OD 0.03 ± 0.03, N = 71) was

significantly lower ($p < 0.001$) than that in the contact population (OD 0.14 ± 0.09, N = 140) as well as the population residing in the HER (OD 0.09 ± 0.08, N = 1340). ELISA-positive results were the highest (21.4%) with the CP group and lowest (0.0%) in the LER group, suggesting that it was a measure of the extent of exposure to *M.leprae*. In the contact population, females showed a preponderance for ELISA positivity over males ($p < 0.005$), a finding not observed with the HER population.

The Mitsuda responses showed a Gaussian-type distribution in all of the three populations examined with the mean response being highest in the LER (6.0 mm ± 2.9) and lowest in the HER (4.5 mm ± 2.0) groups. The percent positivity for the Mitsuda reaction was found to be highest in the LER (93.0%) and lowest in the HER (88.3%) groups. The Mitsuda response thus appears to be independent of *M.leprae* exposure, and its interpretation in a given population needs consideration of several factors, such as nutritional, environmental, etc. The percent positivity as well as the mean Fernandez response was found to be highest in the LER (52.1%, 5.5 ± 4.6) and lowest in the HER (24.4%, 3.1 ± 3.0) groups, indicating more of a reflection of an individual immunological response rather than a prior exposure to *M.leprae*.

The humoral and cell-mediated immune responses (Mitsuda) in the same individual showed a poor correlation between the two in all three groups studied. However, the percent-positive ELISA results associated with lepromin-negative individuals in the CP group was significantly higher (5/12, 41.7%) than that observed in HER group (10/156, 6.4%). The clinical utility and the predictive value of the two tests along with the cost-effectiveness for the outcome of the disease need close and longer follow-up studies.

SUÁREZ, Reinaldo E. Gil e outros. Estudio de un foco de lepra en un centro industrial en Cuba. *Rev. Fontilles de Leprol.*, v.19,

La población de estudio estuvo

constituida por 1.200 obreros de una industria en la que se habían detectado dos casos de lepra lepromatosa. A todos los obreros se les realizó examen clínico dermato-neurológico, y se les tomaron muestras de sangre venosa para la determinación de anticuerpos anti GF-I. El nivel de corte para la prueba serológica se estableció en el valor de D.O. de 0.100. Se aplicó un esquema de procedimiento con los individuos seropositivos de acuerdo a los valores serológicos observados, que incluyó la realización de un segundo examen clínico, prueba de Mitsuda, baciloscopia y una prueba serológica diferida, previéndose la institución de quimio profilaxis según los resultados de los exámenes y de Terapia Multi-droga (TMD) en el caso de confirmación del diagnóstico de lepra. En general, se observó una tasa de seropositividad de 18'3%; la frecuencia de individuos con valores serológicos considerados altos disminuyó de manera altamente significativa con el incremento de la reactividad a la lepromina; el riesgo de desarrollar una respuesta humoral de bajo grado fue 4'39 veces mayor después de 47 meses de contacto con los pacientes de lepra que antes de ese tiempo. Sin embargo, para los que mostraron altos niveles de anticuerpos el riesgo aumentó de manera sostenida desde el inicio del contacto, aunque en algunos individuos, tanto en uno como en otro caso, la seropositividad fue transitoria, disminuyendo o dejando de manifestarse en poco tiempo; la proporción de seropositivos fue mayor en el sexo femenino, pero exclusivamente a expensas del grupo con respuesta humoral de bajo nivel; anticuerpos anti GF-I se elevan hasta un pico en el grupo de edad de 20-39 años, descendiendo después.

En el examen dermato-neurológico practicado por especialistas de dermatología, se encontró una discreta infiltración de un lóbulo auricular en uno de los individuos con altos valores serológicos. En este mismo paciente la prueba de Mitsuda fue de 0 mm. y la baciloscopia positiva con un IB de 1+.

THAPPA, D.M. Disability grading in leprosy: current status. *Indian J. Leprosy*, v.66, n.3,

p.299-306, July-Sep, 1994.

The systems of classification and grading of disabilities in leprosy patients, suggested by WHO and others are reviewed. Taking into account the drawbacks observed in these classifications, a new system of grading of disabilities of hands and feet of leprosy patients based on the 1960 WHO classification is proposed for use in institutions.

VAN BRAKEL, W.H. et al. Reactions in leprosy: as epidemiological study of 386 patients in West Nepal. *Leprosy Rev.*, v.65, n.3, p.190-203, September, 1994.

This paper presents epidemiological data on reversal reaction (RR) and erythema nodosum leprosum reaction (ENL) from a retrospective study of 386 leprosy patients newly registered at Green Pastures Hospital, Pokhara, West Nepal. The average follow-up time was 21 months. The prevalence of RR at first examination was 28% (23-32), and the prevalence of ENL reaction was 5.7% (2.3-9.2). The overall incidence rates among the 335 patients that were available for follow-up were 8.7 (6.5-12)/100 person years at risk (PYAR) for RR and 3.2 (1.5-6.7)/100 PYAR for ENL. Relapse of RR was common (1.4/patient). In all, 52% of RR were complicated by new nerve function impairment, against 59% of ENL reactions. The finding of other investigators that most Rrs occur during the first year of treatment was confirmed by this study. The most significant risk factor for RR was extent of clinical disease measured by a count of body areas with clinical signs of leprosy. The risk of developing a RR for patients with 'extensive disease' (3 or more out of 9 body areas involved) was 10 times that of patients with limited disease (Rate Ratio 10 (1.3-76), p=0.026).

The study indicated that the following categories of patients in Nepal are at high or increased risk of developing a RR: 1, borderline patients during their first year of MDT; and 2, patients with more extensive clinical disease as described above.

VAN BRAKEL, W.H., KHAWAS, I.B. Silent neuropathy in leprosy: epidemiological description. *Leprosy Rev.*, v.65, n.4, p.350-360, December, 1994.

This paper presents epidemiological data on silent nerve function impairment in leprosy based on a retrospective study of 536 patients registered at Green Pastures Hospital, Pokhara, West Nepal. Because of the multiple possible aetiologies it is proposed that the clinical phenomenon should be named 'Silent Neuropathy' (SN). We defined this as sensory or motor impairment without skin signs of reversal reaction or erythema nodosum leprosum (ENL), without evident nervetenderness and without spontaneous complaints of nerve pain (burning or shooting pain), paraesthesia or numbness. The functioning of the main peripheral nerve trunks known to be affected in leprosy was assessed using a nylon filament to test touch thresholds and a manual voluntary muscle test to quantify muscle strength.

Almost 7% of new patients had SN at first examination. The incidence rate of SN among the 336 new patients who were available for follow-up was 4.1 per 100 person years at risk. In total, 75% of all SN episodes diagnosed after the start of chemotherapy occurred during the first year of treatment. During steroid treatment the sensory and motor function in nerves affected by SN improved significantly ($p=0.012$, Wilcoxon matched-pairs signed ranks test) over a period of 3 months. The patients with more extensive clinical disease (3/9 or more body areas involved, more than 3 enlarged nerves or a positive skin smear) were found to be at increased risk of developing SN.

We discuss 4 different possible aetiologies of SN: 1, Schwann cell pathology; 2, nerve fibrosis; 3, cell-mediated immune reaction; and 4, intra-neural ENL. Some epidemiological evidence is presented that suggests that SN cannot be equated with a 'reversal reaction expressing itself in the nerves'.

It is recommended that all patients should have a nerve function assessment at every visit to the clinic at least during their first year of treatment.

Regular nerve function assessment is essential to detect SN at an early stage and to prevent permanent impairment of nerve function.

VAN BRAKEL, W.H., KHAWAS, Ishwar B. Nerve damage in leprosy: an epidemiological and clinical study of 396 patients in West Nepal - Part I. Definitions, methods and frequencies. *Leprosy Rev.*, v.65, n.3, p.204-221, September, 1994.

A historic cohort study was performed to determine the prevalence and incidence rates of nerve function impairment (NFI) as demonstrated by sensory testing with a nylon monofilament and standard tests of motor function. The records of 396 new leprosy patients registering at Green Pastures Hospital, Pokhara, between January 1988 and January 1992 were analysed. The mean follow-up period was 21 months.

In all, 36% (141/396) of patients had either sensory or motor function impairment at their initial examination. For each nerve the prevalence of sensory and motor impairment is reported separately. The posterior tibial nerve was the most frequently affected (sensory) nerve (21%). Sensory impairment of the ulnar nerve was found in 17% of the patients; 8.8% had sensory impairment of the median nerve. The overall incidence rate of motor function impairment was 7.5 (5.4-10) per 100 person years at risk (PYAR). Sensory impairment had a significantly higher rate of 13 (10-17)/100 PYAR (rate ratio 1.8 (1.2-2.7), $p=0.0076$). BI patients had a significantly higher incidence rate of nerve function impairment than BT patients (rate ratio 2.3 (1.4-3.7), $p=0.0006$). Altogether 152/396 (39%) of the patients required corticosteroid treatment for 'recent' or 'acquired' impairment, and 78 of the patients (20%) developed severe nerve function impairment during or after antileprosy treatment. Analysis of potential risk factors for nerve function impairment showed a significant association with the extent of clinical disease expressed as the number of body areas (out of 9) with primary or secondary signs of leprosy (rate ratio 5.0 (1.5-17), $p=0.0091$).

It was concluded that nerve function impairment is a serious problem, often occurring during or after multidrug therapy. The extent of clinical disease expressed as a count of body areas involved, or of skin or nerve lesions may identify patients who are at increased risk of nerve damage.

HANSENÍASE EXPERIMENTAL

GELBER, H. et al. Effective vaccination of mice against *Mycobacterium leprae* with density-gradient subfractions of soluble *M.leprae* proteins: clues to effective protein epitopes. *Leprosy Rev.*, v.65, n.3, p.175-180, September, 1994.

It had previously been discovered that intradermal mouse vaccination with a protein fraction of *Mycobacterium leprae* (called soluble proteins) in Freund's incomplete adjuvant (FIA) resulted in consistent and long-lived protection against *M.leprae* multiplication from subsequent viable footpad challenges. In this study certain density-gradient subfractions of this soluble protein, but not others, in FIA afforded vaccine protection. The results of this study suggest which *M.leprae* proteins may be involved in protective immunity, particularly 1-3 kD, 10 kD, 65 kD, and those of higher molecular weight.

JOB, Charles K., CHEHL, Sumir K., HASTINGS, Robert C. Transmission of leprosy in nude mice through thorn pricks. *Int. J. Leprosy*, v.62, n.3, p.395-398, September, 1994.

The dorsum of the feet of 10 nude mice was smeared with 10^7 *Mycobacterium leprae* and then pricked with cactus thorns contaminated with *M.leprae*. In 15 months five of them developed lepromatous nodules at the infected site and disseminated lesions in the ears, nose, tail and the organs of the reticuloendothelial system. Penetrating injuries through unprotected skin

contaminated with *M.leprae* from the environment may play a role in the transmission of leprosy in humans.

SREEVATSA, KATOCH, V.M. Comparative assessment of viability of *M.leprae* by mouse foot-pad and fluorescent staining techniques. *Indian J. Leprosy*, v.66, n.4, p.455-462, Oct-Dec, 1994.

Morphological characteristics have been used as a parameter to assess the viability of *M.leprae* in leprosy patients. However, with the advent of the mouse foot-pad technique, viability of *M.leprae* is determined by growing the bacilli in the mouse foot-pad. In recent years, a fluorescent staining technique using fluorescent diacetate-ethidium bromide (FDA-EB) has been used to assess the viability of cultivable mycobacteria as well as *M.leprae*. The purpose of this study was to compare the viability of *M.leprae* by both mouse foot-pad and fluorescent staining techniques. *M.leprae* strains from both untreated and treated patients as well as mouse passaged strains of *M.leprae* were used for the comparison. Percentage of green-stained bacilli in the inoculum was compared with that of multiplication of *M.leprae* in the mouse foot-pad. It was observed that there was no correlation between the estimates of viable *M.leprae* by fluorescent staining and by mouse foot-pad inoculation. FDA-EB staining appears to reflect only trends as absence of green staining cells had overall general correlation with loss of infectivity to mouse foot-pad but, the converse was not found to be true.

IMUNOLOGIA

CASTELLS RODELLAS, Antoni e outros. *Imunología de la lepra*. 1993. *Rev. Fontilles de Leprol*, v.19, n.5, p.477-532, Mayo-Agosto, 1994.

Se estudia la respuesta inmunitaria del

macrófago, inmunidad humoral y celular ante el *Mycobacterium leprae* y se analizan sus diferentes antígenos.

Existen evidentes defectos parciales y totales de la inmunidad celular con trastorno de la secreción de citoquinas, mientras que la inmunidad inmediata permanece normal.

No se explica satisfactoriamente la naturaleza de la inmunodeficiencia.

Palabra clave: Inmunología de la lepra. Macrófagos. Inmunidad humoral. Inmunidad celular. Prevención.

CHAUDHURY, S. et al. An eight-year field trial on antileprosy vaccines among high-risk household contacts in the Calcutta Metropolis. *Int. J. Leprosy*, v.62, n.3, p.389-394, September, 1994.

One-hundred-seventy-nine lepromin-negative household contacts were vaccinated with heat-killed *Mycobacterium leprae*, BCG, or a combination of the two. Vaccination induced lepromin positivity in 131 of these contacts. Over an 8-year follow-up period, 12 lepromin-positive contacts developed leprosy, all tuberculoid; while 2 lepromin-negative vaccinated contacts developed leprosy, both lepromatous. Overall, 7.8% of the vaccinated contacts developed the disease.

Seven-hundred-fourteen household contacts were not vaccinated, and served as controls. Among the 504 who were lepromin positive, leprosy developed in 35, all tuberculoid, over the 8-year follow-up. Among the 210 lepromin-negative unvaccinated contacts, 61 developed leprosy; tuberculoid in 29, borderline in 4, lepromatous in 8, and indeterminate in 20. Overall, 13.5% of the 714 unvaccinated contacts and 29.0% of the 210 unvaccinated, lepromin-negative contacts developed leprosy.

Vaccination could not induce lepromin positivity in all contacts. The three vaccines were equally effective in inducing lepromin positivity. Vaccination reduced the overall incidence of leprosy from 13.5% to 7.8% among household

contacts but did not reduce the incidence of lepromatous leprosy (1.2% of all the vaccinated and 1.1% of all the unvaccinated contacts).

DESIKAN, Prabha., PARKASH, O.M., NARANG, Pratibha. The role of antiperipheral nerve antibodies in nerve damage in leprosy. *Leprosy Rev.*, v.65, n.3, p.22-230, September, 1994.

The objective of this study was to determine the role of antineural antibodies in leprosy. Indirect ELISA using antigen prepared from normal human peripheral nerves was carried out on the sera from 100 leprosy patients and 18 normal controls. In total, 9% of the patients had demonstrable levels of IgG antineural antibodies and 11% had demonstrable levels of IgM antibodies. There was no correlation with the type of leprosy, bacteriological index, treatment taken, the presence of a reactional state, the presence of enlarged nerves or active neuritis.

JAMIL, Sarwat et al. A colorimetric OCR method for the detection of *M. leprae* in skin biopsies from leprosy patients. *Int. J. Leprosy*, v.62, n.4, p.512-520, 1994.

A one-tube nested polymerase chain reaction (PCR) method for the diagnosis of paucibacillary leprosy was developed using the repetitive RLEP sequence as a target. Detection of the PCR products was simplified by the adaptation of a colorimetric method. The test was specific for *Mycobacterium leprae*, and the sensitivity of the assay was 1 fg of purified genomic *M. leprae* DNA (less than one genome). Complete concordance was seen between the development of color and resolution on agarose gels. The results of frozen skin sections from untreated patients showed that the assay could detect 100% of multibacillary samples [bacterial index (BI) of 2 or more] and 69% and 70% of the samples with BI of 1 and 0, respectively. The use of one-tube nested PCR in assessing the effectiveness

multidrug therapy (MDT) in leprosy also was determined. The simplified colorimetric assay was found to be sensitive, rapid and specific, and is suitable for use in routine diagnostic laboratories.

McCLEAN, Kimberley et al. Phenotype and cytokine expression of intralesional cells in borderline leprosy. *Int. J. Leprosy*, v.62, n.3, p.380-388. September, 1994.

We studied the cytokine profiles and cellular compositions in the lesions of borderline lepromatous (BL) and borderline tuberculoid (BT) leprosy patients in order to ascertain the immunological distinctions between these two groups. Using a modified, reliable, noninvasive, suction-induced blister technique to sample lesions, we determined that CD4 + T cells predominated in BT lesions; whereas CD8 + T cells predominated in BL lesions. However, the numbers of CD8 + per mm² surface area of the lesion did not differ significantly between the two patient groups. In BT lesions, the elevation in the number of CD4 + cells was paralleled by the levels of soluble interleukin-2 (IL-2) receptor and soluble CD4 in the lesions. The CD4 + :CD8 + ratio was 16:1 in BT lesions and 0.36:1 in BL lesions, although this ratio in the peripheral blood was similar in both groups. In addition, cells expressing the CD8 molecule dominated in the TCR-xxx subpopulation.

The cytokine profiles in the lesions were not as distinctly different between BL and BT patients as were the cellular compositions. However, trends observed included elevated concentrations of IL-6 in BL lesions and elevated TNF-xxx levels in BT lesions.

RADA, Elza et al. A longitudinal study of immunologic reactivity in leprosy patients treated with immunotherapy. *Int. J. Leprosy*, v.62, n.4, p.552-558, December, 1994.

More than 150 leprosy patients treated with multidrug therapy (MDT) plus immunotherapy

(IMT) with a mixture of heat killed *Mycobacterium leprae* plus live BCG were studied in relation to humoral and cell mediated immune responses. Many previously had received prolonged sulfone monotherapy. Patients received 2 to 10 doses of IMT in a period of 1 to 3 years, depending upon their clinical form of leprosy. The patients were followed up for 5 to 10 years with repeated determinations of antibody levels to phenolic glycolipid-I; lymphoproliferative (LTT) responses to soluble extract of *M.leprae*, to whole bacilli and to BCG, skin-test responses and bacterial indexes (Bis). After MDT plus IMT there was a statistically significant decrease of antibody levels in the multibacillary (MB) group. The BI decreased proportionally to the ELISA results. LTT increased to *M.leprae* antigens, especially to soluble extract, in a high percentage of these patients (34% of LL patients positive). Lepromin positivity in MB patients increased from 5% initially positive to 75% at the cut-off during this follow up. These results show substantial early and persistent cell-mediated reactivity to *M. leprae* in many MB patients treated with MDT-IMT, confirming and expanding previously published data.

SOARES, D.J. et al. The role of IgM antiphenolic glycolipid-1 antibodies in assessing household contacts of leprosy patients in a low endemic area. *Leprosy Rev.*, v.65, n.4, p.300-304, December, 1994.

This study was carried out to assess the role PGL-1 antibodies may have to play in assisting with early diagnosis in close contacts of leprosy patients. Blood samples were collected from patients and contacts. It was found that 6.9% of index cases and 1% of healthy contacts were positive for PGL-1 antibody. None of the healthy contacts developed clinical leprosy and all had become seronegative at follow-up. We conclude that screening for PGL-1 antibodies has a limited role in the screening of healthy contacts and may not be of use in low endemic areas.

THAWANI, G., BHATIA, V.N., MUKHERJEE, A.

Anticardiolipin antibodies in leprosy. *Indian J. Leprosy*, v.66, n.3, p.307-314, July-Sep, 1994.

Eighty-four leprosy patients were studied clinically and for IgG and IgM anticardiolipin (aCL) antibodies. Following WHO criteria, 41 patients could be classified as multibacillary (MB) and 43 as paucibacillary (PB). Baseline levels of IgG and IgM antibodies were 27 ± 4.8 GPL and 20 ± 3.4 MPL per ml respectively. Comparing with these, 60.9% of MB and 39.5% of PB cases showed rise in IgG and IgM anticardiolipin antibodies; 19.5% of MB and 4.6% of PB sera showed rise in only IgG antibodies, while 4.8% of MB and 13.9% of PB cases showed rise only in IgM antibodies. Rise in aCL antibodies had no correlation with cardiovascular involvement, bacteriological index, reactive state and duration or regularity of treatment.

THAWANI, G., MUKHERJEE, A., BHATIA, V.N.

Evaluation of modifield lepro-agglutination as screening test for leprosy. *Indian J. Leprosy*, v.66, n.3, p.315-320, July-Sep, 1994.

One hundred thirty-three leprosy sera (83 multibacillary (MB) and 50 paucibacillary (PB) cases) were screened by lepro-agglutination (LA) and *M.leprae* particle agglutination (MLPA) tests. Larger number of MB sera were positive by LA (86.75%) than by MLPA (45.12%) tests. Thirty-seven of the 45 MB sera negative by MLPA test were positive by LA test. The reverse was true in three out of 11 MB sera. PB sera showed positivity of 16% in LA test and 24% in MLPA test. All the 55 sera from normal healthy individuals and 18 VDRL positive sera from syphilis patients were found to be negative by LA test.

THUC, Van Nguyen et al. Protective effect of BCG against leprosy and its subtypes: a case-control study in southern Vietnam. *Int. J. Leprosy*, v.62,

n.4, p.532-538, December, 1994.

A case-control study was conducted to assess the protective effect of intradermal BCG against leprosy and its subtypes in southern Vietnam. A total of 177 cases were selected with a distribution by subtypes as follows: 38 TT, 23 BT, 51 BB, 36 BL, 22 LL, and 7 indeterminate. Two controls were matched with a case for age, sex, ethnic group, socioeconomic status, and district area. The odds ratio assessing the protective effect of BCG varied from 0.44 (0.19-1.03) in the BB subtype to 3.00 (0.24-37.5) in indeterminate leprosy; whereas its overall value was 0.71 (0.45-1.10) for leprosy per se. When all borderline leprosy types were pooled, the protective effect of BCG was found significant with an odds ratio of 0.48 (0.27-0.84). In the polar forms of leprosy, TT and LL, the odds ratio was > 1 with large confidence intervals. It is possible that BCG induces a shift in the immune response to a higher level of cell-mediated immunity. When BCG vaccination is given after primary infection with *Mycobacterium leprae*, this shift could be the cause of an increase in the risk of the occurrence of milder and transient forms of the disease. In TT forms BCG might reinforce the preexisting subclinical immunopathological reactions, and in stable LL forms BCG might be unable to induce any protective form of immunity. These results confirm the important variability in the protection offered by BCG with respect to the different types of leprosy, and may have important implications for the design and the interpretation of vaccine trials that should take into account the respective proportions of leprosy forms observed in the study region.

VU TAN TRAO et al. Long-term evaluation of immune status in leprosy patients undergoing multiple drug therapy. *Int. J. Leprosy*, v.62, n.3, p.365-373, September, 1994.

A long-term survey of leprosy patients of all clinical types, starting at the time of diagnosis,

was carried out to monitor clinical, bacteriological and immunological parameters at regular intervals during multiple drug therapy (MDT). The patients were assigned to two groups for treatment following WHO guidelines: paucibacillary (PB) and multibacillary (MB). Immunoglobulin levels, specific antibodies, skin-test responses to different soluble mycobacterial antigens (new tuberculins), and in vitro proliferative responses to mitogens and to antigens were measured during treatment, as were clinical changes, the bacterial index, and clinical improvement. No exact relations between disease activity and IgM antibody levels, both IgM immunoglobulin and specific IgM antibody to a species-specific antigen (NDO-BSA), could be seen for MBB patients. Changes in in vitro cell-mediated immunity and skin-test response seemed to be more directly related to the bacterial load and could reflect the improvement of bacteriological and clinical parameters during MDT.

MICROBIOLOGIA

ISHAQUE, Muhammad., TOGOLA, Daouda., STICHT-GROH, Veronika. α -Ketoglutarate dehydrogenase in the in vitro-grown *Mycobacterium lepraemurim*. *Int. J. Leprosy*, v.62, n.3, p.399-403, September, 1994.

The Hawaiian and Kumato strains of *Mycobacterium lepraemurium* were cultivated on Ogawa egg-yolk medium, and the xxx-ketoglutarate dehydrogenase activity was investigated in cell-free preparations of this mycobacterium. The enzymatic activity was mainly localized in the particulate fraction (150,000 x g pellet), and extremely low activity was found in the soluble fraction (150,000 x g supernatant). xxx-Ketoglutarate dehydrogenase was not stable; the activity was lost completely when the enzyme was kept at 45°C for 1 hr or stored at -70°C. The enzyme reduced only NAD⁺ but not NADP⁺ by xxx-ketoglutarate, indicating the presence of NAD⁺-dependent xxx-ketoglutarate

dehydrogenase in cultivated *M.lepraemurim*.

KODE, J.A. et al. Immunoprecipitation of mycobacterial antigens with sera from patients with leprosy. *Acta Leprologica*, v.9, n.2, p.89-94., 1994.

Pooled sera from leprosy patients across the clinical spectrum, tuberculosis patients and healthy individuals were tested for their reactivity with antigens of *Mycobacterium leprae* and a panel of cultivable mycobacteria by immunoprecipitation technique. Sera from lepromatous leprosy patients demonstrated exclusive reactivity with the 26-kDa protein of *M.tuberculosis* H37Ra, 28-kDa protein of *M.kansasii*, 45-kDa protein of *M.smegmatis*, and 158, 40 and 14 kDa proteins of *M.phlei*. Sera from patients with borderline tuberculoid leprosy, tuberculoid leprosy, tuberculosis and health individuals failed to identify these antigens. Our studies indicate that analysis and characterization of immunodominant antigenic epitopes present on proteins of cultivable mycobacteria, sharing cross-reactive epitopes with *M.leprae* may prove to be important in the serodiagnosis of multibacillary leprosy as well as for developing vaccines for immunotherapy of leprosy.

REABILITAÇÃO

BIRKE, James A. et al. Measurement of pressure walking in footwear used in leprosy. *Leprosy Rev.*, v.65, n.3, p.262-271, September, 1994.

Pressure measurements were made on 10 leprosy patients while walking barefoot and while using 6 sample shoes. The sample shoes, which represented footwear currently used worldwide in leprosy programmes, included: 1, a USA extradepth shoe without insole; 2, a USA extradepth shoe with insole; 3, a Chinese tennis shoe; 4, a Mozambique sandal; 5, a Bombay sandal; 6, a Bombay sandal with rigid sole; and 7, the patients' prescribed footwear. Peak pressure

was significantly lower while walking in all footwear, except with the extradept shoe without an insole, when compared to barefoot walking. Peak pressure was significantly lower walking in the Bombay sandals, the Chinese tennis shoe, the extradept shoe with an insert and the patients' prescribed shoe when compared to the extradept shoe without an insert. Regression analysis showed a significant inverse relationship between pressure and insole thickness ($P < 0.001$, $R^2 = 0.17$).

DE RIJK, A.J., BYASS, P. Field comparison of 10-g and 1-g filaments for the sensory testing of hands in Ethiopian leprosy patients. *Leprosy Rev.*, v.65, n.4, p.333-340, December, 1994.

In ALERT's leprosy control programme sensory testing of hands and feet is done with a nylon filament giving a 10-g stimulus, but doubts arose that early partial sensory loss in hands would not thus be discovered. In order to evaluate the relative performance of 1-g and 10-g filaments for sensory testing on the palms of hands, both filaments were used separately in a series of 1,021 examinations on several consecutive occasions in 159 leprosy patients and 97 nonleprosy controls. The 1-g filament was always felt on normal hands and does not lead to false positive findings of nerve dysfunction. If the 1-g filament were used routinely, almost twice as many instances of 'neuritis' would be discovered and treated, if the criterion for diagnosis and treatment of new nerve dysfunction remained as it is for nerves tested with the 10-g filament.

It appears desirable to distinguish between testing for early sensory loss and for loss of protective sensation. The two tests may each need their own instrument and separate recording of the results.

GUPTA, BaI Kishan., KOCHAR, Dhanpat Kumar. Study of nerve conduction velocity, somatosensory-evoked potential and late responses (H-reflex and F-wave) of posterior

tibial nerve in leprosy. *Int. J. Leprosy*, v.62, n.4, p.586-593, December, 1994.

The present study was conducted in 25 leprosy patients (of different age and sex) with or without clinical evidence of neuropathy. The diagnosis was confirmed by skin biopsy. A group of 15 age- and sex- matched, healthy persons also were studied for comparison and served as controls. Motor nerve conduction velocity (MNCV) was reduced in nine patients (36%) and sensory nerve conduction velocity (SNCV) was reduced in three patients (12%). Late responses (H-reflex and F-wave) were deranged in 16 patients (64%). Somatosensory evoked potential (SSEP) was deranged in 13 patients (52%). N7-N18 interpeak latency (PCT) was prolonged in two patients (8%); none showed prolongation of N18-N35 interpeak latency (CCT). We observed that nerve conduction velocity, late responses, and SSEPs were deranged in all types of leprosy, regardless of clinical evidence of neuropathy, and were more prominently affected in the tuberculoid (TT) type of leprosy. A study of late responses is more informative than conventional nerve conduction studies for the detection of early lesions of the nerves. The study of SSEP shows involvement of the peripheral part of the nervous system and complete sparing of the central part of the nervous system.

THEUVENET, W.J. et al. Advantages, indications, and the manufacturing of melted PVC waterpipe splints. *Leprosy Rev.*, v.65, n.4, p.385-395, December, 1994.

There are several indications when to use splints in the treatment of leprosy. PVC waterpipe is a cheap and easily available material in developing countries. Its advantages, indications, and the manufacturing of splints are described.

VU DINH LAP et al. Une experience originale à travers la creation d'un nouveau centre de

rehabilitation fonctionnelle pour les lépreux vietnamiens. *Acta Leprologica*, v.9, n.1, p.35-43, 1994.

Depuis 1990, la création d'un centre de réhabilitation fonctionnelles des malades lépreux vietnamiens sous l'égide des Œuvres Hospitalières Françaises de l'Ordre de Malte est le fruit d'une collaboration étroite entre plusieurs organismes gouvernementaux et non gouvernementaux et entre plusieurs professions médicales et paramédicales.

Le but de cette action humanitaire n'est pas la livraison d'un "paquet cadeaux" à domicile.

C'est la mise en place d'une entreprise progressive et réaliste reposant sur une enquête épidémiologique préliminaire prospective de terrain pour analyser les moyens et les besoins du site choisi.

La fréquence des invalidités (49,6%) et la nette prédominance des grades I et 2 (83,5%) nécessitent une aide appropriée.

Il fallait effectuer un transfert de technologie à tous les échelons du personnel soignant et assurer, dans le même temps, l'aménagement d'une infrastructure adaptée à l'environnement, l'équipement matériel suffisant pour le confort et la sécurité des patients et l'approvisionnement pharmaceutique régulier pour la poursuite des activités chirurgicales et kinésithérapiques.

A court terme, le choix sélectif et le suivi constant des malades opérés permettent déjà d'évaluer les premiers résultats objectifs.

L'originalité de cette démarche est de créer un centre de réhabilitation fonctionnelle dans de brefs délais, en plein cœur d'une ville de quatre millions d'habitants pour faciliter ainsi la réinsertion sociale des lépreux, dont la part mythique reste encore gravée dans tous les esprits.

Le travail en harmonie parfaite d'une équipe médico-chirurgicale franco-vietnamienne s'appuyant sur un partenariat officiel a ouvert l'accès à la chirurgie réparatrice pour ces malades délaissés.

TERAPEUTICA

BHARTI, R. Pefloxacin in leprosy. *Indian J. Leprosy*, v.66, n.4, p.443-448, Oct-Dec, 1994.

Fluoroquinolones, a new class of compounds characterised by broad antimicrobial spectrum including mycobacteria together with limited toxicity, have recently been introduced in the chemotherapy of various human infectious diseases. Pefloxacin, one of the members of this class, was recently demonstrated to be bactericidal against *M. leprae* in the mouse foot-pad model and clinically beneficial in lepromatous leprosy patients. Clinical response to standard MDT with added pefloxacin in ten previously untreated (both PB and MB) was compared with that in ten similar patients on MDT alone in the present trial. The results of chemotherapy were quantified by a method of clinical scoring. This pilot study showed that addition of pefloxacin led to significant and rapid clinical improvement. There were no side effects attributable to pefloxacin.

DE RIJK, A.J. et al. Field evaluation of WHO-MDT of fixed duration at ALERT, Ethiopia: the AMFES project - I. MDT course completion, case-holding and another score for disability grading. *Leprosy Rev.*, v.65, n.4, p.305-319, December, 1994.

We report on 286 new leprosy patients (128 PB, 158 MB) enrolled in the AMFES project, a field study in which patients are monitored during WHO-MDT and during 5 years thereafter, by active surveillance. This first paper describes the purposes, organization and methods of the study, patient enrolment and preliminary results of MDT completion and case-holding.

Of 128 PB patients 102 (79.7%) completed MDT and of 91 on surveillance for more than 1 year, coverage with reviews had been good or very good for 31, fair or poor for 36 and very poor or nil for 21 PB patients. Of 158 MB patients 64 had completed MDT, and 26/128

(20.3%) PB and 18/158 (11.4%) MB patients were lost to follow-up during treatment, with 76 MB patients still on treatment.

At first diagnosis, 159/286 (55.6%) had nerve function impairment, with no significant differences in disability grade by gender or between PB and MB patients. The proportion of disability grade 0 amongst new cases decreased very significantly with age, from 28/41 (68.3%) for age 0-14 years to 13/57 (22.8%) for 50 years and above. In view of the limitations of patient disability grades, a score per patient of the sum of disability grades for the four extremities, named 'H F - impairment score', is shown to be more informative.

Incidence of leprosy reactions and neuritis in these patients, during treatment and during surveillance, is reported upon in Part II (on pp. 320-332 of this issue).

DE RIJK, A.J. Field evaluation of WHO-MDT of fixed duration, at ALERT, Ethiopia: the AMFES project - II. Reaction and neuritis during and after MDT in PB and MB leprosy patients. *Leprosy Rev.*, v.65, n.4, p.320-332. December, 1994.

For a cohort of 286 leprosy patients the incidence rates and clinical manifestations of leprosy reactions during treatment and surveillance are described. Currently, individual patients had been observed for up to 4 years. It is intended that surveillance within this project should continue for up to 5 years after treatment. Of 128 PB patients, observed for 267 person-years (mean 2,1) 27 had 35 episodes of reaction, corresponding to an overall incidence rate of 131 events per 1000 person-years-at-risk (pyar).

Of 158 MB patients observed for 402 person years (mean 2,5), 64 had 114 reactions, with an overall incidence of 284 events per 1000 pyar. For both PB and MB patients, incidence rates during treatment and post-MDT surveillance were similar. For PB patients, pre-existing physical impairment at the start of MDT was a significant risk factor for the occurrence of subsequent events, but this was not found in MB patients.

GELBER, Robert H. et al. Efficacy of minocycline in single dose and at 100 mg twice daily for lepromatous leprosy. *Int. J. Leprosy*, v.62, n.4, p.568-573, December, 1994.

A clinical trial of minocycline in a total of 10 patients with previously untreated lepromatous leprosy was conducted in order to evaluate the efficacy of a single, initial, 200 mg dose and 100 mg twice daily of minocycline for a total duration of up to 3 months. Patients improved remarkably quickly. Although single-dose therapy did not result in a significant killing of *Mycobacterium leprae*, viable *M.leprae* were cleared from the dermis regularly by 3 months of twice-daily therapy, a rate similar to that achieved by minocycline 100 mg once daily. Because more side effects were noted herein than previously with 100 mg daily, we recommend that minocycline, when applied, be administered at 100 mg daily to leprosy patients.

HIRAN, Sujata et al. Dapsone agranulocytosis in a leprosy patient. *Leprosy Rev.*, v.65, n.3, p.279-281, September, 1994.

Dapsone-induced agranulocytosis is a rare adverse effect. There are various reports of agranulocytosis in patients treated with dapsone for malaria prophylaxis and other dermatological diseases. However, this adverse reaction in leprosy is not often encountered. We describe agranulocytosis in a young patient who was taking dapsone (100 mg) for borderline-tuberculoid leprosy in a rural environment.

NAIK, S.S., VARTAK, R.R., SEQUIERA, E.B. Improving patient compliance - A multicentre evaluation of the 'DDS tile test'. *Indian J. Leprosy*, v.66, n.4, p.473-475, Oct-Dec, 1994.

The feasibility and utility of the "DDS tile test" under field conditions was assessed in 112 leprosy centres in Maharashtra. About 10% of the 2952 urine samples tested negative for dapsone.

Feed back information from 54 centres one year later showed that the test could be performed easily under field conditions and also that counselling of patients showing poor compliance helped to improve drug compliance in over 80% of cases.

RAO, P.S. et al. Ofloxacin-containing combined drug regimens in the treatment of lepromatous leprosy. *Leprosy Rev.*, v.65, n.3, p.181-189, September, 1994.

A total of 26 clinically diagnosed adult patients, with active untreated lepromatous leprosy, with a Bacteriological Index of 4+ or more, were admitted to the hospital of the Central Leprosy Teaching and Research Institute, Chengalpattu, India, between 1989 and 1991. After prescribed investigations, the patients were randomly allocated in groups of 3 to 3 treatment regimens, namely: 1, clofazimine 50 mg daily and 300 mg once in 4 weeks + dapsone 100 mg daily (AA); 2, (AA)+ofloxacin 400 mg daily (BB); and 3, (AA)+ofloxacin 800 mg daily (CC). The drugs were administered for 56 days continuously under supervision. Sequential biopsy results on day 0, 7, 14, 28 and 56 in normal mouse footpad revealed no growth by day 28 and 56 in all patients treated with CC and BB regimens, respectively. Calculation of the proportion of viable *Mycobacterium leprae* through analysis of median infectious dose (ID50) showed significant differences on day 7 in the percentage of kill between the ofloxacin-containing regimens and the other. Moderate to marked clinical improvement has been observed in a significantly higher proportion of patients treated with ofloxacin-containing regimens. All the 3 regimens were well tolerated. No severe complications or side-effects to the drugs were noticed with any of the regimens that required any suspension of treatment or the administration of steroids. Addition of ofloxacin to the standard WHO recommended MDT regimen for multibacillary patients may reduce the present duration of therapy. Ofloxacin may also be considered as an alternative drug in rifampicin

resistant cases or where rifampicin is contraindicated.

SMITH, Trevor C., RICHARDUS, Jan Hendrik.

Relapse rates in patients treated with dapsone monotherapy and combinations of dapsone and thiambutosine, thiacetazone, isoniazid and streptomycin in the pre-MDT era. *Int. J. Leprosy*, v.62, n.3, p.253-358. September, 1994.

Relapse rates were studied in patients from northern Thailand who were started on dapsone monotherapy between 1949 and 1976. Included are a group of patients who, for various reasons, also received combinations of dapsone and thiambutosine, thiacetazone, isoniazid and streptomycin. The overall relapse rate in paucibacillary patients on dapsone monotherapy only was 2.7 per 1000 person-years at risk (PYR) (average observation period 13.9 years). In the multibacillary patients who received dapsone monotherapy only, the relapse rate was 10.5 per 1000 PYR (average observation period 12.4 years). In both groups it was found that 50% of the relapses occurred after the seventh year of follow up. The overall relapse rate in those patients whose treatment included thiambutosine, thiacetazone, isoniazid and/or streptomycin for at least 3 months was 17.9 per 1000 PYR (average observation period 11.9 years). The difference with the multibacillary patients treated with dapsone monotherapy only is not significant. It is concluded that alternative antileprosy drugs included in therapy regimens with dapsone in the pre-MDT era did not result in relapses occurring less often.

SYLLA, P.M. et al. Facteurs déterminants de l'irrégularité des malades sous PCT dans le district de Bamako (Mali). *Acta Leprologica*, v.9, n.2, p.69-75, 1994.

Pour étudier les facteurs déterminants de l'irrégularité des malades sous

polychimiothérapie (PCT) dans le District de Bamako, nous avons procédé à une étude non expérimentale sur la base de dossiers dans un premier temps et ensuite sur la base d'un questionnaire. Ainsi, 1175 fiches de traitement ont été passées en revue. De notre étude il ressort que 3,1% des malades sont irréguliers au traitement et que les malades multibacillaires (MB) sont plus souvent irréguliers que les malades paucibacillaires (PB).

Nous n'avons pas noté de différence statistiquement significative entre anciens et nouveaux malades concernant l'irrégularité au

traitement PCT.

Le second volet de notre recherche basé sur ('administration d'un questionnaire à une population de cas (36 malades irréguliers) et à une population témoin aléatoire (50 malades réguliers ayant eu au moins une absence au traitement) a montré que c'est pour l'item VI seulement ("est-ce que vous avez déjà manqué votre rendez-vous parce que vous vous croyez parfois déjà guéri?") qu'on note une différence statistiquement significative entre cas et témoins concernant les taux de réponses affirmatives ($p < 0.05$).