

ASPECTOS SOCIO-ECONÔMICOS / DEMOGRAFIA / HISTÓRIA

Nunes JM, Oliveira EM, Vieira NFC. Ter hanseníase: percepções de pessoas em tratamento. *Rev. RENE* 2008 out.-dez; 9(4):99-106.

A hanseníase é uma doença milenar, caracterizada como um problema de saúde pública. Desenvolvemos este estudo com o objetivo de conhecer a percepção de pessoas em tratamento para hanseníase sobre sua doença. Trata-se de um estudo com abordagem qualitativa, desenvolvido através de um grupo focal no mês de agosto de 2005 com oito pessoas em tratamento para hanseníase multibacilar na Unidade Básica de Saúde em Sobral-CE. As falas evidenciaram que hanseníase é percebida como uma doença ruim, que causa tristeza, medo, vergonha e discriminação. Ser portador de hanseníase ocasiona sofrimento psíquico e sentimentos de impotência, onde homens e mulheres tiveram seus papéis sociais ameaçados. Sugerimos que sejam idealizadas alternativas que visem não somente à eliminação da hanseníase como um problema de saúde pública, mas também, a um resgate da cidadania e do respeito por essas pessoas.

Molinari I. El Dr. José María Manuel Fernández. *Medicina y ciencia al servicio de la erradicación del mal de Hansen. In: Alvarez A. Saberes y prácticas médicas en la Argentina. Un recorrido por historias de vida. Mar del Plata: EUDEM; 2008. p.225-51.*

Presenta la biografía del Dr. José María Manuel Fernández, que se distinguió de otras figuras destacadas de la leprología argentina, debido a sus estudios sobre terapéutica clínica y epidemiología, y principalmente por su interés en la fisopatología de la lepra, en particular, en los aspectos inmunológicos y bacteriológicos, haciendo hincapié en la transmisión experimental y el desarrollo de una vacuna. Tanto sus estudios como su actividad médica y investigación se desarrollaron en la ciudad de Rosário.

Rodrigues-Júnior AL, Ó VT, Motti VG. Estudo espacial e temporal da hanseníase no estado de São Paulo, 2004-2006. *Rev. saúde pública* 2008 dez ; 42(6):1012-20.

Avaliar a evolução temporal e espacial da endemia de hanseníase no estado de São Paulo. MÉTODOS: Estudo ecológico-social utilizando o número de casos de hanseníase notificados ao Ministério da Saúde de janeiro de 2004 a dezembro de 2006. Foram geradas séries mensais em cada departamento regional de saúde, cujas seqüências foram ajustadas por um modelo markoviano para os coeficientes de detecção de hanseníase. O coeficiente de detecção com o número de casos acumulados no período em cada município foi usado para produzir a distribuição espacial da endemia; uma análise de correlação foi realizada com os coeficientes de detecção de hanseníase e os componentes do Índice de Paulista de Responsabilidade Social. RESULTADOS: Dos 645 municípios do estado de São Paulo, 22 não detectaram casos de hanseníase no período. Na maioria das regiões a tendência da endemia foi decrescente; as séries temporais apresentaram flutuação aleatória, em torno de valores esperados. O declínio foi influenciado por uma queda generalizada nos coeficientes de detecção ao final de 2005. Houve correlação positiva entre os coeficientes de detecção e os componentes "escolaridade" e "longevidade", e negativa com "riqueza" do Índice de Paulista de Responsabilidade Social. CONCLUSÕES: O resultado da análise das séries temporais sugere haver declínio da endemia para a maioria das regiões do estado de São Paulo, enquanto que para a análise espacial são altos os coeficientes ao norte do estado

Fischer EA, De Vlas SJ, Richardus JH, Habbema JD. *MUSIDH, multiple use of simulated demographic histories, a novel method to reduce computation time in microsimulation models of infectious diseases. Comput Methods Programs Biomed.* 2008 Sep; 91(3): 185-90.

Microsimulation of infectious diseases requires simulation of many life histories of interacting individuals. In particular, relatively rare infections such as leprosy need to be studied in very large populations. Computation time increases disproportionately with the size of the simu-

lated population. We present a novel method, MUSIDH, an acronym for multiple use of simulated demographic histories, to reduce computation time. Demographic history refers to the processes of birth, death and all other demographic events that should be unrelated to the natural course of an infection, thus non-fatal infections. MUSIDH attaches a fixed number of infection histories to each demographic history, and these infection histories interact as if being the infection history of separate individuals. With two examples, mumps and leprosy, we show that the method can give a factor 50 reduction in computation time at the cost of a small loss in precision. The largest reductions are obtained for rare infections with complex demographic histories.

Nguyen N, Tat Nguyen T, Hong Phan H, Tam Tran T. Leprosy: ongoing medical and social struggle in Vietnam. J Cutan Med Surg. 2008 Jul-Aug; 12(4): 147-54.

BACKGROUND: Until recently, leprosy had been prominent in 33 countries worldwide, and Vietnam was ranked among the top 14 endemic countries. **OBJECTIVE:** The leprosy situation in Vietnam was reviewed as a sample of the worldwide ongoing medical and social struggle to assess the need for continued support for leprosy control activities and for social programs of integration of leprosy victims into the community. **METHODS:** A search was conducted of official Vietnamese publications, World Health Organization documents, major electronic databases, and popular leprosy Web sites; as well, notes from visits to local leprosy clinics and interviews with health workers were checked. **RESULTS:** Important achievements were realized through national determination and international collaboration. In contrast with the impressive performance statistics at the national level, and despite strong government efforts for leprosy control, the results obtained at the province-city and district-commune levels still exhibit deficiencies in case detection, treatment, and socioeconomic integration of leprosy victims. **CONCLUSION:** The struggle to eliminate such a complex and destructive infectious disease as leprosy does not end with the cure. Deep-seated medical and social problems remain. These problems are best solved through community-based approaches

Boti NC, Aquino KA. Veganin's Leprosy Via Sacra. Rev Bras Enferm. 2008; (61): 676-81.

Historical research was carried out with documentary analysis and oral history aiming at describing the biography and reviewing the painting of Veganin. Luiz Carlos de Souza was born in 1950 in Aimorés (MG) and at age of 16 years he was working in nursing at the Santa Casa de Misericórdia in Belo Horizonte. With 20 years he was hospitalized in Colônia Santa Isabel and is now known as "Veganin". In Colônia worked in nursing, carpentry and painting. He painted in the style of Pop Art the tables's Via Sacra where shows the Passion of Christ with originality and social criticism. In his paintings he presents his resilience front of the disease and treatment. Died in Colônia Santa Fé (MG) in 1997.

Boti NCL, Aquino KA. A Via Sacra da Hanseníase de Veganin. Rev. bras. enferm nov 2008; 61(spe):676-81.

Foi realizada pesquisa histórica com análise documental e história oral objetivando descrever a biografia e analisar a pintura de Veganin. Luiz Carlos de Souza nasceu em 1950 em Aimorés (MG) e aos 16 anos foi trabalhar na enfermagem na Santa Casa de Misericórdia de Belo Horizonte. Com 20 anos foi internado na Colônia Santa Isabel (MG) e passou a ser conhecido como "Veganin". Na Colônia trabalhou na enfermagem, marcenaria e pintura. Pintou no estilo da Pop Art os quadros da Via Sacra onde mostra a Paixão de Cristo com originalidade e crítica social. Nos quadros apresenta sua resiliência frente à hanseníase e ao tratamento. Faleceu na Colônia Santa Fé (MG) em 1997

Klimpel V. An old document about hospitals, leprosy and pestilence houses in electorate of Saxony. Wurzbg Medizinhist Mitt. 2008; (27): 93-104.

This paper presents a new, only recently identified source on Saxon hospitals in the Middle Ages, a list, compiled between 1553 and 1586 under the government of elector August (1526-1586), of the districts and towns with hospitals for old and poor people, sickly persons, lepers,

syphilitics and patients with other infectious diseases. Run by the towns or, partially, in connection with monasteries and churches, by the court of Dresden too, these institutions provided lodging, nourishment, clothes and physical care to the indigent inmates. A medical therapy in a stricter sense was the exception in that s time.

Borenstein MS, Padilha MI, Costa E, Gregório VR, Koerich AM, Ribas DL.

Leprosy: stigma and prejudice lived by institutionalized patients in Santa Catarina State, Brazil (1940-1960). Rev Bras Enferm. 2008; (61): 708-12.

This study is a qualitative research with a socio-historic approach whose objective was to know the prejudice and stigma lived by the institutionalized patients/residents with hanseníase. To achieve this goal, three patients were interviewed who lived in a colony hospital during the research period, utilizing the oral history method. Data were collected and were further analysed, utilizing the stigma referencial. The results indicated that after the entry in the institution, these patients got their family bonds broken, lost their rights as citizens, regarding the situation, they took upon a new life, in a new environment. Concluding that, the nosocomial isolation for a long period of time (years of confinement and dismissal), caused the symbolic death of many patients that lived with the hope to cohabit with family and/or society.

Borenstein MS, Padilha MI, Costa E, Gregório VRP, Koerich AME, Ribas DL. Hanseníase: estigma e preconceito vivenciados por pacientes institucionalizados em Santa Catarina (1940-1960). Rev. bras. enferm 2008 nov; 61(spe):708-12.

Trata-se de uma pesquisa qualitativa com abordagem sócio-histórica cujo objetivo foi conhecer o estigma e preconceito vivenciado por pacientes/residentes institucionalizados acometidos pela hanseníase. Para tanto, foram entrevistados três pacientes que viveram em um hospital colônia no período do estudo, utilizando-se o método de história oral. Os dados foram coletados e posteriormente analisados, utilizando-se do referencial de

estigma. Os resultados evidenciaram que após o ingresso na instituição, esses doentes tiveram seus laços familiares rompidos, perderam seus direitos como cidadãos, em decorrência dessa situação, assumiram novas vidas em um novo contexto. Concluindo, o isolamento nosocomial por um longo período de tempo (anos de internação e afastamento), provocou a morte simbólica de muitos pacientes que viviam com a esperança de um retorno ao convívio familiar e/ou social.

Barbosa JC, Ramos AN Jr, Alencar Mde J, Castro CG. Post-treatment of Leprosy in Ceará: activity and functional limitation, safety awareness and social participation. Rev Bras Enferm. 2008; (61): 727-33.

To characterize the functional limitation, activity limitation, risk conscience, and the social participation in people reached by hansen's disease in the post-MDT period. Cross-sectional, descriptive study, accomplished in 2006. Sixty-nine residents in Sobral that had discharge from MDT between 2003-2005 participated. The subjects were interviewed: demographic evaluation, dermatoneurological exams, evaluation of functional limitation-activity-risk conscience and the restriction in social participation. Twenty (28.9%) presented SALSA scores 19 and 20 and EHF score zero. The largest EHF score was reached by two participants, with scores 25 and 28 in the SALSA scale. In the participation scale 37 (53.6%) didn't present restriction and had EHF scores zero. Two (2.9%) with EHF score zero had mild restriction, and 1 (1.5%) severe restriction. This study reaffirms the potentiality of these tools for integral care of people reached.

Barbosa JC, Ramos Júnior NA, Alencar MJF, Castro CGJ. Pós-alta em Hanseníase no Ceará: limitação da atividade funcional, consciência de risco e participação social. Rev. bras. enferm 2008 nov; 61(spe):727-33.

Caracterizar a limitação funcional, de atividade, consciência de risco, e restrição à participação social em pessoas atingidas pela hanseníase no pós-alta. Estudo seccional-descritivo com 69 residentes em Sobral, Ceará, com alta entre 2003 a 2005. Foram realizados exame

físico dermatoneurológico, avaliação demográfica, de limitação funcional-atividade-consciência de risco e de restrição à participação social. Vinte (28,9 por cento) apresentaram escores SALSA 19 e 20 e escore EHF zero. O maior escore EHF foi alcançado por dois participantes, com 25 e 28 na escala SALSA. Na escala de participação 37 (53,6 por cento) não apresentaram restrição e tinham escore EHF zero. Dois (2,9 por cento) com escore EHF zero tinham leve restrição e 1 (1,5 por cento), grande restrição. Reafirma-se a potencialidade destas ferramentas para a atenção integral aos portadores

Dias RC, Pedrazzani ES. Public policies in Leprosy: contribution in reduction of social exclusion. Rev Bras Enferm. 2008; (61): 753-6.

The study examines the performance of the sector of leprosy as a municipality of Minas Gerais, from January 1996 to December 2004, through a descriptive and retrospective study of medical records of patients who started multi-drug therapy in this period. It was the frequent presence of the state technical supervision, with attention to the most severe cases, courses of training for professionals and constant support in the face of difficulties. The result was increasing the number of cases detected and improvement in quality of care to the diseased of leprosy. Currently, 100% of cases are assessed on the degree of disability, in addition to monitoring the reactions and neuritis, thus preventing deformities.

Dias RC, Pedrazzani ES. Políticas públicas na Hanseníase: contribuição na redução da exclusão social. Rev. bras. enferm 2008 nov; 61(spe):753-6.

O estudo analisa o desempenho do setor de hanseníase de um município do estado de Minas Gerais, no período de janeiro de 1996 a dezembro de 2004, por meio de um estudo descritivo e retrospectivo dos prontuários dos pacientes que iniciaram poliquimioterapia neste período. Verificou-se a freqüente presença da supervisão técnica estadual, com atendimento aos casos mais graves, cursos de capacitação aos profissionais e o constante apoio frente às dificuldades. O resultado foi o aumento do número de casos detectados e a melhoria na qualidade do atendimento ao portador de hanseníase. Atualmente,

100 por cento dos casos são avaliados quanto ao grau de incapacidade, além do monitoramento das reações hanseníase e neurites, prevenindo assim as deformidades.

Fernandes DRF, Telles Filho PCP. Oficina de mobilização social em Hanseníase: relato de experiência. Rev. bras. enferm 2008 nov; 61(spe):764-6.

O objetivo do presente estudo foi descrever o relato de experiência de uma Oficina de Mobilização Social e Abordagem Teórica em Hanseníase, entre acadêmicos de enfermagem. Como metodologia utilizou-se o relato de experiência da referida oficina. Entre as três etapas da sua realização, destacaram-se consecutivamente como principais itens os discursos sobre o tema, o registro de dúvidas e questionamentos em fichas, as discussões, os debates, a exibição de informações técnicas e depoimentos, as dramatizações, a elaboração de materiais educativos para futuras práticas acadêmicas e finalmente, o estudo teórico. Na avaliação feita pelos participantes, percebeu-se um aprimoramento na abordagem da hanseníase.

Del Catilho CC. El Lazareto-hospital de la Boca del Riachuelo a fines del siglo XIX . In: Sipes C. Patrimonio cultural hospitalario. Buenos Aires: Comisión para la Preservación del Patrimonio Histórico Cultural de la Ciudad de Buenos Aires; 2008. p.189-97.

Aborda sobre el patrimonio histórico arquitectónico que ya no existe: el Lazareto de la Boca del Riachuelo, patrimonio hospitalario de la Ciudad de Buenos Aires. Los lazaretos eran antiguamente hospitales destinados a leprosos. Luego se denominó así a los que se encontraban lejos de los poblados y se destinaban para realizar la cuarentena de viajeros que venían de zonas afectadas por enfermedades contagiosas, o alojar enfermos en caso de epidemia.

BIOLOGIA MOLECULAR/GENÉTICA

Lavania M, Katoch K, Katoch VM, Gupta AK, Chauhan DS, Sharma R, et al. Detection of viable *Mycobacterium leprae* in soil samples: insights into possible sources of transmission of leprosy. *Infect Genet Evol.* 2008 Sep; 8(5): 627-31.

Leprosy has ceased to be a public health problem world wide, after the successful implementation of effective chemotherapy (MDT) and use of control measures. However, new cases of leprosy continue to occur. *Mycobacterium leprae* cannot be grown in any acceptable culture medium and besides the wild armadillos, there is no known animal reservoir for leprosy. The transmission of leprosy is believed to be due to a large extent by droplet discharge of bacilli through nose and mouth and to a lesser extent by direct contact of susceptible host with a patient for long duration. The exact role of the environment in the transmission dynamics is still speculative. In the present study, we have tried to detect viable *M. leprae* from soil samples in endemic areas by using molecular methods. Eighty soil samples were collected from villages of this area, DNA and RNA of *M. leprae* extracted and identified using specific *M. leprae* primers. PCR amplification was done and real-time RT-PCR was used to detect viable *M. leprae*. DNA targeting the 16S region of *M. leprae* was detected in 37.5%, whereas *M. leprae* RNA targeting the same region was detected in 35% of these samples. Of the total 80 samples, 40 were collected from residential areas of leprosy patients whereas 40 samples were from no-patient areas. Fifty-five percent positivity for 16S rRNA of *M. leprae* was observed from the "patient" area in comparison to 15% positivity from the "no-patient" area ($p < 0.001$). This study thus provides valuable information of presence of viable *M. leprae* in soil specimens, which would be of use in investigating the transmission dynamics in leprosy.

Ohshima H, Kato-Kogoe N, Nishimura F, Takeuchi-Hatanaka K, Matsushita S, Yamanegi K, et al. Differential effects of polymorphisms in the 5' flanking region of IL12RB2 on NK- and T-cell activity. *J Interferon Cytokine Res.* 2008 Sep; 28(9): 563-9.

Single nucleotide polymorphisms (SNPs) in the 5' flanking region of IL12RB2 are frequently detected in lepromatous leprosy patients, and may be possible immunogenetic factors that reduce transcriptional activity of the IL-12-Rbeta2 gene in Jurkat T cells. This study determined the functional effects of these SNPs on NK-cell activity, including IFN-gamma production and IL-12Rbeta2 gene expression. Reporter gene assays using the NK cell line NK3.3 revealed that transcriptional activities of the variant haplotypes were significantly higher in the NK cell line, in contrast to our previous results in Jurkat T cells. IFN-gamma production in activated T cells from donors was significantly lower than in cells from donors without the variant SNPs, while NK cells with these SNPs produced significantly higher amounts of IFN-gamma. These results suggest that these SNPs in IL12RB2 have differential effects on cellular activation of T cells and NK cells.

Matsuoka M, Aye KS, Kyaw K, Tan EV, Balagon MV, Saunderson P. A novel method for simple detection of mutations conferring drug resistance in *Mycobacterium leprae*, based on a DNA microarray, and its applicability in developing countries. *J Med Microbiol.* 2008 Oct; 57(10): 1213-9.

A simple method to detect mutations in the genome of *Mycobacterium leprae* that confer resistance to key drugs for leprosy was exploited on the basis of a reverse hybridization system. A series of oligonucleotide probes corresponding to each mutation in the *folP1*, *rpoB* and *gyrA* genes for dapson, rifampicin and ofloxacin resistance, respectively, were selected and fixed on a glass slide as capture probes, to develop a DNA microarray termed the leprosy drug susceptibility-DNA microarray (LDS-DA). Mutations in clinical isolates of *M. leprae* were successfully identified by the LDS-DA. Feasibility studies were conducted to evaluate the performance of the LDS-DA in two developing countries, Myanmar and the

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Philippines. The high concordance of the results obtained by this method with the results of nucleotide sequencing strongly supports the applicability of the LDS-DA as a drug susceptibility test in place of sequencing, a time-consuming and costly procedure. This is a rapid and simple method for the simultaneous susceptibility testing of three front-line drugs for leprosy, and solves the problems of previously reported methods.

Banerjee S, Ray D, Bandyopadhyay D, Gupta S, Gupta S, Ghosal C, et al. Development and application of a new efficient and sensitive multiplex polymerase chain reaction (PCR) in diagnosis of leprosy. J Indian Med Assoc. 2008 Jul; 106(7): 436-40.

India contributes about 80% of the global leprosy case load including case of fresh infection and reinfection. Due to lack of gold standard, diagnosis is done mainly based on routine clinical signs and symptoms, smear and histopathological evidences. There is a lot of lacunae in early confirmatory diagnosis in terms of sensitivity and specificity, especially in paucibacillary tuberculoid type. Moreover, the classification of different classes of leprosy is very important for selection of proper therapeutic schedule. Hence this study was undertaken to develop a multiplex polymerase chain reaction for the diagnosis and strain differentiation of *M leprae*. A multiplex polymerase chain reaction was developed using the primers R1 and R2 (a) amplifying 372bp DNA target from a repetitive sequence of *M leprae* and this repetitive sequence (372bp) that was used as a target DNA for amplification was reported to be specific for *M leprae* was not present in 20 mycobacterium species other than *M leprae* and primers TTCA and TTCB (b) amplifying (201bp) DNA target of variable sizes from the regions flanking TTC repeats of *M leprae* genome. This multiplex polymerase chain reaction developed in our laboratory revealed that the number of repeats at each locus might be variable among *M leprae* but they are found mostly in multibacillary (as the bacterial load is higher in multibacillary) type.

CUIDADOS DE ENFERMAGEM

Honda Y. Nursing assistant care at the national Hansen's disease sanatorium in Japan: focusing on "autonomy of the life field" for physically and socially challenged residents. Nihon Hansenbyo Gakkai Zasshi. 2008 Sep; 77(3): 205-10.

Previous studies on sociology and cultural anthropology insist that it is impossible to provide sufficient autonomy to clients who enroll for group care at care facilities. The purpose of this study is to analyze the nature of nursing assistant care at the national Hansen's disease sanatorium in Japan. Semi-structured interviews were conducted with 39 nursing assistants and 6 head nurses who cared for physically and socially challenged residents at this sanatorium. The investigation revealed that as a result of facing huge conflicts in the caring process, the nursing assistants had learned to appreciate the inherent life and history of residents. Thus, the nursing assistants and residents were bound together by mutual trust with a view to maximize the "autonomy of the life field." Conflict had not stunted the self-affirmation of nursing assistants; moreover, mutual trust had reorganized the "relevant system pertaining to care" for nursing assistants, which consisted of "the unification of care" and "the equality of care." It is suggested that group care at this sanatorium promotes the "autonomy of the life field" by valuing conflicts between nursing assistants and residents.

Silva Júnior FJ, Ferreira RD, Araújo OD, Camêlo SM, Nery IS. Nursing assistance to a Leprosy-infected patient: transcultural approach. Rev Bras Enferm. 2008; (61): 713-7.

This is a case study, developed in a health center in Teresina-PI, which dealt with the issue of nursing assistance given to a patient with Multibacillary Leprosy, focusing on the Transcultural Nursing care, Diagnosis and Nursing Interventions according to NANDA Taxonomy II. A semi-structured interview and participant observation were carried out, which enabled data collection handled according to normative patterns, values and daily practices, ways of popular care and cares required in the professional system. In this study, we realized that nursing as-

sistance planning aimed, especially, to contribute on the disease treatment support, reducing potential risks and using preservation, negotiation and re-standardization of the professional system. We also observed the support to the treatment and the development of self care turned to leprosy in a culturally satisfactory way.

Silva Júnior FJG, Ferreira RD, Araújo OD, Camêlo SMA, Nery IS. Assistência de enfermagem ao portador de Hanseníase: abordagem transcultural. Rev. bras. enferm 2008 nov; 61(spe):713-17.

Trata-se de um estudo de caso, desenvolvido em um Centro de Saúde em Teresina - PI, que abordou a problemática da assistência de enfermagem prestada a uma paciente com Hanseníase Multibacilar, enfocando o cuidado de Enfermagem Transcultural, Diagnósticos e Intervenções de Enfermagem segundo a Taxonomia II da NANDA. Realizou-se a entrevista semi-estruturada e observação participante, que possibilitaram a coleta dos dados, os quais foram tratados baseados nos padrões normativos, valores e prática diárias, modos de cuidado popular e cuidados requeridos no sistema profissional. Neste estudo, constatou-se que o planejamento da assistência de enfermagem visou, principalmente, contribuir para a adesão ao tratamento da doença, diminuindo os riscos potenciais e utilizando a preservação, negociação e re-padroneização do sistema profissional. Observou-se também a adesão ao tratamento e a realização de autocuidado voltado para a hanseníase de forma culturalmente satisfatória.

Pereira SVM, Souza AGC, Vieira SMS. Avaliação da Hanseníase: relato de experiência de acadêmicos de enfermagem. Rev. bras. enferm 2008 nov; 61(spe):774-80.

O Brasil é o segundo no mundo em novos casos de hanseníase. O controle da doença continua sendo uma meta desafiante. Buscou-se descrever o perfil morfológico de lesões cutâneas e outras seqüelas e analisar a conduta adotada no cuidado de feridas de um grupo de pessoas com seqüelas de hanseníase asiladas em uma instituição não governamental. A experiência de ensino-aprendiza-

gem foi longitudinal, fundamentada na Metodologia Científica da Assistência de Enfermagem, envolvendo pessoas com seqüelas de Hanseníase asilados em uma instituição não governamental do estado de Goiás. O perfil morfológico das lesões foi: déficit visual, madarose, desabamento da pirâmide nasal, reabsorção de dedos e artelhos, amputação de membros, mal perfurante plantar e garra ulnar. Detectou-se prejuízo da cicatrização devido à aplicação direta e rotineira de sabões abrasivos e anti-sépticos nas lesões.

Pereira SV, Bachion MM, Souza AG, Vieira SM. Leprosy assessment: experience report of nursing students. Rev Bras Enferm. 2008; (61): 774-80.

Brazil is the second in the world in new cases of Leprosy. The eradication continues to be a defiant goal. It has sought describe the morphologic profile of lesion formations and analyze the procedures in the care of wounds from a group of people with sequelae of Hansen asylum in an institution non-governmental. The experience of teaching-learning was longitudinal, based on Scientific Methodology of Nursing Assistance, involving people with swellings and health repercussions of Hansen's disease, residents in an institution of Goiás State. All the residents presented disabling swellings and health repercussions associated to the Leprosy: visual impediment, swelling of the eyebrows; fall of the nasal pyramid, total reabsorption of fingers and toes, amputation of both legs, ulna grip, perforating plantar disease. Abrasive soaps and toxic antiseptic were applied directly on the lesion, causing damages to the scarring.

Duarte MT, Ayres JA, Simonetti JP. Nursing consultation for Leprosy patients: proposal of an instrument for nursing process application. Rev Bras Enferm. 2008; (61) 767-73.

This study aimed at reporting the experience of nursing consultation for leprosy patients performed at a university primary health care unit in inner São Paulo state as well as at presenting the instrument used. This activity is performed by two nurses who have worked in the

program for over two decades and have thus become experienced in providing care to this type of patient. The effectiveness of instruments is evaluated as concerns form and content, thus enabling the assessment of actual health care needs based on an expanded analysis of the health-disease process. With this proposal, it is expected that nurses' action will be facilitated in the implementation of procedures aiming at comprehensive care.

Duarte MTC, Ayres JÁ, Simonetti JP. Consulta de enfermagem ao portador de Hanseníase: proposta de um instrumento para aplicação do processo de enfermagem. Rev. bras. enferm. 2008 nov; 61(spe):767-73.

Objetivou-se relatar a experiência da consulta de enfermagem junto aos portadores de hanseníase, realizada em unidade de atenção primária à saúde de uma Universidade do interior do Estado de São Paulo, bem como apresentar o instrumento utilizado. Essa atividade é realizada por dois enfermeiros, que atuam por mais de duas décadas no programa, acumulando, assim, experiência no cuidado a esses indivíduos. Avaliam-se a eficiência dos instrumentos quanto à forma e conteúdo, possibilitando o levantamento das reais necessidades de saúde, a partir de um olhar ampliado do processo saúde-doença. Com esta proposta, espera-se facilitar a atuação do enfermeiro na implementação das ações, visando o cuidado integral.

Fernandes Dde R, Telles Filho PC. Leprosy social mobilization workshop: an experience report. Rev Bras Enferm. 2008; (61): 764-6.

The aim of the present study was to describe the report of the experience of a Social Mobilization and Theoretical Approach to Leprosy workshop among nursing academics. As methodology it was used the experience of the referred workshop amongst the three stages of its accomplishment, the main topics which stood out were, consecutively: speeches on the theme, record of doubts, questionnaires which provide feedback on the matter, discussions, debates, exhibition of technical information and accounts, role plays, elaboration of

educational materials for future academic practices and finally, the theoretical study. In the evaluation done by the participants an advance could be noticed in the approach to leprosy.

Freitas CA, Silva Neto AV, Ximenes Neto FR, Albuquerque IM, Cunha IC.

Nursing consultation for leprosy patients in the territory of the Family Health Strategy: perceptions of nurses and patients. Rev Bras Enferm. 2008; (61): 757-63.

The present study aims to identify difficulties for the nurse so that he can reflect and create strategies to improve the quality of the nursing consultation and follow-up for patients with leprosy and to understand the perception of the patient in relation to the attendance structure and nursing follow-up. From the results we note that in the nursing consultation, the creation of a bond of confidence was sought with the client with the objective of receiving information on their treatment as well as on any disabilities. Regarding the difficulties confirmed by the nurses, they are related to the organization conditions of health services which causes a high demand. In relation to the perception of patients regarding the nursing consultation it was shown, in general, quite satisfactory.

Freitas CASL, Silva Neto AV, Ximenes Neto FRG, Albuquerque IMAN, Cunha IC KO. Consulta de enfermagem ao portador de hanseníase no território da Estratégia da Saúde da Família: percepções de enfermeiro e pacientes. Rev. bras. Enferm. 2008 nov; 61(spe):757-63.

O presente estudo visa identificar as dificuldades do enfermeiro para que ele possa refletir e criar estratégias para melhorar a qualidade da consulta e acompanhamento de enfermagem aos portadores de hanseníase e conhecer a percepção do cliente em relação à estrutura do atendimento e o acompanhamento de enfermagem. A partir dos resultados notamos que na consulta de enfermagem busca-se criar um vínculo de confiança com o cliente com o objetivo do mesmo receber as informações sobre seu tratamento bem como sobre as incapacidades. No que

diz respeito às dificuldades afirmadas pelas enfermeiras, elas estão relacionadas às condições de organização dos serviços de saúde o que acarreta uma alta demanda. Com relação à percepção dos pacientes quanto à consulta de enfermagem mostrou-se, no geral, bem satisfatória.

DIAGNÓSTICO / CLÍNICO

Cortes JA, Botero CP, Rodríguez G. Lepra en el anciano. Infectio 2008; 12(4):240-5.

Evaluar las características clínicas y epidemiológicas de los pacientes con lepra mayores de 60 años de edad, con diagnóstico histológico del Instituto Nacional de Salud de Colombia, durante un periodo de 13 años. Materiales y métodos. Se realizó una revisión retrospectiva de los pacientes con lepra que tuvieran una edad mayor de 60 años, cuyas biopsias fueron enviadas al Instituto Nacional de Salud para confirmación histológica entre enero de 1990 y diciembre del 2002. Resultados. Entre enero de 1990 y diciembre del 2002 se confirmó la lepra por histología en el Instituto Nacional de Salud en 2.462 pacientes, de los cuales, 433 (17,6(por ciento)) tenían una edad mayor de 60 años (rango de 60 a 94). El 69(por ciento) de los casos correspondió a hombres, con una relación hombre:mujer de 2:1. El 51(por ciento) de los pacientes pertenecía al polo lepromatoso de la enfermedad. Las características clínicas fueron similares a las conocidas en otros grupos etarios. El tiempo de evolución de los síntomas fue menor de un año en 48,8(por ciento) de los pacientes. En el 10(por ciento) se encontró un estado reactivo. Los contactos sólo se informaron en 7(por ciento). El 9(por ciento) se presentó como recaída de una lepra previamente tratada. Discusión. El 17,6(por ciento) de los pacientes con lepra evaluados en el Instituto Nacional de Salud tienen más de 60 años, la mayoría de ellos son hombres y pertenecen al polo lepromatoso de la enfermedad con características clínicas similares a las de otros grupos. Los pacientes ancianos podrían contribuir a la diseminación de la lepra en nuestro país.

Bongiorno MR, Pistone G, Noto S, Aricò M. Tuberculoid leprosy and Type 1 lepra reaction. Travel Med Infect Dis. 2008 Sep; 6(5): 311-4.

A patient is described with tuberculoid leprosy and Type 1 (lepra) reaction from Sicily a non-endemic region, who lived previously in Manila from 2000 to 2005. The skin lesions became acutely inflamed and edematous. The plaques were painless to touch or pinprick, and there was swelling of the nerves in the fibro-osseous tunnels under the surface of the skin, including both the ulnar nerve at the elbow, and the posterior tibial nerve (medial malleolus). During the course of electro-neurographic studies, conduction velocity in the motory nerves indicated a slowing-down. The diagnosis of leprosy was confirmed by residence in an endemic area for about 5 years, by simultaneous skin lesions and peripheral nerve abnormalities, and by skin biopsy. Outside of endemic areas, diagnosis remains a challenge for physicians for mainly two reasons. Firstly, the incubation period of leprosy is uniquely long among bacterial diseases and varies from a month to over 40 years. Secondly, outside leprosy-endemic areas, the diagnosis of leprosy is usually not considered, and patients are likely to be examined by a wide range of specialists. Physicians outside endemic areas should consider leprosy as a possible differential diagnosis if a patient from leprosy-endemic regions presents with painless skin lesions, nerve enlargement, or persistent skin lesions.

Jacob JT, Kozarsky P, Dismukes R, Bynoe V, Margoles L, Leonard M et al. Five-year experience with type 1 and type 2 reactions in Hansen disease at a US travel clinic. Am J Trop Med Hyg. 2008 Sep; 79(3): 452-4.

Very few data have been reported on the epidemiology and clinical features of leprosy reactions in non-endemic settings. We performed a retrospective descriptive analysis to define the frequency and features of Type 1 and Type 2 leprosy reactions in a cohort of patients followed at a US travel and tropical medicine clinic in a 5-year period. We identified that leprosy reactions presented in 10/14 (71.4%) patients with leprosy seen at our clinic. We identified that leprosy reactions occur frequently

among patients living in non-endemic areas and may occur before the initiation of multi-drug therapy (MDT), during MDT, or even years after completion of therapy and may produce significant neurologic sequelae. This group of patients needs long-term clinical monitoring even after completion of MDT because of the need to continue either anti-inflammatory therapy, presence of severe neurologic sequelae after reactions, or the potential occurrence of late leprosy reactions.

Nery JA, Schreuder PA, Mattos PC, Mendonça LV, Tardi RT, Mello S. Hansen's disease in a general hospital: uncommon presentations and delay in diagnosis. J Eur Acad Dermatol Venereol. 2009 Feb; 23(2): 150-6.

BACKGROUND: The question was raised as to why 'obvious' signs of leprosy, Hansen's disease (HD), are often missed by medical doctors working in a HD endemic area. **METHODS:** This study describes a small sample of patients who were diagnosed with HD during their hospital admission and not before. The discussion is whether the typical early signs and symptoms of HD are just not recognized, or whether unusual presentations confuse the attending physician. **RESULTS:** A total of 23 HD patients were hospitalized during the study period, of which 6 (26%) were only diagnosed with HD during their admission. All were classified as lepromatous leprosy (LL) with a history of signs and symptoms of HD. In nearly all patients, a suspicion of HD might have been raised earlier if a careful history and dermato-neurological examination had been done. **CONCLUSIONS:** Multibacillary (MB) HD, especially close to the lepromatous end of the spectrum, may mimic other diseases, and the patient can not be diagnosed without a biopsy or a slit skin smear examination. Clinicians working in a HD endemic area (Rio de Janeiro) do not always include HD in their differential diagnosis, especially when the clinical presentation is unusual. HD should be considered in all patients with skin lesions not responding to treatment, especially when they have neurological deficits, and live or have lived in an HD endemic area. Due to the increase in global travel and immigration, doctors in low endemic areas need to consider HD as a possible diagnosis.

Bhushan P, Sardana K, Koranne RV, Choudhary M, Manjul P. Diagnosing multibacillary leprosy: a comparative evaluation of diagnostic accuracy of slit-skin smear, bacterial index of granuloma and WHO operational classification. Indian J Dermatol Venereol Leprol. 2008 Jul-Aug; 74(4): 322-6.

BACKGROUND: In view of the relatively poor performance of skin smears WHO adopted a purely clinical operational classification, however the poor specificity of operational classification leads to overdiagnosis and unwarranted overtreatment while the poor sensitivity leads to underdiagnosis of multibacillary (MB) cases with inadequate treatment. Bacilli are more frequently and abundantly demonstrated in tissue sections. **AIMS AND METHODS:** We compared WHO classification, slit-skin smears (SSS) and demonstration of bacilli in biopsies (bacterial index of granuloma or BIG) with regards to their efficacy in correctly identifying multibacillary cases. The tests were done on 141 patients and were evaluated for their ability to diagnose true MB leprosy using detailed statistical analysis. **RESULTS:** A total of 76 patients were truly MB with either positive smears, BIG positivity or with a typical histology of BB, BL or LL. Amongst these 76 true-MB patients, WHO operational classification correctly identified multibacillary status in 56 (73.68%), and SSS in 43 (56.58%), while BIG correctly identified 65 (85.53%) true-MB cases. **CONCLUSION:** BIG was most sensitive and effective of the three methods especially in paucilesional patients. We suggest adding estimation of bacterial index of granuloma in the diagnostic workup of paucilesional patients.

Mehndiratta RC, Patnaik A, John O, Rao PS. Does nerve examination improve diagnostic efficacy of the WHO classification of leprosy? Indian J Dermatol Venereol Leprol. 2008 Jul-Aug; 74(4): 327-30.

BACKGROUND: In the year 1998 WHO proposed that the clinical criteria of counting skin lesions alone should decide whether a patient receives Multibacillary (MB) or Paucibacillary (PB) MDT. There is a concern that a significant number of patients may be incorrectly treated under these guidelines. **AIMS:** This study aims to determine whether the sensitivity and the specificity of the latest

WHO criteria, can be enhanced by the addition of nerve examination in the place of slit skin smears. **METHODS:** 150 patients of untreated leprosy reporting at a TLM Hospital in Delhi from January to December 2006 were registered for the study. After physical examination, the number of skin lesions and nerves involved were counted and slit skin smears performed. Two groups were created, those with > 5 skin lesions, and those with 5 or less skin lesions. The diagnostic efficacy of the current WHO classification was calculated with and without the addition of nerve examination. **RESULTS:** The sensitivity and the specificity of the current WHO operational classification are 76.6%, and 73.7% respectively, using slit skin smear as a standard. When the number of nerves was added to the diagnosis, the sensitivity increased to 94.4%, for more than 5 lesions and to 90.9%, for five or less than five lesions. **CONCLUSIONS:** Nerve examination can significantly improve the sensitivity of the WHO criterion in determination of MB versus PB leprosy.

Luyckx G, Vanhoenacker FM, Parizel PM. Exotic pathology of the hand and foot. A pictorial review. JBR-BTR. 2008 Jul-Aug; 91(4): 160-5.

In this article, the imaging findings of the most frequently encountered import pathology of the hand and foot are reviewed, including leprosy, loiasis, snake bites or penetration of spines of sea urchins in the hand and foot. Our objective is to familiarize the radiologist of the Western countries with these diseases, which are still prevalent in developing areas. Due to the rising traveling to foreign countries and continuous immigration, it is important that these disorders be considered in the differential diagnosis in a specific population of asylum-seekers, economic refugees and any other group of persons traveling around the globe. Imaging findings on conventional radiography will be emphasized.

Pearce V, Horton JJ. Leprosy: recognizing red flags. Australas J Dermatol. 2008 Nov; 49(4): 226-8.

A 28-year-old man from the Philippines presented with multiple papules and plaques symmetrically distributed

on the arms and legs. This was associated with worsening paraesthesia of the hands and feet. A right common peroneal nerve decompression had been performed 2 years earlier. He was diagnosed with multibacillary leprosy on skin biopsy and subsequently treated with oral rifampicin, clofazamine and dapsone.

Tiendrebéogo A, Andrianarisoa SH, Andriamitantoa J, Vololoarinosinjatovo MM, Ranjalahy G, Ratriamoarivony C, et al. A survey of the quality of leprosy diagnosis in Madagascar. Ann Dermatol Venereol. 2008 Oct; 135(10): 645-50.

BACKGROUND: By 2005, Madagascar had not achieved its goal of eliminating leprosy. During reexamination of leprosy patients, rates of diagnostic error ranged from 4.5 to 62%, casting doubt on the reported prevalence of leprosy. We therefore decided to carry out a survey of the quality of leprosy diagnosis. **PATIENTS AND METHODS:** The survey consisted in reexamination of a sample of 102 new cases of leprosy (treated for less than three months). The sample was obtained from clusters of six patients, randomly drawn from the 111 districts in the country's six provinces. Two reexamination teams visited the target districts. Each team included at least three medical doctors: a doctor from the National Program, a WHO consultant and a dermatologist from partner NGOs in the program. **RESULTS:** The mean false-positive rate was 27.5%, ranging from 5.6 to 44.4% in the different provinces. The quality of leprosy diagnosis was found to be very poor, particularly in districts with a marked decrease in annual detection of leprosy cases. **CONCLUSION:** The high rate of false-positives during this survey could be due to the incompetence of peripheral health workers. This incompetence could be partly attributed to the decrease in leprosy detection, resulting in reduced familiarity of these health staff with leprosy diagnosis. Recommendations were made to the country concerning review of the leprosy case detection network and improvement of the quality of leprosy diagnosis in the field. Health workers involved in leprosy detection must have basic dermatological knowledge.

Landais C, Graffin B, Leyral G, Boyé T, Carli P, Carsuzaa F. Lepromatous leprosy revealed by a swollen hands syndrome. *Med Mal Infect.* 2009 Jan; 39(1):55-6.

Osteoarticular pathology in leprosy is common and described at all stages, but rarely as the most evident clinical manifestation. We report a case of borderline lepromatous leprosy with initial and disabling hands edema. The swollen hands syndrome is probably due to chronic *Mycobacterium leprae* tenosynovitis.

Magaña M, Fernández-Díez J, Magaña ML. Lucio's phenomenon is a necrotizing panvasculitis: mostly a medium-sized granulomatous arteritis. *Am J Dermatopathol.* 2008 Dec; 30(6): 555-60.

Lucio's phenomenon (LPh) is a vasculitis clinically described in 1852 and microscopically documented in 1948 in patients with diffuse lepromatous leprosy; however, at present, there is no a clear concept about the pathogenesis of the necrosis, or about the type, size, and site of the damaged vessel. The objective of this study was to elucidate the type, size, site, and form of vessel damage in LPh in a retrospective, clinical, and histopathological study. Clinical information was obtained from the charts and records and/or from the histopathology request. Slides stained with hematoxylin and eosin, Ziehl-Neelsen, and Fite-Faraco were retrieved from our files. Direct immunofluorescence had been performed in 6 cases. Twelve cases fulfilled clinical evidence to make unequivocal diagnosis of diffuse lepromatous leprosy with LPh. All of them had necrotic, irregular, purpuric, and/or ulcerative lesions, which under the microscope showed medium-sized arteries, with their walls involved by clusters of macrophages containing large amounts of bacilli, distortion of the structure of the vessel wall, narrowing, and obliteration of their lumen. Smaller vessels showed changes of the leukocytoclastic type. LPh is a distinctive type of granulomatous and necrotizing panvasculitis; the involved vessels are mostly medium-sized arteries, located deeply in the skin, at the base, and within the hypodermis, but any other vessel is likewise involved, their occlusion leads to ischemic necrosis of the whole skin, frequently with detachment of the epidermis. These

changes explain clearly and logically the clinical features observed more than 150 years ago.

Walker SL, Nicholls PG, Butlin CR, Nery JA, Roy HK, Rangel E, et al. Development and validation of a severity scale for leprosy type 1 reactions. *PLoS Negl Trop Dis.* 2008;2(12): e351.

To develop a valid and reliable quantitative measure of leprosy Type 1 reactions. **METHODS:** A scale was developed from previous scales which had not been validated. The face and content validity were assessed following consultation with recognised experts in the field. The construct validity was determined by applying the scale to patients in Bangladesh and Brazil who had been diagnosed with leprosy Type 1 reaction. An expert categorized each patient's reaction as mild or moderate or severe. Another worker applied the scale. This was done independently. In a subsequent stage of the study the agreement between two observers was assessed. **RESULTS:** The scale had good internal consistency demonstrated by a Cronbach's alpha >0.8. Removal of three items from the original scale resulted in better discrimination between disease severity categories. Cut off points for Type 1 reaction severities were determined using Receiver Operating Characteristic curves. A mild Type 1 reaction is characterized using the final scale by a score of 4 or less. A moderate reaction is a score of between 4.5 and 8.5. A severe reaction is a score of 9 or more. **CONCLUSIONS:** We have developed a valid and reliable tool for quantifying leprosy Type 1 reaction severity and believe this will be a useful tool in research of this condition, in observational and intervention studies, and in the comparison of clinical and laboratory parameters.

DIAGNÓSTICO DIFERENCIAL

Sevinc A, Aydogdu I. Extramedullary myeloid leukemia mimicking lepromatous leprosy. *J Natl Med Assoc.* 2008 Sep; 100(9): 1036-8.

Granulocytic sarcoma is an extramedullary localized tumoral lesion of myeloid precursors. It is composed of immature cells of the granulocytic series known to occur in patients with myelodysplastic syndrome, chronic myelogenous leukemia or acute myelogenous leukemia. We present a 29-year-old female who was admitted to hospital for lesions that appeared on the face, lips and nose, mimicking lepromatous leprosy. It should be kept in mind that granulocytic sarcoma may mimic lepromatous leprosy.

Patnaik MM, Hammerschmidt D, van Burik JA, Jessurun J, Smyth P. Lepromatous leprosy masquerading as acute sarcoidosis: a case report and literature review. *Minn Med.* 2008 Nov; 91(11): 30-3.

Leprosy is uncommon in North America. Because it has a prolonged incubation period and can masquerade with a variety of manifestations, many patients with leprosy experience a significant delay in diagnosis and treatment. Leprosy reactions are of 2 types: reversal (type 1) and erythema nodosum leprosum (ENL) (type 2). Type 1 or reversal reactions represent an increase in cell-mediated immunity, whereas type 2 or ENL is caused by antigen-antibody complex formation and deposition after antigen release from dying leprosy bacilli. This article describes the diagnostic challenges presented by a Minnesota patient eventually found to have lepromatous leprosy. That challenge was compounded by the fact that the clinical scenario closely mimicked connective tissue/immune complex disease and by the fact that the patient presented in a location where the incidence and prevalence of leprosy is extremely low.

Ribeiro SL, Pereira HL, Silva NP, Neves RM, Sato EI. Anti-cyclic citrullinated peptide antibodies and rheumatoid factor in leprosy patients with articular involvement. *Braz J Med Biol Res.* 2008 Nov; 41(11): 1005-10.

The objective of the present research was to evaluate the usefulness of anti-cyclic citrullinated peptide (anti-CCP) antibodies and the IgM rheumatoid factor (IgM RF) test for the differential diagnosis of leprosy with articular involvement and rheumatoid arthritis (RA). Anti-CCP antibodies and IgM RF were measured in the sera of 158 leprosy patients (76 with and 82 without articular involvement), 69 RA patients and 89 healthy controls. Leprosy diagnosis was performed according to Ridley and Jopling classification criteria and clinical and demographic characteristics of leprosy patients were collected by a standard questionnaire. Leprosy patients with any concomitant rheumatic disease were excluded. Serum samples were obtained from all participants and frozen at -20 degrees C. Measurement of anti-CCP antibodies and IgM RF were performed by ELISA, using a commercial second-generation kit, and the latex agglutination test, respectively. Anti-CCP antibodies and IgM RF were detected in low frequencies (2.6 and 1.3%, respectively) in leprosy patients and were not associated with articular involvement. Among healthy individuals both anti-CCP antibodies and IgM RF were each detected in 3.4% of the subjects. In contrast, in the RA group, anti-CCP antibodies were present in 81.2% and IgM RF in 62.3%. In the present study, both anti-CCP antibodies and IgM RF showed good positive predictive value for RA, helping to discriminate between RA and leprosy patients with articular involvement. However, anti-CCP antibodies were more specific for RA diagnosis in the population under study.

Literatura corrente em hanseníase

EDUCAÇÃO

Moreno CMC, Enders BC, Simpson CA. Avaliação das capacitações de hanseníase: opinião de médicos e enfermeiros das equipes de saúde da família. *Rev. bras. enferm* 2008 nov; 61(spe):671-5.

A hanseníase é uma doença milenar, infectocontagiosa, causada pelo *Mycobacterium leprae*; manifesta-se em células cutâneas e nervos periféricos. Na década de 1990, as ações de controle foram descentralizadas, passando do estado para o município. Um estado do nordeste brasileiro elaborou, então, uma série de treinamentos em hanseníase para capacitar os profissionais da rede básica. O objetivo deste estudo foi avaliar esses treinamentos a partir da opinião de médicos e enfermeiros das equipes de saúde da família. Os resultados indicam que os profissionais avaliaram os treinamentos positivamente quanto à sua implementação e ao objetivo de capacitá-los para a detecção da doença. Conclui-se que os treinamentos precisam ser continuados e lançam-se algumas reflexões para os próximos

Cortela DCB, Ignotti E. Conhecimento e experiências do cirurgião-dentista sobre hanseníase em Cáceres, MT, Brasil. *Rev. odonto ciênc.* 2008 jul.-set; 23(3):243-50.

Analisar o conhecimento e a experiência dos cirurgiões-dentistas (CDs) do município de Cáceres-MT relativos a suspeita diagnóstica e encaminhamento de casos de hanseníase. Metodologia: Estudo transversal de inquérito com 60 CDs. Utilizou-se um questionário auto-aplicado com variáveis relacionadas à formação do profissional, ao conhecimento e à experiência em relação à hanseníase. Os dados foram analisados por regressão logística com intervalo de confiança (IC) de 95%. Resultados: A maioria dos CDs sentiu pouca segurança em relação a seus conhecimentos sobre hanseníase, 43% realizaram suspeita de casos e/ou encaminhamento. A probabilidade de um profissional com tempo de exercício maior que 5 anos realizar suspeita de casos e/ou encaminhamento foi 4 vezes àquela observada entre os CDs com menor tempo de residência na cidade (ORajust = 4,39; IC 95%: 1,26-15,23). Tal probabilidade para profissionais especialistas foi 7 vezes à observada entre não-especialistas (ORajust

= 7,73; IC 95%: 1,51-39,64). Conclusão: Quase metade dos CDs realizou encaminhamento de casos suspeito de hanseníase, principalmente aqueles com mais de cinco anos de exercício profissional na cidade ou que possuíam alguma especialidade. No entanto, esses vêm contribuindo timidamente e com práticas isoladas, pois apresentaram limitações de conhecimentos específicos relativos à doença.

EPIDEMIOLOGIA / DETECÇÃO / TRANSMISSÃO / CONTROLE / ELIMINAÇÃO / PREVALÊNCIA

Ministerio de Salud Pública. *Lepra: normas técnicas para el control y tratamiento / Leprosy. Technical standards for control and treatment.* La Habana; Editorial Ciencias Médicas; 2008. 52 p.

La publicación es el resultado de la revisión actualizada de recomendaciones internacionales para la prevención y control de la lepra, adaptadas a nuestro contexto y realizada por un grupo de expertos del país. Actualmente el Sistema Nacional de Salud asiste a un proceso de reorganización de la atención primaria de salud; se refuerzan las bases normativas y técnicas del sistema y en este contexto se desarrollan las acciones de prevención y control de la enfermedad.

Santos AS, Castro DS, Falqueto A. Risk factors for Leprosy transmission. *Rev Bras Enferm.* 2008; (61): 738-43.

This case-control study aimed to identify individual risk factors regarding the transmission of leprosy. The group case represented by 90 cases of leprosy sick people pontificated at SINAN during 2003 and 2006 and a group control constituted by 270 healthy people, paired by gender and age. There was significant statistical between occurrence of the disease and its current presence (OR= 2,9) and old cases (OR= 5,0) of leprosy among co-sanguine relatives. Knowing that the only exam of the contact in the act of the diagnostic detects a minimum part of the new cases, it is proposed to execute periodical examinations of the contact of leprosy for detecting the new cases.

Santos AS, Castro DS, Falqueto A. Fatores de risco para transmissão da Hanseníase. *Rev. bras. enferm* 2008 nov; 61(spe):738-43.

Estudo caso controle que objetivou identificar fatores individuais de risco relacionados à transmissão da doença. O grupo caso, composto por 90 pacientes de hanseníase notificados no SINAN entre 2003 e 2006; o grupo controle, constituído por 270 indivíduos sadios, pareados por sexo e faixa etária. Houve associação significativa entre a ocorrência da doença e a presença atual (OR= 2,9) e antiga (OR=5,0) de hanseníase entre parentes consanguíneos. Sabendo-se que o exame único dos contatos, no ato do diagnóstico, detecta uma parcela mínima dos casos, propõe-se a realização de exames periódicos dos contatos de hansenianos a fim de detectar os novos casos.

Vieira CSCA, Soares MT, Ribeiro CTSX, Silva LFG. Avaliação e controle de contatos faltosos de doentes com hanseníase. *Rev. bras. enferm* 2008 nov; 61(spe):682-8.

Estudo descritivo, com variáveis qualitativas, realizado no Ambulatório Regional de Especialidades de Taubaté, com objetivo de resgatar e avaliar contatos faltosos de doentes de hanseníase. Analisou-se 36 prontuários de casos novos, no período de janeiro de 2003 a julho de 2004. Identificou-se 92 contatos, sendo 64,1 por cento faltosos, tendo 25 por cento entre 20 a 29 anos e 58,5 por cento do sexo feminino. Destes, 61 por cento foram submetidos à consulta de enfermagem no domicílio. Relataram não adesão ao controle por esquecimento (66,6 por cento), e falta de tempo (11,1 por cento); 4 contatos tinham sintomas de hanseníase, e 1 foi confirmado (forma transmissível - Dimorfa). Sem atingir 100 por cento da cobertura de busca ativa, sugerimos, para assegurar a meta de eliminação da doença, parcerias e descentralização das ações de controle.

Cortela DCB, Ignotti E. Lesões visíveis na hanseníase: o papel do cirurgião-dentista na suspeita de casos novos. *Rev. bras. epidemiol* 2008 dez; 11(4):619-32.

A hanseníase permanece como problema de saúde pública em alguns países. No Brasil, essa enfermidade demanda a priorização das ações de saúde focadas em alguns Estados e municípios. OBJETIVO: Analisar as principais características epidemiológicas dos portadores de hanseníase com ênfase na área de localização das lesões MÉTODO: Estudo transversal de indivíduos com hanseníase diagnosticados entre 2001 a 2006, em Cáceres-MT. Foi definida como variável dependente a área de localização das lesões, categorizada em não-visível e visível, que inclui face, pavilhão auricular ou membros superiores. Utilizou-se ANOVA e regressão múltipla logística, com intervalo de confiança de 95 por cento. RESULTADOS: 206 (33,8 por cento) indivíduos apresentaram lesões em áreas visíveis; não foi verificada diferença estatisticamente significativa entre os grupos de idade ou sexo com área de localização das lesões. A probabilidade de um paciente multibacilar manifestar lesões em áreas visíveis foi 3 vezes aquela observada entre os pacientes paucibacilares (ORajust= 3,21; IC 95 por cento: 2,13 - 4,86). Tal probabilidade entre os pacientes com incapacidade física localizada na região ocular e dos membros superiores foi 5 vezes aquela observada entre os pacientes com incapacidade física localizada em outra região do corpo (ORajust = 5,10; IC 95 por cento: 1,41 - 18,39). CONCLUSÃO: A probabilidade de um indivíduo portador de hanseníase apresentar lesões em áreas visíveis independe de sexo e idade e essas se manifestam principalmente nos braços. Entre os indivíduos multibacilares, tal probabilidade foi maior que aquela observada entre os indivíduos paucibacilares, principalmente quando havia presença de incapacidade física localizada na região ocular e nos membros superiores.

Lana FCF, Amaral EP, Lanza FM, Saldanha ANSL. Physical disabilities resulting from hansen's disease in Vale do Jequitinhonha, State of Minas Gerais, Brazil. *Rev. latinoam. Enferm* 2008 nov.-dec; 16(6):993-7.

Leprosy is potentially debilitating. The present study aims at describing and assessing the occurrence of physical disabilities in cases of leprosy in the population of the Vale do Jequitinhonha/MG, in the period 1998-2006. It is an epidemiological descriptive study and the data were collected from the Leprosy Notification Forms. This information was processed using EPI-INFO and analyzed, based on the indicators recommended by the Ministry of Health and the force of association between variables. Of the 1461 cases notified, 46.2 percent were diagnosed with some kind of physical disability (12.1 percent degree II). Of these, 59.1 percent were male; 96.9 percent of the people were over 15 years old, and 93.2 percent were multibacillary ($p < 0.001$). A hidden prevalence of 433 cases was estimated in the period 2002-2006. The results show that the diagnosis of Hansen's disease in the region is late, revealing the need to intensify prevention and control

Schettini APM, Eiras JC, Cunha MGS, Tubilla LHM, Sardinha JCG. Hanseníase históide de localização restrita. *An. bras. dermatol* 2008 set.-out.; 83(5):470-2.

A hanseníase permanece importante problema de saúde pública, e os técnicos de unidades básicas de saúde devem estar capacitados para reconhecer as diversas formas de apresentação clínica da doença. Relata-se caso de paciente com lesões pouco habituais, cujo diagnóstico foi importante por se tratar de doente multibacilar, principal elo da cadeia de transmissão da doença. O diagnóstico e tratamento oportuno desses casos contribuem para atingir as metas de eliminação da doença no país.

Penna MLF, Oliveira MLW, Carmo EH, Penna GO, Temporão JG. Influência do aumento do acesso à atenção básica no comportamento da taxa de detecção de hanseníase de 1980 a 2006. *Rev. Soc. Bras. Med. Trop* 2008; 41(supl.2):6-10.

A taxa de detecção da hanseníase no Brasil aumentou nas duas últimas décadas do século XX, sendo que a reforma sanitária ocorreu no mesmo período. A taxa de detecção é função da incidência real de casos e da agilidade diagnóstica do sistema de saúde. Utilizou-se a cobertura vacinal por BCG como uma variável procuradora do acesso à atenção primária em saúde. Uma regressão log-normal foi ajustada à taxa de detecção de 1980 a 2006, com o tempo, tempo ao quadrado e da cobertura do BCG como variáveis independentes, sendo positivo o coeficiente de regressão desta última variável, sugerindo que o comportamento da taxa de detecção da hanseníase refletiu a melhora de acesso à atenção primária no período estudado. A tendência de aumento da taxa de detecção se reverte em 2003, indicando o início de uma nova fase no controle da hanseníase.

Penna GO, Pinheiro AMN, Carmo LS, Carvalho LR, Oliveira MBB, Carreiro VP. Clinical and epidemiological study of leprosy cases in the University Hospital of Brasília: 20 years - 1985 to 2005. *Rev. Soc. Bras. Med. Trop* 2008 nov.-dec; 41(6): 575-80.

Hansen's disease, also known as leprosy, is an infectious disease still prevalent in Brazil. It is a chronic illness with acute immunological phenomena known as leprosy reactions. In the Federal District of Brazil, the University Hospital of Brasília is the reference centre for leprosy care. The study aimed to characterize the clinical and epidemiological profile of Hansen's disease patients at the University Hospital of Brasília, by descriptive, retrospective analysis of 1,124 patients over the period from 1985 to 2005. The pattern of leprosy in this study demonstrated that type 2 leprosy reactions were common, especially in the lepromatous form and presented a direct correlation with the bacilloscopic index. The prevalence and frequency of severe complications, such as leprosy reactions, emphasize the importance of the ongoing study of leprosy and the need for continual improvement in the scope of knowledge concerning its treatment

Imbiriba EB, Hurtado-Guerrero JC, Garnelo L, Levino A, Cunha MG, Pedrosa V. Perfil epidemiológico da hanseníase em menores de quinze anos de idade, Manaus (AM), 1998-2005. Rev. saúde pública 2008 dez; 42(6):1021-6.

Analisar a situação epidemiológica da hanseníase em crianças, em zona urbana. MÉTODOS: Foram estudados 474 casos de hanseníase, em menores de 15 anos, detectados na zona urbana de Manaus (AM), de 1998 a 2005. A partir dos dados do Sistema de Informações de Agravos de Notificação foram analisados o perfil da endemia e a qualidade do atendimento nos serviços de saúde, utilizando os indicadores epidemiológicos e operacionais Programa Nacional de Eliminação da Hanseníase. RESULTADOS: Os casos de hanseníase em menores de 15 anos corresponderam a 10,4 por cento do total de casos detectados no período. O coeficiente de detecção nessa faixa etária manteve-se no nível hiperendêmico entre 1998 e 2003, reduzindo a partir do ano de 2004 mas mantendo endemicidade muito alta. A forma clínica mais freqüente foi a tuberculóide, seguida da dimorfa. As formas paucibacilares corresponderam a 70,7 por cento dos casos e no momento do diagnóstico, o grau de incapacidades foi avaliado em 94,7 por cento dos pacientes, dos quais 2,9 por cento apresentaram incapacidades físicas. A maioria dos casos (99,4 por cento) foi tratada com o esquema poliquimioterápico da Organização Mundial da Saúde. CONCLUSÕES: Apesar de seu decréscimo, o coeficiente de detecção da hanseníase nas crianças em Manaus mantém nível de endemicidade muito alto

Moreira MV, Waldman EA, Martins CL. Hanseníase no Estado do Espírito Santo, Brasil: uma endemia em ascensão? Cad. saúde pública 2008 jul; 24(7):1619-30.

Descrição do comportamento e análise da tendência da hanseníase entre pacientes residentes no Estado do Espírito Santo, Brasil, de 1980 a 2003. Utilizando modelos estatísticos para séries temporais, identificou-se tendência crescente para todo o período da taxa de detecção global ($p < 0,05$) com aparente estabilização no final do período, verificamos também tendência crescente para

os períodos: (i) 1980-1987 nos grupos etários de < 15 anos e 50 anos e mais e para formas paucibacilares; (ii) 1988-1995 para as faixas de 15-19 anos, 20-29 e 50 anos e mais e para formas multibacilares; (iii) 1996-2003 no grupo de 20-29 anos e formas paucibacilares. Os indicadores de avaliação da endemia apontaram patamares estáveis do grau de incapacidade 2 (em média 6 por cento); a proporção de casos entre < 15 anos situou-se abaixo de 10 por cento e a de abandono de tratamento em torno de 6 por cento. A prevalência apresentou forte declínio. A tendência crescente pode ser explicada, em parte pela maior sensibilidade da vigilância, mas a elevada proporção entre < 15 anos aponta a necessidade de estudos visando ao melhor conhecimento dos resíduos de fontes de infecção especialmente no domicílio.

Mastrangelo G, Marcer G, Cegolon L, Buja A, Fadda E, Scozzato L, et al. How to prevent immunological reactions in leprosy patients and interrupt transmission of Mycobacterium leprae to healthy subjects: two hypotheses. Med Hypotheses. 2008 Oct; 71(4): 551-63.

The basis of World Health Organization strategy for leprosy elimination is that the only source and reservoir for infection are patients with the disease. It was assumed that multi drug therapy (MDT) would reduce transmission of Mycobacterium leprae, but there is no convincing evidence for this. Furthermore, even if MDT has been proved to be extremely effective against the infectious disease, a noticeable proportion of leprosy patients can suffer from immunologic hypersensitivity reactions which are now the most significant issue in the managements of the disease. In endemic areas it was found that: M. leprae survives outside human body; healthy individuals harbor M. leprae bacilli in nasal cavity and shed micro-organisms in environment; there is widespread subclinical transmission of M. leprae with transient infection of the nose resulting in the development of a mucosal immune response. This disparate clinical, epidemiologic, and microbiologic evidence leads to the first hypothesis: that antigenic load in local tissues, sufficient to trigger the immune response, comes from external supply of M. leprae organisms. The hypothiocyanite anion (OSCN-) is generated in vivo by

the reaction of thiocyanate with hydrogen peroxide catalyzed by lactoperoxidase. OSCN⁻ is an antimicrobial oxidizing agent that prevents growth of bacteria, fungi, and viruses. OSCN⁻ exists in lower airway secretions and lung has never been reported to be affected by leprosy. There is a sufficient concentration of OSCN⁻ in the saliva, and accordingly mouth is rarely affected by leprosy. By contrast, the concentration of this compound is low or nil in nasal and lacrimal secretions and leprosy very often affects nose and eyes. The second hypothesis is that OSCN⁻ may also protect from leprosy. Recently a method of OSCN⁻ production, not involving enzymatic steps or use of toxic heavy-metal salts, has been patented. Studies on the susceptibility of *M. leprae* to hypothiocyanite could be carried out and, in case of positive results, the substance might be used in order to sterilize the nasal cavity of healthy carriers and prevent transmission of *M. leprae* to healthy subjects and to leprosy patients in whom it may trigger an immune response.

Joshua V, Gupte MD, Bhagavandas M. A Bayesian approach to study the space time variation of leprosy in an endemic area of Tamil Nadu, South India. *Int J Health Geogr.* 2008 Jul 21; (7): 40.

BACKGROUND: In leprosy endemic areas, patients are usually spatially clustered and not randomly distributed. Classical statistical techniques fail to address the problem of spatial clustering in the regression model. Bayesian method is one which allows itself to incorporate spatial dependence in the model. However little is explored in the field of leprosy. The Bayesian approach may improve our understanding about the variation of the disease prevalence of leprosy over space and time. **METHODS:** Data from an endemic area of leprosy, covering 148 panchayats from two taluks in South India for four time points between January 1991 and March 2003 was used. Four Bayesian models, namely, space-cohort and space-period models with and without interactions were compared using the Deviance Information Criterion. Cohort effect, period effect over four time points and spatial effect (smoothed) were obtained using WinBUGS. The spatial or panchayat effect thus estimated was compared with the raw standardized morbidity

(leprosy prevalence) rate (SMR) using a choropleth map. The possible factors that might have influenced the variations of prevalence of leprosy were explored. **RESULTS:** Bayesian models with the interaction term were found to be the best fitted model. Leprosy prevalence was higher than average in the older cohorts. The last two cohorts 1987-1996 and 1992-2001 showed a notable decline in leprosy prevalence. Period effect over 4 time points varied from a high of 3.2% to a low of 1.8%. Spatial effect varied between 0.59 and 2. Twenty-six panchayats showed significantly higher prevalence of leprosy than the average when Bayesian method was used and it was 40 panchayats with the raw SMR. **CONCLUSION:** Reduction of prevalence of leprosy was 92% for persons born after 1996, which could be attributed to various intervention and treatment programmes like vaccine trial and MDT. The estimated period effects showed a gradual decline in the risk of leprosy which could be due to better nutrition, hygiene and increased awareness about the disease. Comparison of the maps of the relative risk using the Bayesian smoothing and the raw SMR showed the variation of the geographical distribution of the leprosy prevalence in the study area. Panchayat or spatial effects using Bayesian showed clustering of leprosy cases towards the northeastern end of the study area which was overcrowded and population belonging to poor economic status.

Moreira MV, Waldman EA, Martins CL. Leprosy in Espírito Santo State, Brazil: a growing endemic? *Cad Saude Publica.* 2008 Jul; 24(7): 1619-30.

This study provides a trend analysis of leprosy among patients in the State of Espírito Santo, Brazil, from 1980 to 2003. Using temporal series statistical models, an upward trend was identified throughout the period in the overall detection rate ($p < 0.05$), with an apparent stabilization at the end of the period. We also observed an upward trend for the following periods: (i) 1980-1987 in the <15 and ≥ 50 -year age groups and for paucibacillary forms; (ii) 1988-1995 for the 15-19, 20-29, and ≥ 50 -year groups and for multibacillary forms; and (iii) 1996-2003 in the 20-29-year group and paucibacillary forms. The indicators for evaluation of the endemic indicate: stable levels in grade

2 disability (mean of 6%); a proportion of less than 10% of cases in individuals <15 years of age; and a treatment dropout rate of approximately 6%. Prevalence showed a sharp decline. The upward trend can be explained partially by greater surveillance sensitivity, but the high proportion of individuals <15 highlights the need for studies aimed at better knowledge of residual sources of infection, especially in the household.

Deps PD, Alves BL, Gripp CG, Aragao RL, Guedes B, Filho JB. Contact with armadillos increases the risk of leprosy in Brazil: a case control study. *Indian J Dermatol Venereol Leprol.* 2008 Jul-Aug; 74(4): 338-42.

BACKGROUND: *Mycobacterium leprae* infection has recently been detected in wild armadillos in Brazil. Leprosy is still endemic in Brazil and although its transmission is mostly by person-to-person contact, many cases report no history of previously known leprosy contact. It has been suggested that other sources of *M. leprae* may contribute to the transmission of leprosy in some areas. **Aim:** Our objective was to investigate whether contact with armadillos is associated with leprosy. **METHODS:** A case-control study was carried out in Brazil. Data was collected from 506 leprosy patients and 594 controls on exposure to armadillos and age, sex, place of birth and living conditions. Univariate analysis and unconditional logistic regression were conducted to investigate whether leprosy was associated with exposure to armadillos. **RESULTS:** Direct armadillo exposure was reported by 68% of leprosy cases and by 48% of controls ($P < 0.001$) roughly doubling the risk of leprosy, with odds ratio (OR) 2.0, 95% confidence interval (CI) [1.36-2.99]. **CONCLUSION:** The results of this study suggest that direct exposure to armadillos is a risk factor for leprosy in Brazil.

Fischer E, Pahan D, Chowdhury S, Oskam L, Richardus J. The spatial distribution of leprosy in four villages in Bangladesh: an observational study. *BMC Infect Dis.* 2008 Sep 23; (8): 125

BACKGROUND: There is a higher case-detection rate for leprosy among spatially proximate contacts such as

household members and neighbors. Spatial information regarding the clustering of leprosy can be used to improve intervention strategies. Identifying high-risk areas within villages around known cases can be helpful in finding new cases. **METHODS:** Using geographic information systems, we created digital maps of four villages in a highly endemic area in northwest Bangladesh. The villages were surveyed three times over four years. The spatial pattern of the compounds--a small group of houses--was analyzed, and we looked for spatial clusters of leprosy cases. **RESULTS:** The four villages had a total population of 4,123. There were 14 previously treated patients and we identified 19 new leprosy patients during the observation period. However, we found no spatial clusters with a probability significantly different from the null hypothesis of random occurrence. **CONCLUSION:** Spatial analysis at the microlevel of villages in highly endemic areas does not appear to be useful for identifying clusters of patients. The search for clustering should be extended to a higher aggregation level, such as the subdistrict or regional level. Additionally, in highly endemic areas, it appears to be more effective to target complete villages for contact tracing, rather than narrowly defined contact groups such as households.

Fischer E, Pahan D, Chowdhury S, Richardus J. The spatial distribution of leprosy cases during 15 years of a leprosy control program in Bangladesh: an observational study. *BMC Infect Dis.* 2008 Sep 23; (8): 126.

BACKGROUND: An uneven spatial distribution of leprosy can be caused by the influence of geography on the distribution of risk factors over the area, or by population characteristics that are heterogeneously distributed over the area. We studied the distribution of leprosy cases detected by a control program to identify spatial and spatio-temporal patterns of occurrence and to search for environmental risk factors for leprosy. **METHODS:** The houses of 11,060 leprosy cases registered in the control area during a 15-year period (1989-2003) were traced back, added to a geographic database (GIS), and plotted on digital maps. We looked for clusters of cases in space and time. Furthermore, relationships with the proximity to geographic features, such as town center,

roads, rivers, and clinics, were studied. RESULTS: Several spatio-temporal clusters were observed for voluntarily reported cases. The cases within and outside clusters did not differ in age at detection, percentage with multibacillary leprosy, or sex ratio. There was no indication of the spread from one point to other parts of the district, indicating a spatially stable endemic situation during the study period. The overall risk of leprosy in the district was not associated with roads, rivers, and leprosy clinics. The risk was highest within 1 kilometer of town centers and decreased with distance from town centers. CONCLUSION: The association of a risk of leprosy with the proximity to towns indicates that rural towns may play an important role in the epidemiology of leprosy in this district. Further research on the role of towns, particularly in rural areas, is warranted.

Moreno CM, Enders BC, Simpson CA. Evaluation of training programs in Hansen's Disease: opinion of physicians and nurses of family health teams. Rev Bras Enferm. 2008; (61): 671-5.

Hansen's Disease is a contagious, milenar disease caused by the Mycobacterium leprae that manifests itself in the cutaneous cells and the peripheral nerves. In the decade of 1990, the control for the disease was decentralized from the state to the municipality level. A northeastern state in Brazil implemented a series of training programs for health professionals in primary attention. The objective of this study was to evaluate these training programs, based on the opinions of the physicians and nurses in the family health teams. The results indicate that the professionals evaluated the training program positively as to its implementation and the achievement of its objective. It is concluded that the training programs need to continue with changes that can contribute to future programs.

Vieira CS, Soares MT, Ribeiro CT, Silva LF. Evaluation and control of missing contacts of leprosy patients. Rev Bras Enferm. 2008; (61): 682-8.

Descriptive study, with qualitative variables, carried on in the Ambulatory of Specialties Region of Taubaté, in

order to evaluate the missing contacts of leprosy patients. Thirty-six records of new cases were analyzed, from January 2003 to July 2004. Ninety-two contacts were identified, being 64.1% missing ones, having 25% from 20 to 29 years and 58.5% female. Of these, 61% were submitted to consultation of home nursing. Reported non-membership to the control for forgetfulness (66.6%), and lack of time (11.1%), 4 contacts had symptoms of leprosy, and 1 was confirmed (transmissible form - Dimorfa). Without achieving 100% coverage active search, we suggest, to ensure the goal of eliminating of the disease, partnerships and decentralization of the control activities.

Dessunti EM, Soubhia Z, Alves E, Aranda CM, Barro MP. Leprosy: control of household contacts in the municipality of Londrina-PR for a ten-year period. Rev Bras Enferm. 2008; (61): 689-93.

The purpose of this descriptive study is to analyze variables related to leprosy patients' household contacts who received treatment in Londrina-PR-Brazil for a ten-year period. The data analysis was based on the health service's records and from a system of infectious disease. Out of 1055 leprosy's patients, it was recorded 3394 contacts with an average of 3,2. The most exposed individuals were those aged up to 40 (71,5%); son/daughter (40.6%) and husband/wife (17.8%). Of the 1731 contacts (51.0%) examined, 183 showed some signs of the disease: there were 16 confirmed cases, 47 were excluded and 120 did not finish the clinical investigation. Most of the contacts (51.6%) were exposed to the multibacillary forms and 12.8% proved they were vaccinated with two doses of BCG. It is possible to conclude that the follow-up of the contacts was not adequate.

Dessunti EM, Soubhia ZAE, Aranda CM, Barro MPAA. Hanseníase: o controle dos contatos no município de Londrina-PR em um período de dez anos. Rev. bras. enferm 2008 nov; 61(spe):689-93.

Estudo descritivo, com o objetivo de analisar variáveis relacionadas aos contatos de pacientes com hanseníase atendidos no município de Londrina, num período de

dez anos. Os dados foram obtidos das fichas de comunicantes e do SINAN. Dentre os 1055 casos de hanseníase, foram registrados 3394 contatos, com média de 3,2. Os indivíduos mais expostos possuem até 40 anos de idade (71,5 por cento), sendo filhos/a (40,6 por cento) e esposo/a (17,8 por cento). Foram examinados 1731 (51,0 por cento) contatos, dos quais, 183 apresentavam algum sinal de hanseníase: confirmados 16 casos, descartados 47 e não concluíram a investigação 120 (65,6 por cento). A maioria dos contatos (51,6 por cento) foi exposta às formas multibacilares e 10,1 por cento comprovaram a efetivação de duas doses da BCG. Conclui-se que está havendo falhas no acompanhamento dos contatos

Alencar CH, Barbosa JC, Ramos AN, Alencar MJ, Pontes RJ, Castro CG, et al. Hansen's Disease in the municipality of Fortaleza, CE, Brazil: epidemiological and operational aspects in children under 15-years-old (1995-2006). Rev Bras Enferm. 2008; 61 (Spec): 694-700.

This is a sectional study that aims to analyze the occurrence of Hansen's disease cases in 15 year-old minors in the Municipality of Fortaleza and notified in SINAN. The epidemiological indicators in this population show hyperendemicity. In operational terms is observed the maintenance of the service concentration in some reference units, in spite of some progress. Late diagnosis, a high degree of incapacity in the diagnosis and low degree of evaluation of contacts registered reveal the fragility of the actions of control. This study emphasizes the possibility of error diagnostic front to the characteristics of the infection in this population. The occurrence of cases of leprosy in this population represents an epidemiologic indicator of great importance and its analysis extends the discussion on operational problems in the network of health services.

Alencar CHM, Barbosa JC, Ramos Júnior AN, Alencar MJF, Pontes RJS, Castro CGJ, et al. Hanseníase no município de Fortaleza, CE, Brasil: aspectos epidemiológicos e operacionais em menores de 15 anos (1995-2006). Rev. bras. enferm 2008 nov; 61(spe):694-700.

Estudo transversal que objetiva analisar a ocorrência de casos de hanseníase em menores de 15 anos de idade residentes no Município de Fortaleza e notificados no SINAN. Os indicadores epidemiológicos nesta população mostram hiperendemicidade. Operacionalmente observa-se a manutenção da concentração de atendimento em algumas unidades de referência, apesar de alguns avanços. Diagnóstico tardio, elevado grau de incapacidade no diagnóstico e baixo grau de avaliação de contatos registrados revelam a fragilidade das ações de controle. Ressalta-se a possibilidade de erro diagnóstico frente às características da infecção nesta população. A ocorrência de casos de hanseníase nesta população representa um indicador epidemiológico de grande relevância e sua análise amplia a discussão sobre problemas operacionais na rede de serviços de saúde.

Amaral EP, Lana FC. Spacial analysis of Leprosy in the microregion of Almenara, MG, Brazil. Rev Bras Enferm. 2008; (61) Spec :701-7.

Hansen's disease is still considered a public health problem in Brazil. The objective of this ecological study is to analyze the epidemiological status of Hansen's disease in the microregion of Almenara, State of Minas Gerais, according to its spatial distribution and its relations with the socioeconomic conditions of the population. The results of this study classify the microregion as a hyperendemic area and indicate that the health services are not capable of detecting all existing cases, thus contributing to the maintenance of the disease transmission chain. The spatial analysis identified two clusters, one with detection coefficients above and the other below those expected. It is believed that the results of the study will help to establish guidelines for the development and implementation of prevention and control measures for Hansen's disease in the region.

Amaral EP, Lana FCF. Análise espacial da Hanseníase na microrregião de Almenara, MG, Brasil. *Rev. bras. enferm* 2008 nov; 61(spe):701-7.

A hanseníase ainda é considerada um problema de saúde pública no Brasil. O objetivo deste estudo é analisar a situação epidemiológica da hanseníase na microrregião de Almenara/MG segundo sua distribuição espacial e suas relações com as condições socioeconômicas da população. Trata-se de um estudo ecológico. Os resultados colocam a microrregião como uma área hiperendêmica e indicam que os serviços de saúde não estão sendo capazes de detectar todos os casos existentes, contribuindo para manter a cadeia de transmissão da doença. A análise espacial identificou dois clusters, sendo um com coeficientes de detecção acima e outro abaixo do esperado. Acredita-se que os resultados obtidos servirão para balizar a elaboração e implementação de medidas de prevenção e controle da hanseníase na região.

Pereira AJ, Helene LM, Pedrazini ES, Martins CL, Vieira CS. The basic health and assistance to Hansen's Disease in health care services of a municipality of São Paulo State. *Rev Bras Enferm.* 2008; (61): 718-25.

This descriptive study was carried out in a municipality of Sao Paulo State. The objective was to identify and to characterize the Leprosy Control Program in primary care in the city of research. Methodology: the interviews were conducted with professionals responsible for care in Hansen's Disease and with manager of public health policies. Results: the public health policies prioritize the development of primary care and emphasis on the public health. The control actions are held by trained and experient professionals. It emphasizes absence of active search for cases which undermines the real epidemiological situation, and the important health education to the reduction of stigma and bring the subject of adjustments necessary in new situation of life and overcome limitations.

Pereira AJ, Helene LMF, Pedrazini ES, Martins CL, Vieira CSCA. Atenção básica de saúde e a assistência em Hanseníase em serviços de saúde de um município do Estado de São Paulo. *Rev. bras. enferm* 2008 nov; 61(spe):716-25.

Este é um estudo descritivo desenvolvido em um município do Estado de São Paulo. Objetivo: identificar e caracterizar as ações do Programa de Controle da Hanseníase nos serviços de saúde municipais. Metodologia: entrevistas gravadas com gestor municipal de saúde e profissionais da assistência à hanseníase. Resultados: a política pública municipal em saúde prioriza o desenvolvimento da atenção básica com ênfase na saúde pública. As ações são realizadas por profissionais capacitados e experientes em hanseníase. Ve rificou-se a não realização da busca ativa dos casos, necessária para o real conhecimento da situação epidemiológica, e das ações de educação em saúde, importante para a redução do estigma e aproximação do sujeito à nova situação de vida e enfrentamento de limitações

Helene LM, Pedrazzani ES, Martins CL, Vieira CS, Pereira AJ. Health services organization on the elimination of Leprosy in municipalities of São Paulo State. *Rev Bras Enferm.* 2008; (61): 744-52.

The present study aims to analyze actions to control Hansen's disease developed in nine municipalities of the State of São Paulo and one of the health authorities of the city of São Paulo, selected based on their population, geographic location and prevalence coefficients. The study was approved by the Ethics Committee n masculine 514/05 and instruments were administered by means of interviews to 59 professionals, 17 interlocutors and 9 managers. Data were analyzed using the program SPSS (Statistical Package for Social Scientists). It was verified that prevalence is on the decline and detection remains stable. The physical incapacity prevention actions, health education and active search have not been satisfactorily developed. The most qualified professionals are in the reference units and teamwork is fragile.

Helene LMF, Pedrazzani ES, Martins CL, Vieira CSCA, Pereira AJ. Organização de serviços de saúde na eliminação da Hanseníase em municípios do Estado de São Paulo. *Rev. bras. enferm* 2008 nov; 61(spe):744-52.

Este trabalho tem como objetivo analisar as ações de controle da hanseníase desenvolvidas em nove municípios do Estado de São Paulo e uma coordenadoria de saúde da Capital, selecionados a partir de sua população, localização geográfica e coeficientes de prevalência. Foi aprovado pelo Comitê de Ética nº 514/05 e foram aplicados instrumentos por meio de entrevistas em 59 profissionais e 17 interlocutores. Os dados foram analisados utilizando o programa SPSS (Statistical Package for Social Scientists). Verificou-se que a prevalência apresenta declínio e a detecção permanece estável. As ações de prevenção de incapacidade física, educação em saúde e a busca ativa são pouco desenvolvidas. Os profissionais mais capacitados encontram-se nas unidades de referência, há fragilidade quanto ao trabalho em equipe.

Rodrigues-Júnior AL, do O VT, Motti VG. Spatial and temporal study of leprosy in the state of São Paulo (Southeastern Brazil), 2004-2006. *Rev Saude Publica*. 2008 Dec; 42(6): 1012-20.

OBJECTIVE: To assess the temporal and spatial evolution of the leprosy endemy in the state of São Paulo, Southeastern Brazil. METHODS: This is an ecological-social study that used the number of leprosy cases reported to the Brazilian Ministry of Health from January 2004 to December 2006. Monthly series were generated in each regional health department, and their sequences were adjusted by a Markovian model for the leprosy detection coefficients. The detection coefficient with the number of cases accumulated in the period in each municipality was used to produce the spatial distribution of the endemy; a correlation analysis was carried out with the leprosy detection coefficients and the components of the Social Responsibility Index of the state of São Paulo. RESULTS: Of the 645 municipalities of the state of São Paulo, 22 did not detect leprosy cases in the period. In the majority of regions, the endemy showed a decreasing trend; the time series presented random fluctuation

around expected values. The decline was influenced by a generalized decrease in the detection coefficients at the end of 2005. There was a positive correlation between the detection coefficients and the components "schooling" and "longevity", of the Social Responsibility Index of the state of São Paulo, and a negative correlation with "wealth", another component of the same Index. CONCLUSIONS: The result of the time series analysis suggests that the endemy is on the decline in the majority of regions of the state of São Paulo, while the spatial analysis shows that the coefficients are high in the northern part of the state.

Imbiriba EB, Hurtado-Guerrero JC, Garnelo L, Levino A, Cunha MG, Pedrosa V. Epidemiological profile of leprosy in children under 15 in Manaus (Northern Brazil), 1998-2005. *Rev Saude Publica*. 2008 Dec; 42(6): 1021-6.

To describe the epidemiological status of leprosy in children living in a metropolitan area. METHODS: There were studied 474 leprosy cases detected in children under 15 living in the metropolitan area of the city of Manaus, Northern Brazil, between 1998 and 2005. The endemic profile and quality of care services were assessed based on data from the Notifiable Diseases Information System using epidemiological and operational indicators of the National Leprosy Elimination Program. RESULTS: Of all leprosy cases detected in the period studied, 10.4% were found in children under 15. The detection rates in this age group remained at hyperendemic levels between 1998 and 2003, and decreased from 2004 onwards but keeping on very high endemic levels. The most common clinical form was tuberculoid followed by dimorphous. Paucibacillary forms were seen in 70.7% of the cases. The level of disability at the time of diagnosis was assessed in 94.7% of patients and 2.9% of them had physical disabilities. Most children (99.4%) were treated with the multiple drug regimen recommended by the World Health Organization. CONCLUSIONS: Despite its decrease, detection rate of leprosy in children in the city of Manaus remains at a very high endemic level.

Shen JP, Zhang GC, Chen XS, Zhou M, Yu MW, Yan LB. A long-term evolution on the epidemiological characteristics of leprosy, towards the goal of its elimination in 1949 - 2007 in China. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2008 Nov; 29(11):1095-100.

To understand the epidemiological characteristics of leprosy during the evolution of the disease, towards the goal of elimination for the past 50 years and longer, so as to provide experiences for accelerating eradication of leprosy in China. **METHODS:** Data were collected from National Surveillance System of Leprosy which was composed annually of all the data from county-based leprosy unit reporting system. All the data were reviewed retrospectively. **RESULTS:** A total number of 487 900 leprosy patients were reported from 1949 to 2007 in China. The case detection rate reduced from the highest of 5.56/100 000 in 1958 to the lowest of 0.12/100 000 in 2007. Leprosy patients mainly distributed in mountain areas in Yunnan, Guizhou, Sichuan, Guangdong Guangxi, Hunan and Jiangxi provinces with warm and damp climate and underdeveloped economy. After more than 50 years of leprosy control efforts, the case detection rate declined quickly in provinces in the eastern and the southern parts but very slowly in provinces in the western and the southwestern part of China. The ratio of relapsed patients to newly detected ones increased from 1:139 in 1960s' to 1:10 after 1980s', annually. The proportion of child cases among newly detected patients had been 3% - 4% since 1968. In the recent 20 years, the proportion of new patients with positive skin smear gradually increased and the rate of disability grade two reached 20% and more. The average age of new patients upon diagnosis was 45 years old in the east coastal provinces but only 38 years old in the southwest provinces. A new finding was that some new patients detected in the east coastal provinces were immigrants from the southwestern provinces. **CONCLUSION:** With continuous socio-economic development and active efforts on leprosy control, the prevalence of leprosy gradually declined despite the long evolution period. Some negative events seemed to have influenced the trend of case detection.

Jacobson RR, Gatt P. Can leprosy be eradicated with chemotherapy? An evaluation of the Malta Leprosy Eradication Project. *Lepr Rev*. 2008 Dec; 79(4): 410-5.

The Malta Leprosy Eradication Project (MLEP) was proposed in 1971 by Freerksen with the aim of eradicating leprosy in Malta. The project involved re-treatment of all known cases in Malta as of 1972 and all new cases thereafter with a regimen consisting of Isoprodian (a combination of dapsone, prothionamide and isoniazid) and rifampicin for varying intervals depending on the severity of their disease and their response to treatment. Overall the response to therapy was excellent with an extremely low relapse rate. During the 30 years of the project the incidence of leprosy steadily decreased continuing a decline that had started at least two decades earlier and Freerksen declared the disease eradicated from Malta in 2001. Although given the long incubation period of leprosy cases may still be occasionally detected in the future, the disease has been basically eradicated at this time and there are no patients currently receiving treatment. This work was done at the leprosy clinic, Boffa Hospital, Floriana, Malta

Lahiri R, Krahenbuhl JL. The role of free-living pathogenic amoeba in the transmission of leprosy: a proof of principle. *Lepr Rev*. 2008 Dec; 79(4): 401-9.

Leprosy transmission remains poorly understood, though, prolonged skin contact and/or infection via nasal mucosa, are considered likely. Problematic in any transmission hypothesis is the fastidious nature of *Mycobacterium leprae* outside its host cell and the requirement for temporary survival in the environment, soil or water. Experiments were carried out to test the hypothesis that free living pathogenic amoeba might serve as host cells for *M. leprae*, protecting them from adverse environmental conditions. **DESIGN:** In this study we employed cultures of *Acanthamoeba castellanii*, a free-living pathogenic soil amoeba, to determine whether these protozoa can ingest *M. leprae* and whether the intracellular bacilli remain viable. **RESULTS:** More than 90% of cultured amoeba ingested *M. leprae* at a 20:1 multiplicity of infection while the infected amoebae

thrived and multiplied normally. The ingested *M. leprae* were not degraded and remained viable for at least 72 hours as determined by their metabolic activity (radiorespirometry) and cell wall integrity (viability staining). *M. leprae* isolated from infected amoebae multiplied at the same rate as freshly harvested bacilli in the foot pads of nu/nu mice. **CONCLUSIONS:** These findings provide proof of principle that free-living pathogenic amoebae are capable of ingesting and supporting the viability of *M. leprae* expelled into the environment. Studies are underway to determine whether *M. leprae*-infected *A. castellanii* and other pathogenic amoebae may also play a role in transporting leprosy bacilli through broken skin or the nasal mucosa

HANSENÍASE

Schoonbaert D, Demedts V. Analysis of the leprosy literature indexed in Medline (1950-2007). *Lepr Rev.* 2008 Dec; 79(4): 387-400.

Some 19 201 leprosy-related articles were identified in the Medline database for the period 1950-2007. These were analysed for distribution and evolution of a number of variables: publication years, languages, document types, journals, authors, major aspects and countries involved, and author addresses. Next to a number of tables presenting the actual results, some noteworthy trends and possible pitfalls in the interpretation of these results are discussed. The analysis shows that the number of leprosy-related articles peaked in the 1980s and has been in decline ever since, as well in absolute as in relative numbers. Coverage of non-English language literature has decreased far more strongly than that of English language articles. The scholarly input of a number of countries where the leprosy burden is the highest, such as India and Brazil, is clearly visible in the distribution of journals, authors, and for some, language, but this is certainly not the case for all countries afflicted

Mahlberg MJ, Levis WR. Lepromatous leprosy. *Dermatol Online J.* 2008 Oct 15;14(10): 27.

Lepromatous leprosy is a form of chronic granulomatous disease that is caused by infection with *Mycobacterium leprae*. Early involvement is marked by widespread, ill-

defined, erythematous papules and plaques. With early intervention, leprosy is a curable disease; however, if not recognized and treated promptly, permanent sequelae and disability result. We present a patient with long-standing lepromatous leprosy who exhibits many of these sequelae.

HANSENÍASE EXPERIMENTAL

Yogi Y, Fujimura T, Suzuki K. History for animal model of Hansen's disease and characteristics of leprosy in hypertensive nude rat. *Nihon Hansenbyo Gakkai Zasshi.* 2008 Sep; 77(3): 197-204.

The long search of an animal model for leprosy were carried out as many researchers since the *Mycobacterium leprae* discovery by Dr. Hansen in 1874. The remarkable results were left after the development of the foot-pad method by Dr. Shepard in 1960. The introduction of the T-R mouse and athymic (nude) mouse for leprosy research, also spontaneous examples of Hansen's disease was reported to armadillo, chimpanzee and mangabai monkey, and it was confirmed that Hansen's disease was the zoonosis. Although, we have established a congenic hypertensive nude rat, SHR/NCrj-rnu (SHR.F344-Foxn(rnu)), carrying nude (rnu) and hypertension genes. SHR/NCrj-rnu rats obtained showed high susceptibility to *M. leprae* and showed a characteristic disease with a progressive pattern of leproma formation. Also this hypertensive nude rat strain produce high level of IL-10. Therefore, congenic hypertensive nude rat may be useful for an animal model to leprosy.

Literatura corrente em hanseníase

HANSENÍASE/REUMATOLOGIA

Pereira HL, Ribeiro SL, Pennini SN, Sato EI. Leprosy-related joint involvement. *Clin Rheumatol*. 2009 Jan; 28(1): 79-84.

We estimate the prevalence and evaluate the clinical characteristics of leprosy related arthritis. One thousand, two hundred fifty-seven leprosy patients were attended at "Alfredo da Matta" outpatient clinic in the state of Amazonas, Brazil from July to October 2004. Among them, 115 patients were identified with articular pain and were referred for evaluation with rheumatologist. Blood samples were collected and radiological evaluation of the involved joints was performed. All patients with arthritis who continued to be followed up were reevaluated. One hundred fifteen leprosy patients (9.1%) were identified with articular involvement. The articular complaints were attributed to a defined rheumatic disease in 36 cases and excluded from further analysis. Twenty-four patients had arthralgia, and 55 (37 males and 18 females) had leprosy-related arthritis. The prevalence of arthritis was similar in both genders, and all patients with leprosy-related arthritis had lepromatous or borderline type. Most of patients had polyarticular and symmetrical arthritis and had completed the multidrug therapy and was under reaction treatment. The mean duration of articular symptoms at the time of study was 1.06 years (ranging from 5 days to 14 years). Ninety-one percent of patients with leprosy-related arthritis presented erythema nodosum leprosum or reversal reactions. Only five patients with arthritis had never presented reactions. Fifty percent of patients became asymptomatic during the mean 24 months of follow-up. Leprosy-related arthritis has a lower prevalence than previously reported. Most cases of leprosy-related arthritis were associated with reactional episodes, and in a large number of cases, the arthritis had a chronic course not responsive to the conventional therapy for reactions.

Pereira HL, Ribeiro SL, Sato EI. Rheumatic manifestations in leprosy. *Acta Reumatol Port*. 2008 Oct-Dec; 33(4): 407-14.

The classical manifestations of leprosy are cutaneous and neurological involvement; however, rheumatic manifes-

tations are relatively common during the course of the disease and can be the initial manifestation. Herein are reviewed the clinical features of leprosy, particularly those that may mimic rheumatic diseases.

HANSENÍASE / PREVENÇÃO

Enwereji EE, Enwereji KO. Disabled persons and HIV/AIDS prevention: a case study of deaf and leprosy persons in Nigeria. *East Afr J Public Health*. 2008 Aug; 5(2): 55-61.

OBJECTIVE(S): (i) To investigate factors and conditions that influence HIV/AIDS prevention among leprosy and deaf persons in leprosy settlements in Nigerian; (ii) to examine the extent to which the Government includes leprosy and deaf persons in HIV prevention programmes; (iii) To identify immediate needs of leprosy and deaf patients in settlements (iv) to determine possible areas for improving services so as to explore potential solutions. METHODS: Total sample of 227 inmates and 34 Health Care Workers were studied in three purposively selected settlements. Two intervention concepts, participatory reservation approach (PRA) and planned action (PLA) were utilized in the study. The concepts enabled researchers to examine factors that influenced provision of HIV/AIDS prevention programmes to inmates in settlements. Data collection instruments were questionnaire and focus group discussions for inmates and interview guides for Health Workers. Data were analysed qualitatively and quantitatively with the help of Stat Pac Gold package. RESULTS: Findings showed that there were no reproductive health and HIV prevention programmes in the settlements. There was lack of Governments' commitment to fund health programmes and to train Health Workers, as well as rejection, isolation, discrimination and discouragement of HIV/AIDS prevention programmes in settlements. There was poor knowledge of mode of transmission of HIV/AIDS among inmates. About 59 (53.6%) of inmates in Abia, and 60 (51.3%) in Oyo were not interested in voluntary counselling and sex education. Findings showed that inmates in the leprosy settlements were at risk of unprotected sex. About 99 (43.6%) in Oyo and 88 (38.8%) in Abia State, especially those who were single cohabited with opposite sexes to have babies in settlements (p =

003). CONCLUSION: Number of inmates that had babies in settlements justifies providing sex education, reproductive health and HIV/AIDS prevention programmes. This will assist in reducing HIV/AIDS prevalence among disabled persons in Nigeria.

HANSENÍASE / RECIDIVA

Desikan KV, Sundaresh P, Tulasidas I, Rao PV. An 8-12 year follow-up of highly bacillated Indian leprosy patients treated with WHO multi-drug therapy. *Lepr Rev.* 2008 Sep;79(3): 303-10.

OBJECTIVES: To follow up highly bacillated leprosy patients for a long period after release from treatment (RFT) and to look out for possibility of relapses. RESULTS: 660 patients with an initial bacterial positivity of 4 +, 5 + or 6 + who had undergone WHO multi-drug therapy and released from treatment, were followed up. The regularity of their treatment was kept high by close monitoring with home visits. They were reviewed twice, once 4 to 9 years after RFT and again 7 to 12 years after RFT. 516 patients were available in the second review. As per WHO definition, 5 patients were found to have relapsed, giving a relapse rate of 0.103 per 100 person years. This low relapse rate could be due to high regularity of treatment. CONCLUSION: With well supervised MDT and high regularity of treatment and proper consumption of drugs, relapse rate is very low.

Chakma JK, Girdhar A, Natrajan M, Kumar A, Girdhar BK. Two microbiological relapses in a patient with lepromatous leprosy. *Lepr Rev.* 2008 Sep; 79(3): 331-4.

A lepromatous patient treated with dapsone in the pre-MDT era to the point of smear negativity (> 6 years), relapsed 5 years after stopping treatment. He was then put on WHO-MDT for multibacillary (MB) leprosy, and was treated again; he had negative slit skin smears (3 years). He again presented with a relapse of leprosy 17 years after stopping treatment, and this time he presented with borderline leprosy in reaction.

Poojabylaiah M, Marne RB, Varikkodan R, Bala N, Dandakeri S, Martis J.

Relapses in multibacillary leprosy patients after multi-drug therapy. *Lepr Rev.* 2008 Sep; 79(3): 320-4.

To determine the magnitude of relapses in multibacillary leprosy patients after multi-drug therapy and to determine the factors influencing the relapse. DESIGN: A retrospective study pertaining to multibacillary leprosy patients treated with MBMDT as per WHO guidelines was carried out. The study included 300 MB patients who had successfully completed treatment during 1986-2002, of whom 163 patients were available for follow-up. Patients were examined clinically and bacteriologically to assess the present status of disease. RESULTS: A total of three cases relapsed at 2, 4 and 11 years after being released from treatment which gives a crude cumulative relapse rate of 1.84% for the 18 year period of follow-up with mean duration of follow-up 7.13 +/- 1.25 years. It also gives the total follow-up period of 1163 person-years with the relapse rate of 0.26/100 person-years of follow-up (95% confidence interval is 0.235-0.285). CONCLUSION: Relapse rate after WHO recommended MDT leprosy is low. High bacterial load before initiation of therapy is an important factor which determines the relapse.

IMUNOLOGIA

Costa RDM, Amaral V, Lyon S, Penido RA, Costa AMDD, Costa MD, et al. Avaliação da expressão de interleucina 1 beta (IL-1 beta) e antagonista do receptor de interleucina 1 (IL-1Ra) em pacientes com hanseníase. *Rev. Soc. Bras. Med. Trop* 2008; 41(supl.2):99-103.

A hanseníase é uma doença infectocontagiosa espectral que acompanha-se por uma série de eventos imunológicos desencadeados pela resposta do hospedeiro frente ao agente etiológico, o *Mycobacterium leprae*. Evidências sugerem que a indução e manutenção da resposta imune/inflamatória na hanseníase estão vinculadas a interações de múltiplas células e fatores solúveis, particularmente através da ação de citocinas. Nesse estudo, foram mensurados níveis de IL-1 β e IL-1Ra de 37 casos novos de hanseníase acompanhados ao longo do tratamento e 30 controles sadios pelo teste ELISA. A coleta de sangue periférico foi realizada em quatro tempos para os casos de hanseníase (pré-tratamento com PQT, 2ª dose, 6ª dose e pós-PQT) e em único momento para os controles. Na comparação dos níveis das moléculas de casos no pré-PQT e controles, houve diferença estatisticamente significativa somente para IL-1 β . Nossos resultados sugerem a participação dessa citocina no processo imune/inflamatório.(AU)

Mendonça VA, Melo GEBA, Teixeira MM; Martins-Filho OA, Antunes CM, Teixeira AL. Análise de receptores de quimiocinas na superfície de leucócitos circulantes de indivíduos infectados pelo *Mycobacterium leprae*: resultados preliminares. *Rev. Soc. Bras. Med. Trop.* 2008; 41(supl.2):95-8.

Neste estudo, a expressão de receptores de quimiocinas na superfície dos leucócitos circulantes foi feita pela citometria de fluxo. Houve aumento da porcentagem de linfócitos CCR2+CD4+ no sangue periférico dos pacientes com hanseníase. Este resultado preliminar sugeriu alteração do perfil dos receptores de quimiocinas desses pacientes.

Stefani MMA. Desafios na era pós genômica para o desenvolvimento de testes laboratoriais para o diagnóstico da hanseníase. *Rev. Soc. Bras. Med. Trop* 2008; 41(supl.2):89-94

O diagnóstico da hanseníase se baseia em manifestações clínicas e não existe teste laboratorial para diagnosticar casos assintomáticos ou para prever progressão da doença entre indivíduos expostos. Novas análises genômicas comparativas in silico e ferramentas de biologia molecular têm sido empregadas para revelar proteínas exclusivas do *Mycobacterium leprae* que apresentem potencial aplicação diagnóstica. A hanseníase tuberculóide paucibacilar (PB) apresenta baixo nível de anticorpos e forte resposta imune celular (RIC) tipo Th1/interferon gamma (IFN- γ). A doença lepromatosa multibacilar (MB) apresenta sorologia positiva e fraca RIC. Portanto, testes laboratoriais para diagnosticar hanseníase PB e MB devem contemplar testes de RIC e sorologia. Proteínas recombinantes do *Mycobacterium leprae* sorologicamente reativas podem ser incorporadas ao antígeno PGLI para melhorar o diagnóstico sorológico de pacientes MB. Proteínas recombinantes e peptídeos sintéticos do *Mycobacterium leprae* têm sido testados em ensaios de RIC/IFN- γ para diagnosticar casos PB. Sorologia anti-PGLI modificada incorporando novos antígenos do *Mycobacterium leprae* e ensaios baseados na RIC/produção de IFN- γ devem permitir a detecção precoce de casos MB e PB em países endêmicos.(AU)

Bührer-Sékula S, van Beers S, Oskam L, Lecco R, Madeira ES, Dutra MAL, et al. A relação entre soroprevalência de anticorpos contra o glicolípido fenólico-I entre crianças em idade escolar e endemicidade da hanseníase no Brasil. *Rev. Soc. Bras. Med. Trop* 2008; 41(supl.2):81-8.

Os programas de controle da hanseníase se beneficiariam de um método fácil para estimar prevalência e avaliar o impacto das ações de controle na prevalência da doença. A determinação da soroprevalência de anticorpos contra PGL-I através de estudos com crianças em idade escolar foi sugerida como indicador útil da taxa de prevalência da hanseníase a nível municipal. Para investigar se a

soropositividade estaria associada aos coeficientes de detecção da hanseníase e se poderia ser usada como indicador da prevalência em outras áreas, 7.073 crianças em três estados endêmicos de hanseníase no Brasil foram testadas. Resultados mostram uma considerável variação da distribuição de soropositividade nas comunidades, independente do número de casos de hanseníase detectados. A soroprevalência foi significativamente menor nos colégios. Nenhuma diferença na distribuição da soropositividade determinada por ELISA ou dipstick foi observada. Nenhuma correlação entre o coeficiente de detecção da hanseníase e soropositividade pôde ser estabelecida.(AU).

Ferreira IN, Ferreira ILCSN, Evangelista MSN, Alvarez RRA. Uso do teste ML Flow em escolares diagnosticados com hanseníase no município de Paracatu, Minas Gerais. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):77-80.

A detecção da hanseníase no município de Paracatu é elevada em menores de quinze anos, abrangendo cerca de 6,8/10.000 hab. em 2003 e é classificada como hiperendêmica. O estudo objetiva analisar a aplicação do teste sorológico do PGL-1 (ML Flow) em 56 de 68 pacientes escolares da rede pública, diagnosticados com hanseníase através da busca ativa de casos no município de Paracatu - MG (2004 a 2006), sendo 71%, paucibacilares. Cerca de 85,2% dos pacientes residiam na área urbana, 55,8% eram do sexo feminino e a doença predominava no grupo de 10 a 14 anos (IC95%:0,49-0,89%) e $\chi^2=7,376$, sendo que 15 (26,7%) com resultado do ML Flow positivo. Cinco pacientes tinham incapacidades do Grau 1, da forma clínica Dimorfa (40% ML Flow positivo). O percentual de casos de hanseníase entre os contatos intradomiciliares foi de 46,4%, sendo que 44,9% deles com resultado do teste do ML Flow positivo. O estudo sugere incorporar o teste ML Flow nos serviços de saúde, uma vez que o mesmo auxilia na classificação operacional da doença, controle de contatos intradomiciliares com resultado do teste positivo, visando à detecção precoce dos casos suspeitos de hanseníase.

Deps PD, Antunes JMAP, Faria C, Bühler-Sékula S, Camargo ZP, Opromola DV, et al. Pesquisa de anticorpos anti PGL-I através de ELISA em tatus selvagens do Brasil. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):73-6.

Tatus têm sido envolvidos na transmissão da hanseníase e considerados como fonte de *Mycobacterium leprae* em muitas publicações. Médicos de partes dos EUA consideram o contato com tatus um fator de risco para hanseníase. Entretanto, há um desafio associado ao papel do tatu na perpetuação da hanseníase no Continente Americano. Foi pesquisada a presença de anticorpos anti-PGL-I em tatus selvagens de áreas endêmicas em hanseníase do Estado do Espírito Santo, Brasil, através de ELISA realizado em amostras de soro de 47 animais. Elisa positivo foi encontrado em 5 (10,6%) tatus. Tatus infectados podem ter algum papel na transmissão da hanseníase disseminando bacilos no meio ambiente, talvez tornando mais difícil a interrupção da cadeia de transmissão e redução do número de casos novos de hanseníase. A técnica de ELISA é um eficiente método para investigação soropidemiológica da presença do *Mycobacterium leprae* em tatus.(AU).

Brito MFM, Ximenes RAA, Gallo MEN, Bühler-Sékula S. Associação entre reação hansênica após alta e a carga bacilar avaliada utilizando sorologia anti PGL-I e baciloscopia. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):67-72.

As reações hansênicas são fenômenos imuno inflamatórios que ocorrem durante a evolução da hanseníase. Atualmente com os critérios de finalização de tratamento esta intercorrência pode ser observada após a alta da poliquimioterapia. Trata-se de um estudo caso-controle onde foram comparados, laboratorialmente, os casos de reação hansênica após alta da poliquimioterapia multi-bacilar (PQT/MB) com o grupo controle para analisar a possível associação entre a reação hansênica após alta e a carga bacilar, utilizando o ML Flow, teste sorológico para detecção de anticorpos contra o *Mycobacterium leprae*, e os resultados das baciloscopias cutâneas. O estudo foi realizado em dois serviços de referência na cidade de Recife - Pernambuco - Brasil, onde participaram 208

pacientes. Os resultados encontrados indicam que a reação após alta está estatisticamente associada à carga bacilar através da positividade do teste sorológico após alta. Conclui-se que existem fatores de riscos comuns entre a recidiva e a reação após alta.(AU).

Ferreira MAA, Antunes CMF. Fatores associados à soropositividade do teste ML Flow em pacientes e contatos de pacientes com hanseníase menores de 18 anos. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2): 60-6.

Estudo transversal em menores de 18 anos, sendo 115 casos novos de hanseníase e 1.011 contatos intradomiciliares. Determinaram-se as proporções da soropositividade do ML Flow e fatores associados ao teste positivo. Observou-se soropositividade em 21,7% dos pacientes e 19,7% dos contatos. Nos pacientes, a regressão logística indicou associação com baciloscopia positiva e número de lesões cutâneas maior que cinco. A análise por árvore de decisão mostrou associação com baciloscopia, classificação de Madri, número de nervos acometidos e idade. Nos contatos, as duas análises indicaram as mesmas associações: classificação do caso-índice, idade e tipo de serviço de saúde. As variáveis que explicaram melhor a soropositividade, em menores de 18 anos, são aquelas associadas à maior carga bacilar. Assim, o teste ML Flow poderia ser utilizado também na infância para ajudar na correta classificação dos pacientes para tratamento e na identificação dos contatos com maior risco de desenvolver hanseníase (AU).

Andrade ARC, Grossi MAF, Bühner-Sékula S, Antunes CMF. Soroprevalência do teste ML Flow em contatos de hanseníase de Minas Gerais. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):56-9.

A hanseníase é um problema de saúde pública no Brasil. As ações de controle estão baseadas no diagnóstico e tratamento dos indivíduos doentes e na vigilância de seus contatos. Os testes sorológicos permitem identificar, entre os contatos, aqueles com maior risco de desenvolver hanseníase. O ML Flow foi utilizado em 2.840 contatos intradomiciliares de casos novos de hanseníase,

diagnosticados entre outubro de 2002 e março de 2004, em Minas Gerais. O ML Flow foi positivo em 20,5% dos contatos de hanseníase, sendo maior nos contatos do sexo masculino (22,4%), nos maiores de 15 anos (21,7%), nos contatos de doentes multibacilares (23,9%). A chance de um contato ser soropositivo foi maior se convivia com caso multibacilar (OR=1,75), idade superior a 15 anos (OR=1,38) e sexo masculino (OR=1,25). O acompanhamento desses contatos permitirá, no futuro, avaliar o risco que a soropositividade representa no desenvolvimento de hanseníase.

Barreto JÁ, Nogueira MÊS, Diorio SM, Bühner-Sékula S. Sorologia rápida para hanseníase (teste ML Flow) em pacientes dimorfos classificados como paucibacilares pelo número de lesões cutâneas: uma ferramenta útil. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):45-7.

A hanseníase ainda é doença endêmica no Brasil, com cerca de 40.000 novos casos por ano. Devido à dificuldade na realização de exames laboratoriais em campo, classifica-se a forma clínica contando-se lesões, o que pode causar subdiagnóstico de casos multibacilares e falha terapêutica. Para avaliar uma nova ferramenta para diagnóstico de hanseníase multibacilar, o teste ML Flow, foi realizado em 21/77 (27,3%) pacientes com hanseníase dimorfa (6 DV e 15 DT) não tratados, com até cinco lesões de pele, avaliados de acordo com a classificação de Ridley & Jopling (R&J). O teste ML Flow foi positivo em 14/21 (66,6%) pacientes (4 DV e 10 DT); em 7/21 (33,3%) pacientes (5 DT e 2 DV) o resultado foi negativo. A classificação da hanseníase baseada somente na contagem de lesões pode falhar em diagnosticar casos MB. O ML Flow é ferramenta útil no diagnóstico de hanseníase dimorfa com até cinco lesões cutâneas.(AU).

Grossi MAF, Leboeuf MAA, Andrade ARC, Bühner-Sékula S, Antunes CMF.

Fatores de risco para a soropositividade do ML Flow em pacientes com hanseníase. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):39-44.

O diagnóstico precoce da hanseníase, a correta classificação e o estudo dos fatores de risco relacionados à

soropositividade, tornam-se importantes para o tratamento do doente e controle da endemia, especialmente, quando a responsabilidade pelo atendimento desses pacientes está sendo absorvida pelos serviços de atenção básica. Estudo descritivo e exploratório utilizando regressão logística avaliou a associação das variáveis: sexo, idade, modo de detecção, número de lesões cutâneas e de nervos acometidos, grau de incapacidade, baciloscopia, com o resultado do teste sorológico ML Flow, em 1.072 casos novos com hanseníase em 13 municípios de Minas Gerais. A soropositividade (50,7%) estava estatisticamente associada aos pacientes com 15 anos ou mais de idade (OR:2,6), mais de cinco lesões cutâneas (OR:7,5), mais de um nervo acometido (OR:2,4) e com baciloscopia positiva (OR:5,5 para $IB < 2$ e OR:191,2 para $IB > 2$), colaborando, assim, com a classificação e o tratamento adequados dos doentes.

Grossi MAF, Leboeuf MAA, Andrade ARC, Lyon S, Antunes CMF, Bühner-Sékula S. A influência do teste sorológico ML Flow na classificação da hanseníase. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):34-8.

Estudo descritivo e exploratório correlacionando o ML Flow, a baciloscopia e a classificação em paucibacilar (PB) e multibacilar (MB), envolveu 1.041 casos novos com hanseníase em 13 municípios de Minas Gerais, de outubro de 2002 a março de 2004. A concordância entre o ML Flow e a classificação pelo número de lesões cutâneas e a baciloscopia foi moderada (Kappa:0,51 e 0,48, respectivamente) e, substancial (Kappa:0,77) com a classificação final. De janeiro de 2000 a março de 2004, a proporção de casos novos MB no Estado, passou de 78,1 para 65,8%. A queda no percentual de MB foi maior nos serviços participantes da pesquisa ML Flow (73,1 para 53,3%). A diferença de PB e MB nos serviços participantes e não participantes, de janeiro a março de 2004, foi estatisticamente significativa, indicando implicação direta e benéfica no tratamento e no controle da endemia em Minas Gerais.

Lyon S, Silva RC, Lyon AC, Grossi MAF, Lyon SH, Azevedo ML et al. Associação do teste sorológico ML Flow

com a baciloscopia. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):23-6.

Realizou-se estudo descritivo e exploratório relacionando as covariáveis aos resultados do teste sorológico ML Flow e baciloscopia. Foram estudados 60 casos novos de hanseníase diagnosticados no Centro de Referência em Dermatologia Sanitária. Para a baciloscopia, foi utilizada a coleta de esfregaço dérmico em quatro sítios, sendo o resultado expresso pelo índice baciloscópico. O ML Flow foi registrado de modo qualitativo e semi-quantitativo. Para o estudo da concordância, foi utilizado o índice de Kappa e, para sua interpretação, os critérios de Landis e Koch. Para análise estatística foram realizadas a regressão logística e o teste de Kruskal-Wallis. O ML Flow mostrou forte associação com a baciloscopia, observou-se que o aumento gradativo do índice baciloscópico foi acompanhado pelo aumento semi-quantitativo dos níveis de anticorpos medidos pelo ML Flow, tendo sido positivo em 100% dos casos com baciloscopia positiva. Os resultados deste estudo evidenciaram que o ML Flow, por estar fortemente correlacionado à baciloscopia, poderá tornar-se um valioso instrumento auxiliar na classificação e alocação dos pacientes para fins de tratamento.

Silva RC, Lyon S, Araos R, Lyon AC, Grossi MAF, Lyon SH, et al. Comportamento dos testes sorológicos ML Flow e ELISA (PGL-I) em áreas endêmica e não endêmica de hanseníase. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):19-22.

O ML Flow e o ELISA PGL-I são testes sorológicos que detectam anticorpos IgM contra o glicolípido fenólico I específico do *Mycobacterium leprae*. Para avaliar o comportamento destes testes em áreas endêmica e não endêmica para hanseníase foram estudados 351 voluntários no Brasil e no Chile, incluindo pacientes com hanseníase, controles sadios, portadores de outras doenças infecciosas, não infecciosas e dermatoses que fazem diagnóstico diferencial com hanseníase. O ponto de corte do ELISA foi estabelecido pelo método da Curva ROC ($> 0,157$). Em área endêmica, o ML Flow apresentou resultados positivos em 70 por cento dos pacientes com hanseníase; o ELISA foi positivo em 53,3%. Em área não

endêmica, o ML Flow foi negativo em todos os voluntários testados; o ELISA foi positivo em 4 voluntários. O ML Flow é um ensaio mais rápido, facilmente aplicável e, portanto, mais adequado para ser utilizado na Atenção Básica; o ELISA necessita, além de uma infra-estrutura de laboratório adequada, pessoal treinado e especializado em sua execução.

Moura RS, Calado KL, Oliveira MLW, Bühner-Sékula S. Sorologia da hanseníase utilizando PGL-I: revisão sistemática. Rev. Soc. Bras. Med. Trop 2008; 41(supl.2):11-18.

A sorologia utilizando o antígeno espécie-específico do *Mycobacterium leprae*, PGL-I, pode ser um marcador de carga bacteriana em pacientes com hanseníase. Estudos identificaram potencial de uso da sorologia na classificação de pacientes para fins de tratamento, monitoramento de terapia, risco de recidiva e na seleção dos contatos com maior risco de adoecer. Foi realizada uma revisão sistemática e 26 artigos foram incluídos na análise comparativa. Avaliamos os resultados do uso da sorologia PGL-I em diferentes situações, suas limitações e possíveis aplicações. Estudos mostraram eficácia da sorologia PGL-I na classificação de pacientes, monitoramento da terapia, e nas reações hansênicas como teste preditivo. Para diagnóstico precoce e seguimento de população de alto risco, as metodologias utilizadas ainda não demonstraram custo-benefício favorável, porém estudos indicam que a utilização do teste poderá influenciar positivamente nos programas de controle da hanseníase. Com técnicas simples e robustas, o uso da sorologia PGL-I é viável.

Düppre NC, Camacho LA, Cunha SS, Struchiner CJ, Sales AM, Nery JA, et al. Effectiveness of BCG vaccination among leprosy contacts: a cohort study. Trans R Soc Trop Med Hyg. 2008 Jul; 102(7): 631-8.

The study assessed the effectiveness of BCG vaccination against leprosy among the contacts of 1161 leprosy patients at the FIOCRUZ Leprosy Outpatient Clinic, RJ, Brazil, from June 1987 to December 2006. Following

National Leprosy Program guidelines, the clinic has administered one-to-two doses to all healthy contacts since 1991. Among the 5680 contacts, 304 (5.4%) already had leprosy. Of the 5376 eligible healthy contacts, 3536 were vaccinated, 30 of whom were excluded due to previous or current tuberculosis, or HIV. In 18 years of follow up, 122 (2.15%) incident cases were diagnosed (58 vaccinated and 64 not), 28 occurring in the first year of follow up (21 vaccinated, 16 with no scar). The protection conferred by BCG was 56% and was not substantially affected by previous BCG vaccination (50% with a scar and 59% without). The risk of tuberculoid leprosy during the initial months was high among those vaccinated with no scar. However, it had substantially declined by the first year and in the following years, when the protection rate in this group reached 80%. Since Brazil is endemic for leprosy and the detection rate is not declining satisfactorily, vaccinating all contacts could be an effective means of substantially reducing the incidence of leprosy.

Quesada-Pascual F, Jimenez-Flores R, Flores-Langarica A, Silva-Sanchez A, Calderon-Amador J, Mendez-Cruz R. Characterization of langerhans cells in epidermal sheets along the body of Armadillo (*Dasypus novemcinctus*). Vet Immunol Immunopathol. 2008 Aug 15; 124(3-4): 220-9.

Armadillos are apparently important reservoirs of *Mycobacterium leprae* and an animal model for human leprosy, whose immune system has been poorly studied. We aimed at characterizing the armadillo's langerhans cells (LC) using epidermal sheets instead of tissue sections, since the latter restrict analysis only to cut-traversed cells. Epidermal sheets by providing an en face view, are particularly convenient to evaluate dendritic morphology (cells are complete), spatial distribution (regular vs. clustered), and frequency (cell number/tissue area). Lack of anti-armadillo antibodies was overcome using LC-restricted ATPase staining, allowing assessment of cell frequency, cell size, and dendrites extension. Average LC frequency in four animals was 528 LC/mm², showing a rather uniform non-clustered distribution, which increased towards the animal's head, while cell size increased towards the tail; without overt differences

between sexes. The screening of antibodies to human DC (MHC-II, CD 1a, langerin, CD86) in armadillo epidermal sheets, revealed positive cells with prominent dendritic morphology only with MHC-II and CD86. This allowed us to test DC mobilization from epidermis into dermis under topical oxazolone stimulation, a finding that was corroborated using whole skin conventional sections. We hope that the characterization of armadillo's LC will incite studies of leprosy and immunity in this animal model.

Deps PD, Lockwood DN. Leprosy occurring as immune reconstitution syndrome. *Trans R Soc Trop Med Hyg.* 2008 Oct; 102(10): 966-8

Immune reconstitution inflammatory syndrome (IRIS) may occur in HIV-infected patients after starting highly active antiretroviral therapy (HAART). Since 2003, 19 cases were published as IRIS. Leprosy has been reported as an example of an IRIS, and it is important that this syndrome should be recognized in leprosy-endemic areas. The case definition of leprosy as IRIS is based on clinical presentation of leprosy, evidence of immune restoration and timing of onset. Case definition should include the following: (1) leprosy and/or leprosy type 1 reaction presenting within six months of starting HAART; (2) advanced HIV infection; (3) low CD4+ count before start HAART; (4) CD4+ count increasing after HAART has been started. Although pathogenic mechanisms are still unclear, it is likely that leprosy-associated IRIS will be increasingly reported in those countries endemic for both diseases and as access to HAART becomes more widely available.

Lopez Roa RI, Guerrero Velásquez C, Alvarado Navarro A, Montoya Buelna M, Garcia Niebla C, Fafutis MM. Recovery of IFN-gamma levels in PBMCs from lepromatous leprosy patients through the synergistic actions of the cytokines IL-12 and IL-18. *Int Immunopharmacol.* 2008 Dec 20; 8(13-14): 1715-20.

The shift to the production of a Th1 cytokine profile during an intracellular infection has been shown to depend on antigen presenting cells-derived IL-12 and T-

cell-derived IFN-gamma production. IL-18 facilitates Th1 priming in synergy with IL-12 through the stimulation of IFN-gamma production by T cells, B cells, NK cells, macrophages and DCs. A low level of IFN-gamma production in PBMC cultures from lepromatous leprosy patients (LL) has been previously reported by several groups. We evaluated the synthesis of this cytokine after exogenous addition of recombinant IL-12 and IL-18 (IL12/IL18) in order to induce recovery of the IFN-gamma levels with *Mycobacterium leprae* antigenic stimulation. The aim of this study was to investigate if exogenous addition of IL12/IL18 to PBMC cell cultures in the presence of *M. leprae* antigens could induce recovery of IFN-gamma levels. We found that IFN-gamma levels in PBMCs cultured from LL patients were reestablished after exogenous addition of exogenous IL12/IL18 and we also observed a diminished IL-18R expression. Although the molecular mechanisms of IL12/IL18 synergy have not been clearly elucidated, we assume that recombinant cytokines can activate several transcription factors that induce IFN-gamma synthesis.

Duthie MS, Ireton GC, Kanaujia GV, Goto W, Liang H, Bhatia A. Selection of antigens and development of prototype tests for point-of-care leprosy diagnosis. *Clin Vaccine Immunol.* 2008 Oct; 15(10): 1590-7.

Leprosy can be a devastating chronic infection that causes nerve function impairment and associated disfigurement. Despite the recent reduction in the number of registered worldwide leprosy cases as a result of the widespread use of multidrug therapy, the number of new cases detected each year remains relatively stable. The diagnosis of leprosy is currently based on the appearance of clinical signs and requires expert clinical, as well as labor-intensive and time-consuming laboratory or histological, evaluation. For the purpose of developing an effective, simple, rapid, and low-cost diagnostic alternative, we have analyzed the serologic antibody response to identify *Mycobacterium leprae* proteins that are recognized by leprosy patients. More than 100 recombinant antigens were analyzed in a protein array format to select those with discriminatory properties for leprosy diagnosis. As expected, multibacillary leprosy patients recognized more antigens with stronger an-

tibody responses than paucibacillary leprosy patients. Our data indicate, however, that multibacillary patients can be distinguished from paucibacillary patients, and both of these groups can be segregated from endemic control groups. We went on to confirm the diagnostic properties of antigens ML0405 and ML2331 and the LID-1 fusion construct of these two proteins by enzyme-linked immunosorbent assay. We then demonstrated the performance of these antigens in rapid test formats with a goal of developing a point-of-care diagnostic test. A serological diagnostic test capable of identifying and allowing treatment of leprosy could reduce transmission, prevent functional disabilities and stigmatizing deformities, and facilitate leprosy eradication.

Franceschi DS, Mazini PS, Rudnick CC, Sell AM, Tsuneto LT, Melo FC. Association between killer-cell immunoglobulin-like receptor genotypes and leprosy in Brazil. *Tissue Antigens*. 2008 Nov; 72(5): 478-82.

The aim of this study was to investigate the role of killer cell immunoglobulin-like receptor (KIR) genes in leprosy immunopathogenesis. Genotyping of KIR and human leukocyte antigen (HLA) genes was performed by polymerase chain reaction with sequence-specific oligonucleotide probes in 165 leprosy patients. Both activating KIR2DS2 and KIR2DS3 frequencies were higher in tuberculoid leprosy (TT) patients than in lepromatous leprosy (LL) patients, and the inhibitory KIR with its ligand, KIR2DL1-C2/C2, was elevated in TT patients in comparison to all other leprosy subgroups and controls. However, a negative association between KIR2DL3-C1 and KIR2DL3-C1/C1 and the TT group was identified. Borderline patients exhibited a higher frequency of KIR3DL2-A3/11 than the controls and LL patients, and a lower frequency of KIR2DL1-C2 than the controls and TT subgroup. Some KIR-HLA genotypes could be associated to the development of clinical forms of leprosy and should be investigated further.

Rudeeaneksin J, Srisungngam S, Sawanpanyalert P, Sit-tiwakin T, Likanonsakul S, Pasadorn S, et al. LightCycler real-time PCR for rapid detection and quantitation of *Mycobacterium leprae* in skin specimens. *FEMS Immunol Med Microbiol*. 2008 Nov; 54(2): 263-70.

Diagnosis of leprosy is usually based on clinical features and skin smear results including the number of skin lesions. *Mycobacterium leprae* is not cultivable and bacterial enumeration by microscopic examination is required for leprosy classification, choice in choosing and monitoring chemotherapy regimens, and diagnosis of relapse. However, detection and quantification using standard microscopy yields results of limited specificity and sensitivity. We describe an extremely sensitive and specific assay for the detection and quantification of *M. leprae* in skin biopsy specimens. Primers that amplified a specific 171-bp fragment of *M. leprae* 16S rRNA gene were chosen and specificity was verified by amplicon melting temperature. The method is sensitive enough to detect as low as 20 fg of *M. leprae* DNA, equivalent to four bacilli. The assay showed 100% concordance with clinical diagnosis in cases of multibacillary patients, and 50% of paucibacillary leprosy. The entire procedure of DNA extraction and PCR could be performed in c. 3 h. According to normalized quantitative real-time PCR, the patients in this study had bacilli numbers in the range of $1.07 \times 10(2)$ - $1.65 \times 10(8)$ per 6-mm³ skin biopsy specimen. This simple real-time PCR assay is a facile tool with possible applications for rapid detection and simultaneous quantification of leprosy bacilli in clinical samples.

Duthie MS, Goto W, Ireton GC, Reece ST, Sampaio LH, Grassi AB. Antigen-specific T-cell responses of leprosy patients. *Clin Vaccine Immunol*. 2008 Nov; 15(11): 1659-65

The identification of human T-cell antigens of *Mycobacterium leprae* could improve treatment and help to disrupt the transmission of leprosy by directing diagnosis and vaccine programs. This study screened a panel of *M. leprae* recombinant proteins for T-cell recall responses, measured by gamma interferon (IFN-gamma) production, among leprosy patients. After initial studies

using peripheral blood mononuclear cells from leprosy patients, we transitioned our studies to simple whole-blood assays (WBA), which are more applicable in field or clinical settings. T-cell responses generated in WBA using blood from individuals in Goiânia, Brazil, demonstrated that several *M. leprae* antigens (ML0276, ML0840, ML1623, ML2044, and 46f) elicited >0.5 IU/ml IFN-gamma, and these proteins were classified as immunogenic and leprosy specific. Several of these individual antigens were recognized by cells from >60% of Brazilian paucibacillary (PB) leprosy patients, and ML0276, ML0840, ML1623, and 46f complemented each other such that 82% of PB patients had strong (>1.25 IU/ml IFN-gamma) responses to at least one of these proteins. These proteins were also recognized by cells from a significant proportion of the household contacts of multibacillary leprosy patients, but in contrast, few responses were observed in active tuberculosis patients or healthy control groups from areas of endemicity. Our results indicate several potential candidate antigens which may be useful for either leprosy diagnosis or vaccination and demonstrate the utility of leprosy WBA that can be applied broadly in clinical or field settings.

Kai M, Nguyen Phuc NH, Hoang Thi TH, Nguyen AH, Fukutomi Y, Maeda Y, et al. Serological diagnosis of leprosy in patients in vietnam by enzyme-linked immunosorbent assay with *Mycobacterium leprae*-derived major membrane protein II. Clin Vaccine Immunol. 2008 Dec; 15(12): 1755-9.

A serological diagnostic test using phenolic glycolipid-I (PGL-I) developed in the 1980s is commercially available, but the method is still inefficient in detecting all forms of leprosy. Therefore, more-specific and -reliable serological methods have been sought. We have characterized major membrane protein II (MMP-II) as a candidate protein for a new serological antigen. In this study, we evaluated the effectiveness of the enzyme-linked immunosorbent assay (ELISA) using the MMP-II antigen (MMP-II ELISA) for detecting antibodies in leprosy patients and patients' contacts in the mid-region of Vietnam and compared the results to those for the PGL-I method (PGL-I ELISA). The results showed that 85% of multibacillary patients

and 48% of paucibacillary patients were positive by MMP-II ELISA. Comparison between the serological tests showed that positivity rates for leprosy patients were higher with MMP-II ELISA than with PGL-I ELISA. Household contacts (HHCs) showed low positivity rates, but medical staff members showed comparatively high positivity rates, with MMP-II ELISA. Furthermore, monitoring of results for leprosy patients and HHCs showed that MMP-II is a better index marker than PGL-I. Overall, the epidemiological study conducted in Vietnam suggests that serological testing with MMP-II would be beneficial in detecting leprosy.

Lahiri R, Sandoval FG, Krahenbuhl JL, Shannon EJ. Activation of complement by *Mycobacterium leprae* requires disruption of the bacilli. Lepr Rev. 2008 Sep;79(3): 311-4.

OBJECTIVE: The immune-mediated events that precipitate erythema nodosum leprosum (ENL) are not well understood. One component may be the complexing of antibody with antigens released from infected macrophages, the activation of complement and the subsequent local inflammation. We assess here the ability of highly-purified, disrupted *M. leprae*, to activate complement. **RESULTS:** Intact and sonically-disrupted crude and alkali-purified nu/nu mouse-derived *M. leprae* suspensions were incubated with normal serum and a hemolytic titer (CH50) was determined as a measure of complement fixation. Crude *M. leprae* consumed complement, and disrupted preparations more than the intact. Purified *M. leprae* preparations did not consume complement unless disrupted. **CONCLUSION:** *M. leprae*, if disrupted, can activate complement. This supports a hypothesis that links released antigens with ENL, and may explain the increased probability of an occurrence of ENL following chemotherapy.

LABORATÓRIO CLÍNICO / DIAGNÓSTICO

Teixeira AC, Cruvinel DL, Roma FR, Luppino LF, Resende LHP, Sousa T, et al. Avaliação da concordância entre exames clínicos e laboratoriais no diagnóstico da hanseníase. *Rev. Soc. Bras. Med. Trop* 2008; 41(supl.2):48-5.

Este estudo avaliou a concordância entre o diagnóstico clínico e o diagnóstico laboratorial da hanseníase, utilizando os resultados de biópsias dos laboratórios A e B e o teste ML-Flow. A concordância diagnóstica clínico-histopatológica foi de 67,6%. Os laboratórios apresentaram um índice de concordância de 73,7% em relação ao índice baciloscópico, e o laboratório B detectou 25,4% a mais de casos positivos. A maior concordância foi obtida para a forma V, e a menor para a forma I. A maior discrepância diagnóstica ocorreu para a forma DD. A concordância clínico-laboratorial foi de 41,3% para o laboratório A e 54% para o B. O teste ML-Flow reclassificou 10,7% dos pacientes. A classificação espectral é importante para o melhor entendimento da doença e para seu tratamento adequado, mas não é utilizada em centros de saúde, que adotam os critérios simplificados da OMS, que poderiam ser complementados pelo teste ML-Flow. Tal simplificação é inaceitável para os Centros de Referência em assistência, ensino e pesquisa em hanseníase, de modo que é recomendada a padronização pela classificação de Ridley-Jopling.(AU)

Pontes ARB, Almeida MGC, Xavier MB, Quaresma JAS, Yassui EA. Detecção do DNA de *Mycobacterium leprae* em secreção nasal. *Rev. bras. enferm* 2008 nov; 61(spe):734-7.

Estudos têm demonstrado alta sensibilidade da técnica da reação em cadeia de polimerase (PCR) na identificação do DNA do *Mycobacterium leprae*. Este estudo objetivou avaliar a sensibilidade da PCR na detecção do DNA do *M. leprae* em "swab" nasal de pacientes hansenianos e comparar os resultados com a baciloscopia e formas multibacilares (MBs) e paucibacilares (PBs). Foram coletadas amostras de secreção nasal de 24 pacientes hansenianos, conservadas em solução de lise um e dois. Os resultados da PCR foram altamente significativos ($p < 0.0000$)

e revelaram maior sensibilidade do que a baciloscopia, nas diversas formas clínicas. Contudo, são necessários ainda outros estudos, testando novos marcadores e conservantes, com o intuito de elevar a sensibilidade dessa técnica, em amostras de secreção nasal.

Pontes AR, Almeida MG, Xavier MB, Quaresma JA, Yassui EA. Detection of *Mycobacterium leprae* DNA in nasal swab. *Rev Bras Enferm.* 2008; (61): 734 -7.

Studies have demonstrated high sensibility of the polymerase chain reaction (PCR) technique in the identification of the *Mycobacterium leprae* DNA. This study aimed to evaluate the PCR sensibility at the detection of the *M. leprae* DNA in nasal swab of leprosy patients and to compare the results with the bacilloscopy and multibacillary (MBs) and paucibacilares (PBs) forms. Nasal secretion samples of 24 leprosy patients were collected, and were preserved in one and two lise's solution. The PCR results were highly significant ($p < 0.0000$) and they revealed greater sensibility than bacilloscopy, in several clinical forms. Nevertheless, still different studies are necessary, testing new markers and preservatives, with the purpose of lifting up the sensibility of this technique, in nasal secretion samples.

Cruz D, Watson AD, Miller CS, Montoya D, Ochoa MT, Sieling PA, et al. Host-derived oxidized phospholipids and HDL regulate innate immunity in human leprosy. *J Clin Invest.* 2008 Aug; 118(8): 2917-28.

Intracellular pathogens survive by evading the host immune system and accessing host metabolic pathways to obtain nutrients for their growth. *Mycobacterium leprae*, the causative agent of leprosy, is thought to be the mycobacterium most dependent on host metabolic pathways, including host-derived lipids. Although fatty acids and phospholipids accumulate in the lesions of individuals with the lepromatous (also known as disseminated) form of human leprosy (L-lep), the origin and significance of these lipids remains unclear. Here we show that in human L-lep lesions, there was preferential expression of host lipid metabolism genes, including a group of phospholipases, and that these genes were virtually absent from the my-

cobacterial genome. Host-derived oxidized phospholipids were detected in macrophages within L-lep lesions, and 1 specific oxidized phospholipid, 1-palmitoyl-2-(5,6-epoxyisoprostane E2)-sn-glycero-3-phosphorylcholine (PEIPC), accumulated in macrophages infected with live mycobacteria. Mycobacterial infection and host-derived oxidized phospholipids both inhibited innate immune responses, and this inhibition was reversed by the addition of normal HDL, a scavenger of oxidized phospholipids, but not by HDL from patients with L-lep. The accumulation of host-derived oxidized phospholipids in L-lep lesions is strikingly similar to observations in atherosclerosis, which suggests that the link between host lipid metabolism and innate immunity contributes to the pathogenesis of both microbial infection and metabolic disease.

Goulart IM, Goulart LR. Leprosy: diagnostic and control challenges for a worldwide disease. Arch Dermatol Res. 2008 Jul; 300(6): 269-90.

Leprosy is a curable disease with well-defined etiology, but lacks better diagnostic tools, preventive and therapeutic strategies. The continued application of the Ridley-Jopling clinical classification that recognizes the natural diversity of the immune response has provided the basis for understanding leprosy, and this review proposes its implementation in all Reference Centers in order to standardize the diagnostic resources, aiming at the improvement of the disease control. Due to the broad bioepidemiological aspects of infection its eradication is difficult, and proper diagnosis of the disease and the correct clinical classification are required to ensure proper treatment. Tools and markers for diagnosis and prognosis, and the novel use of nanotechnology, as well as strategies for disease control and monitoring populations at higher risk are still continuous challenges, which will be specifically reviewed with additional insights. The use of the current diagnostic tools, such as ELISA and PCR has a very limited approach for leprosy that has been considered as a marginal disease; therefore, the current diagnostic tools must be applied extensively in the routine to accumulate clinical experience in order to improve their precise application, like what has been done in many other infectious diseases. Since a vaccine for

leprosy presents an unpredictable future, the proposed chemoprophylaxis of contacts (healthy carriers and/or with subclinical infection) must also be employed in referral centers of endemic countries not only to evaluate its efficacy, but also because of the favorable cost-benefit ratio, given that there is no other available approach, besides the multi-drug therapy of patients. This strategy should readily be applied as a public health policy, and may lead to a substantial breakage of the transmission chain aiming a world without leprosy.

Prasad PV, George RV, Kaviarasan PK, Viswanathan P, Tippoo R, Anandhi C. Fine needle aspiration cytology in leprosy. Indian J Dermatol Venereol Leprol. 2008 Jul-Aug; 74(4): 352-6.

BACKGROUND: Laboratory diagnosis of leprosy by slit skin smear and skin biopsy is simple but both techniques have their own limitations. Slit skin smear is negative in paucibacillary cases whereas skin biopsy is an invasive technique. Fine needle aspiration cytology (FNAC) from skin lesions in leprosy with subsequent staining with May-Grunwald-Giemsa (MGG) stain has been found useful. **AIM:** To evaluate the possible role of cytology in classifying leprosy patients. **METHODS:** Seventy-five untreated cases of leprosy attending the outpatient department were evaluated. Smears were taken from their skin lesions and stained using the MGG technique. Skin biopsy was also done from the lesions, which was compared with cytology smears. **RESULTS:** A correlation of clinical features with FNAC was noticed in 87.5% of TT, 92.1% of BT, 81% of BL, and 66% of LL cases. Correlation of clinical with histopathological diagnoses revealed 12.5% specificity in TT leprosy, 55.3% in BT, 52.4% in BL and 50% in LL, and 100% in neuritic and histoid leprosy cases. Both correlations were found to be statistically significant by paired t test analysis. Thus, it was possible to distinguish the tuberculoid types by the presence of epithelioid cells and the lepromatous types by the presence of lymphocytes and foamy macrophages. **CONCLUSION:** FNAC may be used to categorize the patients into paucibacillary and multibacillary types, but is not a very sensitive tool to classify the patients across the Ridley-Jopling spectrum.

Kampirapap K. Assessment of subclinical leprosy infection through the measurement of PGL-1 antibody levels in residents of a former leprosy colony in Thailand. *Lepr Rev.* 2008 Sep; 79(3): 315-9.

OBJECTIVES: To investigate the hypothesis that there is continuing subclinical *M. leprae* infection, contributing to ongoing transmission of leprosy in Phra-Pradaeng Colony. **DESIGN:** A sero-epidemiological survey was carried out in Phra-Pradaeng Colony, Thailand between May and August 2005. The clinical and serological examinations were conducted in 398 people, aged 3-84 years (average 50 years), comprising 196 males and 202 females. **RESULTS:** Measurement of serum anti PGL-I antibodies in eligible contacts and ex-patients showed that 18 people (4.5%) were seropositive, six people (1.5%) were strongly positive and 374 people (94.0%) were seronegative. All six people who were strongly seropositive were ex-patients; five of them had no evidence of active leprosy but the sixth person had relapsed BL leprosy with a reversal reaction. **CONCLUSIONS:** This study failed to confirm the hypothesis that there was ongoing subclinical *M. leprae* infection. More appropriate diagnostic methods and a total survey of the colony should be considered to further clarify this problem.

MICROBIOLOGIA / BIOLOGIA MOLECULAR

Zuber B, Chami M, Houssin C, Dubochet J, Griffiths G, Daffé M. Direct visualization of the outer membrane of mycobacteria and corynebacteria in their native state. *J Bacteriol.* 2008 Aug; 190(16): 5672-80.

The cell envelope of mycobacteria, which include the causative agents of tuberculosis and leprosy, is crucial for their success as pathogens. Despite a continued strong emphasis on identifying the multiple chemical components of this envelope, it has proven difficult to combine its components into a comprehensive structural model, primarily because the available ultrastructural data rely on conventional electron microscopy embedding and sectioning, which are known to induce artifacts. The existence of an outer membrane bilayer has long been postulated but has never been directly observed by electron microscopy of ultrathin sections. Here we have used cryo-electron microscopy of vitreous sections (CEMOVIS)

to perform a detailed ultrastructural analysis of three species belonging to the Corynebacterineae suborder, namely, *Mycobacterium bovis* BCG, *Mycobacterium smegmatis*, and *Corynebacterium glutamicum*, in their native state. We provide new information that accurately describes the different layers of the mycobacterial cell envelope and challenges current models of the organization of its components. We show a direct visualization of an outer membrane, analogous to that found in gram-negative bacteria, in the three bacterial species examined. Furthermore, we demonstrate that mycolic acids, the hallmark of mycobacteria and related genera, are essential for the formation of this outer membrane. In addition, a granular layer and a low-density zone typifying the periplasmic space of gram-positive bacteria are apparent in CEMOVIS images of mycobacteria and corynebacteria. Based on our observations, a model of the organization of the lipids in the outer membrane is proposed. The architecture we describe should serve as a reference for future studies to relate the structure of the mycobacterial cell envelope to its function.

Monot M, Honoré N, Balière C, Ji B, Sow S, Brennan PJ, et al. Are variable-number tandem repeats appropriate for genotyping *Mycobacterium leprae*? *J Clin Microbiol.* 2008 Jul; 46(7): 2291-7.

Comparative genomics analysis of the Tamil Nadu strain of *Mycobacterium leprae* has uncovered several polymorphic sites with potential as epidemiological tools. In this study we compared the stability of two different markers of genomic biodiversity of *M. leprae* in several biopsy samples isolated from the same leprosy patient. The first type comprises five different variable-number tandem repeats (VNTR), while the second is composed of three single nucleotide polymorphisms (SNP). Contrasting results were obtained, since no variation was seen in the SNP profiles of *M. leprae* from 42 patients from 7 different locations in Mali whereas the VNTR profiles varied considerably. Furthermore, since variation in the VNTR pattern was seen not only between different isolates of *M. leprae* but also between biopsy samples from the same patient, these VNTR may be too dynamic for use as epidemiological markers for leprosy.

Miyamoto Y, Mukai T, Maeda Y, Kai M, Naka T, Yano I, et al. The *Mycobacterium avium* complex *gtfTB* gene encodes a glucosyltransferase required for the biosynthesis of serovar 8-specific glycopeptidolipid. *J Bacteriol.* 2008 Dec; 190(24): 7918-24.

Mycobacterium avium complex (MAC) is one of the most common opportunistic pathogens widely distributed in the natural environment. The 28 serovars of MAC are defined by variable oligosaccharide portions of glycopeptidolipids (GPLs) that are abundant on the surface of the cell envelope. These GPLs are also known to contribute to the virulence of MAC. Serovar 8 is one of the dominant serovars isolated from AIDS patients, but the biosynthesis of serovar 8-specific GPL remains unknown. To clarify this, we compared gene clusters involved in the biosynthesis of several serovar-specific GPLs and identified the genomic region predicted to be responsible for GPL biosynthesis in a serovar 8 strain. Sequencing of this region revealed the presence of four open reading frames, three unnamed genes and *gtfTB*, the function of which has not been elucidated. The simultaneous expression of *gtfTB* and two downstream genes in a recombinant *Mycobacterium smegmatis* strain genetically modified to produce serovar 1-specific GPL resulted in the appearance of 4,6-O-(1-carboxyethylidene)-3-O-methyl-glucose, which is unique to serovar 8-specific GPL, suggesting that these three genes participate in its biosynthesis. Furthermore, functional analyses of *gtfTB* indicated that it encodes a glucosyltransferase that transfers a glucose residue via 1 \rightarrow 3 linkage to a rhamnose residue of serovar 1-specific GPL, which is critical to the formation of the oligosaccharide portion of serovar 8-specific GPL. Our findings might provide a clue to understanding the biosynthetic regulation that modulates the biological functions of GPLs in MAC.

Han XY, Seo YH, Sizer KC, Schoberle T, May GS, Spencer JS, et al. A new *Mycobacterium* species causing diffuse lepromatous leprosy. *Am J Clin Pathol.* 2008 Dec; 130(6): 856-64.

Mycobacterium leprae causes leprosy. *M. leprae* strains collected worldwide have been genetically clonal, which poorly explains the varying severity and clinical features of the disease. We discovered a new *Mycobacterium*

species from 2 patients who died of diffuse lepromatous leprosy (DLL). The *Mycobacterium* was purified from heavily infected, freshly frozen autopsy liver tissue followed by DNA extraction in 1 case. Paraffin-embedded skin tissue was used for DNA extraction in another case. Six genes of the organism were amplified by polymerase chain reaction, sequenced on cloning or from amplicons, and analyzed. Significant genetic differences with *M. leprae* were found, including a 2.1% divergence of the 16S ribosomal RNA (rRNA) gene, a highly conserved marker of bacterial evolution, and 6% to 14% mismatches among 5 less conserved genes. Phylogenetic analyses of the genes of 16S rRNA, *rpoB*, and *hsp65* indicated that the 2 most related organisms evolved from a common ancestor that had branched from other mycobacteria. These results and the unique clinicopathologic features of DLL led us to propose *Mycobacterium lepromatosis* sp. nov. This species may account for some of the clinical and geographic variability of leprosy. This finding may have implications for the research and diagnosis of leprosy.

Tanigawa K, Suzuki K, Nakamura K, Akama T, Kawashima A, Wu H, et al. Expression of adipose differentiation-related protein (ADRP) and perilipin in macrophages infected with *Mycobacterium leprae*. *FEMS Microbiol Lett.* 2008 Dec; 289(1): 72-9.

Mycobacterium leprae survives and replicates within a lipid droplet stored in the enlarged phagosome of histiocytes, a typical feature of lepromatous leprosy that is thought to be an important nutrient source for the bacillus. However, the underlying mechanisms by which lipids accumulate within phagosomes remain unclear. Recently, it was revealed that the lipid droplet-associated proteins, including ADRP and perilipin, play essential roles in lipid accumulation in adipocytes or macrophages. Therefore, we attempted to examine the role of these proteins in leprosy pathogenesis. ADRP and perilipin localized to the phagosomal membrane, which contains *M. leprae* in skin biopsy specimens of lepromatous leprosy. ADRP expression was transiently increased after phagocytosis in THP-1 cells. However, high levels of ADRP expression persisted only when live *M. leprae*, but not dead bacilli or latex beads, was added. Furthermore, although peptidoglycan, a Toll-like receptor

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2 ligand, suppressed the expression levels of ADRP and perilipin, *M. leprae* infection inhibited this suppression. These results suggest that live *M. leprae* has the ability to actively induce and support ADRP/perilipin expression to facilitate the accumulation of lipids within the phagosome and to further maintain a suitable environment for the intracellular survival within the macrophage

Lini N, Rehna EA, Shiburaj S, Maheshwari JJ, Shanker-narayan NP, Dharmalingam K. Unctional characterization of a small heat shock protein from *Mycobacterium leprae*. BMC Microbiol. 2008 Nov 28; (8): 208.

BACKGROUND: Small heat shock proteins are ubiquitous family of stress proteins, having a role in virulence and survival of the pathogen. *M. leprae*, the causative agent of leprosy is an uncultivable organism in defined media, hence the biology and function of proteins were examined by cloning *M. leprae* genes in heterologous hosts. The study on sHsp18 was carried out as the knowledge about the functions of this major immunodominant antigen of *M. leprae* is scanty. **RESULTS:** The gene encoding *Mycobacterium leprae* small heat shock protein (sHsp18) was amplified from biopsy material of leprosy patients, and cloned and expressed in *E. coli*. The localization and in vitro characterization of the protein are detailed in this report. Data show that major portion of the protein is localized in the outer membrane of *E. coli*. The purified sHsp18 functions as an efficient chaperone as shown by their ability to prevent thermal inactivation of restriction enzymes *Sma*I and *Nde*I. Physical interaction of the chaperone with target protein is also demonstrated. Size exclusion chromatography of purified protein shows that the protein can form multimeric complexes under in vitro conditions as is demonstrated for several small heat shock proteins. **CONCLUSION:** The small heat shock protein sHsp18 of *M. leprae* is a chaperone and shows several properties associated with other small heat shock proteins. Membrane association and in vitro chaperone function of sHsp18 shows that the protein may play a role in the virulence and survival of *M. leprae* in infected host.

NEUROPATOLOGIA / DOR NEUROPÁTICA

Junqueira AV, Caixeta LF. Hanseníase: revisão para o neurologista. Rev. bras. neurol 2008 jul.-set ; 44(3):27-30.

A hanseníase (mal de Hansen, lepra) é uma doença infecto-contagiosa crônica endêmica no Brasil, causada pelo *Mycobacterium leprae*, e constitui um sério problema de Saúde Pública em muitos países. Caracteriza-se por manifestações neurológicas e dermatológicas que acarretam, em geral após longa evolução, deformidades e mutilações que tanto concorrem para a estigmatização dessa moléstia. Muito embora já exista tratamento eficaz para a hanseníase (poliquimioterapia), o estigma persiste. Podem ocorrer episódios inflamatórios agudos ou subagudos, cutâneos e/ou extra-cutâneos, antes, durante ou após o tratamento, que são chamados estados ou episódios reacionais

Gonçalves SD, Sampaio RF, Antunes CMF. Ocorrência de neurite em pacientes com hanseníase: análise de sobrevida e fatores preditivos. Rev. Soc. Bras. Med. Trop. 2008 set.-out; 41(5):464-9.

A neurite na hanseníase é responsável pelas deformidades e incapacidades. O objetivo desta coorte histórica foi investigar os fatores de risco associados ao tempo até a ocorrência da neurite. Foram acompanhados 595 pacientes, no período de 1993 a 2003. Empregou-se a técnica de tabela de vida e o método de Kaplan-Meier para a curva de sobrevida. Para testar diferenças entre os grupos quanto ao tempo até a ocorrência de neurite, foi usado o log-rank e para estimar as razões de risco, o modelo de regressão de Cox. Pouco mais da metade (54 por cento) da amostra teve neurite, sendo o principal intervalo de tempo de zero a 11,9 meses. O grau de incapacidade na admissão e o índice baciloscópico associaram-se fortemente à ocorrência de neurite, confirmando a necessidade do diagnóstico precoce da hanseníase, bem como do acompanhamento neurológico regular e intervenções adequadas

Kumar V. Does clofazimine (B663) reach *Mycobacterium leprae* persisting in Schwann cells and endothelial cells of endoneurial blood vessels in peripheral nerves? Infect Genet Evol. 2008 Sep; 8(5): 621-6.

Peripheral nerve biopsies from 10 Lepromatous leprosy (LL) patients who were on multidrug treatment (MDT) were investigated by light and electron microscopy. Clofazimine (CLF) has been included as an essential component of MDT, which is the standard WHO regimen for treatment of leprosy. The patients receiving continuous MDT for a long period had viable bacilli in Schwann cells (SCs) of peripheral nerves whereas they had disappeared from the skin. Our ultrastructural observations clearly indicated the presence of CLF crystals in SCs. The crystals were in the form of osmiophilic rods of various shapes and sizes. On the other hand, the blood nerve barrier was clearly noticed in endoneurial blood vessels (EBV), and the barrier seems to play an important role for penetration of antileprosy drugs especially CLF. (c) 2008 Wiley-Liss, Inc.

Prakash S, Dholakia SY. Hemicrania continua-like headache with leprosy: casual or causal association? Headache. 2008 Jul; 48(7): 1132-4.

Hemicrania continua is a strictly unilateral, moderate to severe, continuous, indomethacin-responsive primary headache disorder with ipsilateral autonomic cranial symptoms at the time of exacerbations. We describe a 30-year-old woman with a 4-month history of indomethacin-responsive hemicrania continua-like headache and one-month history of mononeuritis multiplex due to leprosy. Indomethacin was successfully weaned off after completion of antileprotic therapy.

Yamamoto T. Mechanisms of the development of neuropathic pain and its treatment. Nihon Hansenbyo Gakkai Zasshi. 2008 Sep; 77(3): 215-8.

Neuropathic pain has been known to be refractory to traditional analgesics, such as opioids and non-steroidal anti-inflammatory drugs. Some mechanisms of the de-

velopment of neuropathic pain have been proposed; 1) sprouting of A beta fibers to the superficial layer of the dorsal horn, 2) ectopic discharge in the dorsal root ganglion and/or in neuroma at the nerve stump, 3) spinal sensitization. Ectopic discharge has been reported to be inhibited by Na⁺ channel blocker, such as lidocaine, and anticonvulsant. Lidocaine and anticonvulsant are used in the management of neuropathic pain. Activation of NMDA receptor is usually involved in the development of spinal sensitization and NMDA receptor antagonist, such as ketamine, is used in the management of neuropathic pain. Recently, alpha2delta subunit blocker, new class of anticonvulsant, is introduced to the management of neuropathic pain. alpha2delta subunit is the subunit of Ca²⁺ channel and modulate the influx of Ca²⁺. This Ca²⁺ influx induces release of neurotransmitter in the neuron. alpha 2 delta subunit blockers, such as gabapentin and pregabalin, may reduce the release of neurotransmitter and elicit analgesic effect in the treatment of neuropathic pain.

Gabelle A, Vallat JM, Flageul B, Andre P, Camu W. Sensory-motor neuropathy: a slow and misleading case of leprosy. Rev Neurol (Paris). 2008 Nov; 164(11): 964-8.

The diagnostic process of sensory-motor neuropathies is difficult. Atypical variants and rare etiologies also contribute to delay the diagnosis. We report the case of a 70-year-old woman with slowly progressive asymmetric axonal sensory-motor neuropathy. Leprosy was identified after an eight-year delay. Nerve biopsy was required to establish the diagnosis: electron microscopy revealed debris of Hansen's bacillus in the nerve. Treatment was fully curative after several months. Leprosy is a rare cause of neuropathy in Europeans. Systematic inquiry about travel to endemic areas would be helpful in establishing the diagnosis. In such cases, nerve biopsy is crucial.

Schuring RP, Richardus JH, Steyerberg EW, Pahan D, Faber WR, Oskam L.

Preventing nerve function impairment in leprosy: validation and updating of a prediction rule. PLoS Negl Trop Dis. 2008; 2(8): e283.

BACKGROUND: To validate and update a prediction rule for estimating the risk of leprosy-related nerve function impairment (NFI). **METHODOLOGY/PRINCIPAL FINDINGS:** Prospective cohort using routinely collected data, in which we determined the discriminative ability of a previously published rule and an updated rule with a concordance statistic (*c*). Additional risk factors were analyzed with a Cox proportional hazards regression model. The population consisted of 1,037 leprosy patients newly diagnosed between 2002 and 2003 in the health care facilities of the Rural Health Program in Nilphamari and Rangpur districts in northwest Bangladesh. The primary outcome was the time until the start of treatment. An NFI event was defined as the decision to treat NFI with corticosteroids after diagnosis. NFI occurred in 115 patients (13%; 95% confidence interval 11%-16%). The original prediction rule had adequate discriminative ability (*c* = 0.79), but could be improved by substituting one predicting variable: 'long-standing nerve function impairment at diagnosis' by 'anti-PGL-I antibodies'. The adjusted prediction rule was slightly better (*c* = 0.81) and identified more patients with NFI (80%) than the original prediction rule (72%). **CONCLUSIONS/SIGNIFICANCE:** NFI can well be predicted by using the risk variables 'leprosy classification' and 'anti-PGL-I antibodies'. The use of these two variables that do not include NFI offer the possibility of predicting NFI, even before it occurs for the first time. Surveillance beyond the treatment period can be targeted to those most likely to benefit from preventing permanent disabilities.

Wilder-Smith EP, Van Brakel WH. Nerve damage in leprosy and its management. Nat Clin Pract Neurol. 2008 Dec; 4(12): 656-63.

Leprosy is the most common treatable peripheral nerve disorder worldwide. Deformity and disability result from nerve-function impairment; however, early treatment

is associated with good outcome. Leprosy is often diagnosed late as many physicians have little experience with the clinical picture. Recent research using nerve conduction and thermal threshold tests has identified that nerve impairment is detectable long before it turns clinical. This discovery could have important implications for treatment because steroid therapy for nerve-function impairment that is detected clinically is unsatisfactory. Evidence that clinical neuropathy represents only the 'tip of the iceberg' of nerve damage, together with an understanding that the underlying inflammatory immunological processes require longer, more-aggressive treatment, could help usher in new and more-successful approaches to the treatment of nerve-function impairment in leprosy. This Review focuses on the neurological manifestations of leprosy and the pathophysiology of nerve damage. Early detection and treatment of nerve-function impairment are crucial for outcome, so special emphasis is given to developments in detecting and treating nerve impairment in leprosy early.

Gonçalves SD, Sampaio RF, Antunes CM. Occurrence of neuritis among leprosy patients: survival analysis and predictive factors. Rev Soc Bras Med Trop. 2008 Sep-Oct; 41(5): 464-9.

Neuritis in leprosy cases is responsible for deformities and disability. The objective of this historical cohort study was to investigate the risk factors associated with the time taken for neuritis to occur. This study followed up 595 patients from 1993 to 2003. The life table technique and the Kaplan-Meier method for survival curves were used. The log-rank test was used to test differences between groups regarding the time taken for neuritis to occur, and the Cox regression model was used to estimate the hazard ratios. Just over half (54%) of the sample had neuritis, which had mostly taken 0 to 11.9 months to appear. The degree of disability at admission and the bacillary index were strongly associated with the occurrence of neuritis, thus confirming the need for early diagnosis of leprosy, as well as regular neurological follow-up and appropriate interventions.

Scollard DM. The biology of nerve injury in leprosy. *Lepr Rev.* 2008 Sep; 79(3): 242-53.

The steps in the pathogenesis of nerve injury in leprosy are depicted in Figure 1. Localisation of *M. leprae* to nerve, Schwann cell infection & responses, as yet unknown mechanisms of injury, axonal atrophy, and finally demyelination. These steps, and the mechanisms responsible for them, occur quickly in the course of this disease (as noted, even the earliest diagnostic lesions have sensory abnormalities), but they are also chronic processes that may contribute to progressive nerve injury over a period of many years unless interrupted by treatment, and even after cure of the infection in some patients. A common feature throughout this pathogenesis is inflammation--within and around the nerve. Inflammation is not only defined by its chemical mediators such as cytokines and chemokines, but by one of the most basic phenomena of inflammation--edema. The extent to which edema might contribute to nerve injury in leprosy has not been reviewed because it has not been studied in nerves affected by leprosy, although clinically, surgeons who perform neurolysis are convinced that they are decompressing nerves sustaining injury due to increased (edematous?) pressure. Inflammation in and around nerves is undoubtedly driven, in part, by the immunological responses in each of the portions of the immunologic spectrum of leprosy, but some inflammatory phenomena may be non-specific inflammation related to infection and foreign material (i.e., mycobacterial components). Few if any fixed associations can be made between the steps outlined in this conceptual framework of events; even the depicted sequence of these events is uncertain. Considerable additional data is needed to determine the connections between these processes and their underlying mechanisms. Additionally, although much emphasis is given to myelinated fibres (and demyelination) in studies of the biology of leprosy neuropathy, the small, sensory fibres in the skin are not myelinated. Additional studies of mechanisms of injury to these nerves is required. The results of all of these studies can be reasonably expected to identify new points for clinical intervention in--and possibly the prevention of--nerve injury in leprosy.

Suresh M, Nicholls PG, Das L, Van Brakel WH. Voluntary muscle testing and dynamometry in diagnosis of motor impairment in leprosy: a comparative study within the INFIR Cohort Study. *Lepr Rev.* 2008 Sep; 79(3): 277-94.

AIM: To evaluate hand muscle weakness detected through dynamometry as an indicator for change in motor nerve function detected by Voluntary Muscle Testing (VMT) of ulnar and median nerves. DESIGN: The research was carried out as part of the INFIR Cohort Study among 303 subjects newly diagnosed with MB leprosy in two centres in UP state, northern India. METHODS: To assess grip strength, key pinch and pulp-to-pulp pinch we adapted the cuffs of adult and neonatal sphygmomanometers. The testing was carried out at diagnosis and at each visit during a 2-year follow-up. RESULTS: 303 subjects with newly diagnosed MB leprosy were included in the study. We found statistically significant differences in grip strength, key pinch and pulp-to-pulp pinch between groups defined by ulnar VMT grades at time of diagnosis. There was also a statistically significant difference in hand grip between groups defined by median VMT at diagnosis. In each case, strength tended to reduce with increasing motor involvement. We explored reduction in grip strength, key pinch or pulp-to-pulp pinch as indicators of change in ulnar VMT during follow-up. A 25% reduction over two visits was the most effective indicator. Changes were also associated with marginal changes in motor and sensory nerve function, most commonly associated with Type I reactions. CONCLUSION: Dynamometry is recommended as an additional method that may be used to monitor changes in nerve function in leprosy, particularly in subjects with early motor impairment of the ulnar nerve.

Khadiolkar SV, Benny R, Kasegaonkar PS. Proprioceptive loss in leprous neuropathy: a study of 19 patients. *Neurol India.* 2008 Oct-Dec; 56(4): 450-5.

Leprosy presents commonly with mononeuritis multiplex, affecting mainly the exteroceptive sensations. Neuropathy with a significant afferent large fiber element is considered to be an uncommon manifestation of leprous neuropathy. AIMS: To evaluate the clinical and neurophysiologic

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aspects of a subset of patients with leprous neuropathy having clinical proprioceptive loss. **SETTINGS AND DESIGN:** Prospective study of patients with a diagnosis of peripheral neuropathy secondary to leprosy having proprioceptive loss. **MATERIALS AND METHODS:** Consecutive patients seen during a two-year period (2004 and 2005) diagnosed to have leprous neuropathy with proprioceptive abnormalities on clinical examination were included. The diagnosis of leprosy was achieved by clinical features along with positive skin biopsy, split skin smears or nerve biopsy. Their clinical and electrophysiological characteristics were studied. **STATISTICAL METHODS:** The results were analyzed using Chi-Square test. Values less than 0.05 were considered to be statistically significant. **RESULTS AND CONCLUSIONS:** We observed predominance (68.42%) of multibacillary of leprosy. Symmetrical neuropathies outnumbered mononeuritis multiplex (12:7). The pan sensory neuropathy had a mean duration of 24.32 months, but sometimes appeared early in the course of the disease. Areflexia and electrophysiological evidence of proximal affection was common, reflecting proximal spread of neuropathic process. Such patients have a higher incidence of developing deformities and ulcerations and they represent a vulnerable subset of patients with leprosy.

Saunderson P, Bizuneh E, Leekassa R. Neuropathic pain in people treated for multibacillary leprosy more than ten years previously. *Lepr Rev.* 2008 Sep; 79(3): 270-6.

OBJECTIVES: To identify patients with typical symptoms of neuropathic pain in a well-defined cohort of multibacillary patients being followed up as part of a relapse study in Ethiopia; to identify risk factors for the development of neuropathic pain. **DESIGN:** 96 patients who had completed MDT more than 10 years previously participated in the study, through a questionnaire. **RESULTS:** 28 (29%) had symptoms of neuropathic pain and it was reported as severe in 12. Because the past history of these subjects is well documented, a risk factor analysis was carried out. The presence of leprosy-related impairment was the only significant risk factor for neuropathic pain that was identified. **CONCLUSIONS:** Neuropathic pain is an important problem in a proportion of people previously treated for leprosy. Further research into the management of the condition is required.

OFTALMOLOGIA

Rathinam SR, Khazaei HM, Job CK. Histopathological study of ocular erythema nodosum leprosum and post-therapeutic scleral perforation: a case report. *Indian J Ophthalmol.* 2008 Sep-Oct; 56(5): 417-9.

Leprosy is a chronic granulomatous disease caused by *Mycobacterium leprae*, clinically present either as tuberculoid, borderline or lepromatous type. Erythema nodosum leprosum (ENL) is an acute humoral response in the chronic course of lepromatous leprosy. Although very severe ENL reactions are known in systemic leprosy, such severity is rare in ocular tissues. A leprosy uveitis patient suffered from a severe form of post-therapeutic ENL reaction which resulted in perforation of the globe at the site of preexisting subconjunctival leproma. Painful blind eye was enucleated. Histopathological study revealed infiltration of numerous polymorphs and macrophages packed with acid-fast bacilli in the conjunctiva, cornea, ciliary body, ora serrata and sclera. A profuse influx of neutrophils on a background of macrophages packed with *M. leprae* confirmed the ocular ENL reaction. This case is reported to alert the ophthalmologists to a rare ocular complication of ENL.

OTORRINOLARINGOLOGIA

Fornazieri MA, Yamaguti HY, Moreira JH, Takemoto LE, Navarro PL, Heshiki R E. Manifestações otorrinolaringológicas mais comuns das doenças granulomatosas. *Arq. int. otorrinolaringol* 2008 jul.- set; 12(3):362-5.

A Fibrose Cística é a doença genética autossômica recessiva mais comum entre caucasianos. Ocorre devido a mutações no gene que codifica proteína reguladora de condução transmembrana, acarretando deficiência transporte de cloro. **Objetivo:** Realizar revisão da literatura sobre Fibrose Cística, enfatizando manifestações otorrinolaringológicas. **Método:** Utilizou-se consulta do banco de dados on line do Pub Med, aplicando a pesquisa dos termos Fibrosis Cystic and Sinusitis e Mucoviscidosis and Sinusitis. **Considerações Finais:** Embora não seja a principal causa de morte, as manifestações otorrinolaringológicas da Fibrose Cística trazem importante morbidade para estes pacientes (AU).

PATOLOGIA

Mendonça VA, Costa RD, Melo GEBA, Antunes CM, Teixeira AL. *Imunologia da hanseníase: [revisão]*. *An. bras. dermatol.* 2008 jul.-ago; 83(4):343-50.

A hanseníase é doença crônica infecciosa que se caracteriza por apresentar formas clínicas contrastantes, que são dependentes da interação do bacilo com a resposta imune do hospedeiro. O estudo dos processos imunológicos torna-se fundamental para o entendimento dos mecanismos envolvidos na apresentação e no desenvolvimento da doença. Neste artigo, é revisada a imunopatogênese da hanseníase.

Motta AC, Komesu MC, Silva CH, Arruda D, Simão JC, Zenha EM, et al. *Leprosy-specific oral lesions: a report of three cases*. *Med Oral Patol Oral Cir Bucal.* 2008 Aug 1; 13(8): E479-82.

Leprosy is a chronic infection caused by *Mycobacterium leprae*, a bacillus that presents a peculiar tropism for the skin and peripheral nerves. The clinical spectrum of leprosy ranges from the tuberculoid form (TT) to the disseminative and progressive lepromatous form (LL). Oral lesions are rare but, when present, occur in the lepromatous form. This article describes the clinical and microscopic findings of three cases of LL with oral manifestations. All patients had the lepromatous form and their leprosy-specific oral lesions occurred in the palate. The diagnosis was based on clinical, serological and histopathological findings, and multidrug therapy for multibacillary leprosy was started and continued for 24 months. All patients completed treatment, but developed reaction episodes which were treated with prednisone and/or thalidomide. The authors emphasize the importance of oral mucosa evaluation by a dental health professional during patient care since oral lesions may act as a source of infection.

PREVALÊNCIA

Saka B, Kombate K, Mouhari-Toure A, Amegan-Aho KH, Tchangai-Walla K, Pitche P. *Leprosy in Lomé, Togo: retrospective study of 383 cases*. *Med Trop (Mars).* 2008 Oct; 68(5): 496-8.

The goal of this study was to determine the therapeutic outcomes and clinical forms of leprosy diagnosed in Lomé, Togo. This retrospective study was carried out in leprosy patients managed at the National Center of Dermatology in Lomé between January 1990 and December 2005. During the study period, 383 cases of leprosy were recorded including 366 new cases. The annual diagnosis rate was 23 cases per year. Mean patient age was 35.6 +/- 15.4 years. The proportion of patients in the 15 to 49-year-old bracket and in the under-15-year-old bracket was 75% and 6,4% respectively. Male-to-female ratio was 1.36. Prevalence dropped from 4.4/100,000 inhabitants in 1990 to 1.9/100,000 inhabitants in 2005. The detection rate decreased from 6.8/100,000 inhabitants in 1990 to 2.1/100,000 inhabitants in 2005. There was a high prevalence of multibacillary cases after 1995. The incidence of the leprosy reactions was 11%. The infirmity rate was 8.5%. The cure rate was 78% after multidrug therapy in 98.2% of cases. Relapse occurred in 6.1% of cases and 16% were lost from follow-up. This study confirms the decreasing prevalence of leprosy in Lomé as well as its changing clinical profile with an increase in multibacillary leprosy.

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REABILITAÇÃO/PREVENÇÃO DE INCAPACIDADES

Díaz AF, Moro FL, Binotto JM, Fréz AR. Estudo comparativo preliminar entre os alongamentos proprioceptivo e estático passivo em pacientes com seqüelas de hanseníase. *Fisioter. Pesqui* 2008; 15(4):339-44.

A proposta deste estudo foi comparar a aplicação de alongamento estático passivo e alongamento proprioceptivo no tratamento de seqüelas de hanseníase. Doze pacientes com essas seqüelas participaram da pesquisa, separados aleatoriamente em dois grupos: o grupo FNP, tratado com facilitação neuromuscular proprioceptiva, e o grupo AEP, com alongamento estático passivo.

Pinheiro Júnior MN, Santos PM, Santos RCR, Penini SN, Alvarez RRA. Compreensão da importância do exame ocular preventivo entre hansenianos de duas Instituições de referência. *Brasília méd* 2008; 45(1):26-9.

Avaliar o conhecimento dos pacientes portadores de morbus Hansen, da necessidade da realização de exames oftalmológicos periódicos, visando à prevenção das complicações oculares relacionadas à sua patologia. Métodos. Avaliados 113 pacientes ambulatoriais com diagnóstico prévio de hanseníase, sendo 57 casos provenientes do Hospital Universitário de Brasília, e 56 pacientes provenientes da Fundação Instituto de Dermatologia Tropical e Venereologia Alfredo da Mata FUAM (centros de referência regional em dermatoses e hanseníase). Após assinatura de termo de consentimento livre e esclarecido, foram estimulados a responder questionário elaborado especificamente para este estudo. Também foram examinados os prontuários desses doentes para averiguar os dados de identificação, o nível de escolaridade, a forma clínica, e a duração da hanseníase. Resultados. Quando questionados se sabiam que sua doença pode levar ao aparecimento de complicações oculares, 24,8% dos entrevistados afirmaram que têm conhecimento dessa associação, 23% afirmaram desconhecer tal associação e 52,2% não souberam responder. Conclusões. Este estudo mostra ser inadequado o nível de compreensão dos enfermos com hanseníase com relação à sua doença quanto à possibilidade do aparecimento de

complicações oculares. Enfatiza a necessidade que os profissionais de saúde envolvidos no tratamento de hanseníase informem aos pacientes, de forma clara, incisiva e objetiva, que a doença é potencialmente causadora de graves complicações oculares.

Li J, Mu H, Ke W, Bao X, Wang Y, Shen LM, et al. Government health workers as implementers of prevention of disability measures: an assessment of a prevention of disability project in selected counties of Guizhou Province, Peoples' Republic of China. *Lepr Rev.* 2008 Sep; 79(3): 295-302.

OBJECTIVE: The purpose of this study was to assess the effectiveness of government health workers as agents for the prevention of disability. DESIGN: A prevention of disability (POD) project for people affected by leprosy was conducted in nine counties of Guizhou Province, Peoples' Republic of China. The project was implemented by government health workers. In accordance with the principles and national criteria of the National Centre for Leprosy Control (NCLC) POD Pilot programme, 1215 people affected by leprosy were selected, followed up and assessed with the use of impairment summary forms through which essential indicators were routinely collected. RESULTS: Most improvements of disabilities occurred in the 1st year of the POD project. Fifty five people with neuritis were detected and treated with prednisolone out of 262 new patients; 47 of these improved; 1130 people completed a 3-year self-care programme; 88.5% of red eyes, 83.9% of hand ulcers and 62.8% of simple foot ulcer cases healed during that period. One hundred and ninety six people who presented with complicated ulcers were treated; of these 73 (37.2%) people presented with feet free of ulcers at the end of the project period. CONCLUSION: The POD project was a cost-effective method of preventing further disability occurrence among people affected by leprosy. Government health workers were generally able to implement and monitor the project effectively. Most of people affected by leprosy were satisfied that the improvements in their disabilities had been due to self-care. The programme had helped them to increase their confidence to implement self-care activities.

REABILITAÇÃO / CIRURGIA

Narayanakumar TS. Claw-finger correction in leprosy using half of the flexor digitorum superficialis. J Hand Surg Eur 2008 Aug; 33(4): 494-500.

The commonest paralytic deformity in leprosy is the claw deformity of the fingers. Many surgical procedures have been described and are practiced to correct this deformity, but none is free from complications. A modification of the Zancolli lasso operation in which only half of the flexor digitorum superficialis tendon of the middle finger was used as the motor is described and a comparative study of this and the conventional procedure was carried out in 70 hands in 70 patients. The results suggest that the modification is technically simpler, with comparable results to those of the conventional procedure and fewer complications.

Vieira R, Felicíssimo P. Surgical treatment of three cases of plantar foot ulceration in leprosy. Lepr Rev. 2008 Sep; 79(3): 325-30.

Neuropathic foot ulceration (NFU) is a common problem in leprosy patients. Three cases of NFU, who did not respond to conservative measures, were treated with orthopaedic surgery. The purpose of the treatment was, by using different approaches, the reduction of bone hyper pressure areas, allowing the ulcer to heal.

RESISTÊNCIA

Ozaki M. Drug resistance of multibacillary leprosy patients in Japan--results of molecular genetic analyses. Nihon Hansenbyo Gakkai Zasshi. 2008 Sep; 77(3): 187-96.

Gene mutation of *Mycobacterium leprae* was studied on bacilli-positive multibacillary leprosy patients since 2000 in Japan. Subjects: LL 31 cases, BL 7 cases. Results: gene mutation of *folP* was found in 19/36 cases (52.8%), that of *rpoB* in 13/33 cases (39.4%), that of *gyrA* in 6/31 cases (16.8%). Five cases showed both mutations of *folP* and *rpoB*, and one case showed those of *folP* and *gyrA*. Mutations of *folP*, *rpoB* and *gyrA* all were found in 4/36 cases

(10.3%). High incidence of resistance to DDS or rifampicin was observed, and incidence of resistance to ofloxacin was considerably high. These results reveal existence of multidrug-resistant bacilli in Japanese leprosy patients. Treatment of these cases was arranged according to the result of gene mutation analysis and satisfactory effects were obtained in 34/38 cases. One case did not respond to newer treatment. Three cases refused use of improved treatment and their disease activities are not controlled. This study proved that gene mutation analysis is a rapid and accurate method to know the drug resistance against DDS, rifampicin and new quinolones, and important in chemotherapy of leprosy.

TERAPÊUTICA CLÍNICA

Garbino JÁ, Virmond MCL, Ura S, Salgado MH, Naafs B. A randomized clinical trial of oral steroids for ulnar neuropathy in type 1 and type 2 leprosy reactions. Arq. Neuropsiquiatr 2008 dez; 66(4):861-7.

Steroids regimens in leprosy neuropathies are still controversial in both types of reactions. METHOD: For this trial, 21 patients with ulnar neuropathy were selected from 163 leprosy patients, 12 with type 1 reaction (T1R) and nine with type 2 (T2R). One experimental group started with prednisone 2 mg/kg/day and the control group with 1 mg/kg/day. A clinical score based on tests for spontaneous pain, nerve palpation, sensory and muscle function was used. Neurophysiological evaluation consisted on the motor nerve conduction of the ulnar nerve in three segments. Student "t" test for statistical analysis was applied on the results: before treatment, first week, first month and sixth month, between each regimen and types of reaction. CONCLUSION: In both reactions during the first month higher doses of steroids produced better results but, earlier treatment with lower dose was as effective. Short periods of steroid, 1 mg/Kg/day at the beginning and tapering to 0,5 mg/Kg/day or less in one month turned out to be efficient in T2R.

Literatura corrente em hanseníase

Pardillo FE, Burgos J, Fajardo TT, Dela Cruz E, Abalos RM, Paredes RM, et al. Powerful bactericidal activity of moxifloxacin in human leprosy. *Antimicrob Agents Chemother.* 2008 Sep; 52(9): 3113-7.

In a clinical trial of moxifloxacin in eight multibacillary leprosy patients, moxifloxacin proved highly effective. In all trial patients, a single 400-mg dose of moxifloxacin resulted in significant killing ($P \leq 0.006$) of *Mycobacterium leprae*, ranging from 82% to 99%, with a mean of 91%. In all instances, no viable bacilli were detected with an additional 3 weeks of daily therapy, this observed rapid bactericidal activity being matched previously only by rifampin. On moxifloxacin therapy, skin lesions cleared exceedingly rapidly with definite improvement observed consistently after eight doses and progressive resolution continuing for the 56 days of the trial. Side effects, toxicities, and laboratory abnormalities were mild, not requiring discontinuation of therapy.

van Veen NH, Nicholls PG, Smith WC, Richardus JH. Corticosteroids for treating nerve damage in leprosy. *A Cochrane review. Lepr Rev.* 2008 Dec; 79(4): 361-71.

Corticosteroids are commonly used for treating nerve damage in leprosy. We assessed the effectiveness of corticosteroids for treating nerve damage due to leprosy. **METHODS:** A systematic search was undertaken to identify randomised controlled trials (RCTs) comparing corticosteroids with placebo or with no treatment. Two authors independently assessed quality and extracted data. Where it was not possible to perform a meta-analysis, the data for each trial was summarised. **RESULTS:** Three RCTs involving 513 people were found. Two trials compared prednisolone with placebo. One trial treated mild sensory impairment of less than 6 months duration and the other trial treated nerve function impairment of 6 to 24 months duration. Both trials examined nerve function improvement 12 months from the start of treatment, but found no significant difference between the two groups. The third trial compared three corticosteroid regimens for severe type 1 reactions. After 12 months, a significantly higher proportion of individuals on a 3 month course required extra corticosteroids compared to the groups with a high-dose and low-dose regimen of 5 months duration. Diabetes and peptic or infected

ulcers were not significantly more often reported in the corticosteroid compared to the placebo group. **CONCLUSIONS:** Evidence from RCTs does not show a significant long-term effect for either long-standing nerve function impairment or mild sensory impairment. A 5 month corticosteroid regimen was significantly more beneficial than a 3 month corticosteroid regimen. Further RCTs are needed to establish the effectiveness and optimal regimens of corticosteroids and to examine new therapies

Nashed SG, Rageh TA, Attallah-Wasif ES, Abd-Elsayed AA. Intra-neural injection of corticosteroids to treat nerve damage in leprosy: a case report and review of literature. *J Med Case Reports.* 2008 Dec 9; (2): 381.

Nerve damage in leprosy patients leads to deformities and disabilities. Oral corticosteroids are given early to prevent permanent injury. We present a new approach to treat well-established nerve damage with local injection of corticosteroids. **CASE PRESENTATION:** A 60-year-old leprosy patient presented with right claw hand deformity secondary to right ulnar and median neuropathy. Monthly intra-neural injection of corticosteroids resulted in improvement in sensory and motor function of his right hand over a 6-month period. Nerve conduction velocity testing documented the success of our therapy. **CONCLUSION:** We report the first case of successful nerve regeneration in neglected neuropathy secondary to leprosy after local injection of corticosteroids. Intra-neural extra-fascicular injection of corticosteroids improved the sensory and motor nerve function in our patient with borderline leprosy regardless of the duration of nerve function loss.

TERAPÊUTICA/ REAÇÕES ADVERSAS

Veggi LM, Pretto L, Ochoa EJ, Catania VA, Luquita MG, Taborda DR, et al. Dapsone induces oxidative stress and impairs antioxidant defenses in rat liver. *Life Sci.* 2008 Aug 1; 83(5-6): 155-63.

Dapsone (DDS) is currently used in the treatment of leprosy, malaria and in infections with *Pneumocystis jirovecii* and *Toxoplasma gondii* in AIDS patients. Adverse effects of DDS involve methemoglobinemia and hemolysis and, to a lower extent, liver damage, though the mechanism is poorly characterized. We evaluated the effect of DDS administration to male and female rats (30 mg/kg body wt, twice a day, for 4 days) on liver oxidative stress through assessment of biliary output and liver content of reduced (GSH) and oxidized (GSSG) glutathione, lipid peroxidation, and expression/activities of the main antioxidant enzymes glutathione peroxidase, superoxide dismutase, catalase and glutathione S-transferase. The influence of DDS treatment on expression/activity of the main DDS phase-II-metabolizing system, UDP-glucuronosyltransferase (UGT), was additionally evaluated. The involvement of dapsone hydroxylamine (DDS-NHOH) generation in these processes was estimated by comparing the data in male and female rats since N-hydroxylation of DDS mainly occurs in males. Our studies revealed an increase in the GSSG/GSH biliary output ratio, a sensitive indicator of oxidative stress, and in lipid peroxidation, in male but not in female rats treated with DDS. The activity of all antioxidant enzymes was significantly impaired by DDS treatment also in male rats, whereas UGT activity was not affected in any sex. Taken together, the evidence indicates that DDS induces oxidative stress in rat liver and that N-hydroxylation of DDS was the likely mediator. Impairment in the activity of enzymatic antioxidant systems, also associated with DDS-NHOH formation, constituted a key aggravating factor.

Kar BR. Dapsone-induced photosensitivity: a rare clinical presentation. *Photodermatol Photoimmunol Photomed.* 2008 Oct; 24(5): 270-1.

Dapsone is an efficient anti-inflammatory and antimycobacterial agent. It is one of the main constituents of

multidrug therapy (MDT). It acts by interference with folate metabolism. Dapsone-induced photosensitivity is a rare, non-dose-related adverse effect of the sulfone and can occur in patients with inflammatory skin disorders treated with dapsone. So far, only 12 cases seem to have been reported in the literature. We report a case of dapsone-induced photosensitivity in an Indian patient with leprosy.

Knobloch J, Reimann K, Klotz LO, Rütther U. Thalidomide Resistance Is Based on the Capacity of the Glutathione-Dependent Antioxidant Defense. *Mol Pharm.* 2008 Oct 22.

Thalidomide as an effective treatment for multiple myeloma and leprosy has also caused birth defects in thousands of children five decades ago particularly in Europe. Thus its use in humans remains limited. The rapid and fatal approval of thalidomide at that time ultimately was a consequence of the sole use of thalidomide-insensitive species in animal toxicity tests. Here, we aimed at elucidating the molecular basis for the resistance of mice to thalidomide teratogenicity. By using hydroethidine staining we demonstrate that thalidomide induces the formation of superoxide in embryonic fibroblasts of thalidomide-sensitive species but not in those of mice. As determined by trypan blue staining, scavenging of superoxide prevents thalidomide-induced apoptosis, a marker for thalidomide teratogenicity. Mouse embryonic fibroblasts are found to have higher glutathione levels than those of sensitive species and can be sensitized for thalidomide by glutathione depletion with diethyl maleate or diamide. Accordingly, experimental increase of glutathione levels in human embryonic fibroblasts by adding N-acetyl cysteine or glutathione ethyl ester to the culture medium counteracts thalidomide-induced apoptosis. Finally, we show that thalidomide-induced molecular pathology downstream of superoxide is essentially identical in human and sensitized mouse embryonic fibroblasts. In conclusion, thalidomide-resistance is based on the capacity of the glutathione-dependent antioxidant defense. We provide a basis to pharmacologically overcome the limitations of thalidomide use at humans and describe substantial differences between human and mouse embryonic cells regarding the protection against oxidative stress.

Literatura corrente em hanseníase

Ranawaka RR, Mendis S, Weerakoon HS. Dapsone-induced haemolytic anaemia, hepatitis and agranulocytosis in a leprosy patient with normal glucose-6-phosphate-dehydrogenase activity. *Lepr Rev.* 2008 Dec; 79(4): 436-40.

A 21 year old boy with borderline lepromatous leprosy and normal glucose-6-phosphate-dehydrogenase activity developed haemolytic anaemia, hepatitis and agranulocytosis following 19 weeks of multi-bacillary multi-drug therapy. With early administration of antibiotics and G-CSF our patient recovered without residual complications. All patients taking dapsone should be warned to discontinue the drug immediately in the event of fever, chills and sore throat occurring within the treatment period until further investigations are performed.

Sapkota BR, Shrestha K, Pandey B, Walker SL. A retrospective study of the effect of modified multi-drug therapy in Nepali leprosy patients following the development of adverse effects due to dapsone. *Lepr Rev.* 2008 Dec; 79(4): 425-8.

Dapsone Hypersensitivity Syndrome (DHS) occurs in approximately 2% of leprosy patients in Nepal. DHS and other adverse effects of dapsone lead to withdrawal of the drug. **METHODS:** We reviewed the notes of patients who had dapsone withdrawn from their multi-drug therapy (MDT) following an adverse reaction to the drug between 1990 and 2007. **RESULTS:** 105 patients were identified from the database and 67 had a documented completion of a modified course of MDT. The majority were treated with rifampicin and clofazimine. All 36 individuals who were slit-skin smear positive had a satisfactory fall in their mean bacterial index. There were no cases of relapse. **CONCLUSIONS:** Rifampicin and clofazimine appear to be satisfactory treatment for both paucibacillary and multibacillary patients who have to have dapsone stopped because of severe adverse effects.

Tilluckdharry L, Dean R, Farver C, Ahmad M. Thalidomide-Related Eosinophilic Pneumonia: A case report and brief literature review. *Cases J.* 2008 Sep 8; 1(1): 143.

ABSTRACT: Thalidomide has regained value in the multimodality treatment of leprosy, multiple myeloma, prostate, ovarian and renal cancer. Complications related to arterial and venous complications are well described. However, pulmonary complications remain relatively uncommon. The most common pulmonary side-effect reported is non-specific dyspnea. We report a patient with multiple myeloma, who developed an eosinophilic pneumonia, shortly after starting thalidomide. She had complete resolution of her symptoms and pulmonary infiltrates on discontinuation of the drug and treatment with corticosteroids. Physicians should be cognizant of this potential complication in patients receiving thalidomide who present with dyspnea and pulmonary infiltrates.

TERAPÊUTICA / ADESÃO

Reiners AAO, Azevedo RCS, Vieira MA, Arruda ALG. Produção bibliográfica sobre adesão/não-adesão de pessoas ao tratamento de saúde. *Ciênc. saúde coletiva* 2008 dez; 13(supl.2): 2299-306.

Análise crítica da produção bibliográfica latino-americana dos últimos dez anos, acerca da adesão/não-adesão ao tratamento de pessoas portadoras de problemas crônicos de saúde: hanseníase, tuberculose, hipertensão, diabetes e aids. Foram analisados 36 artigos, identificando-se as variáveis: ano de publicação, área de publicação e tipo de estudo. A maior parte dos artigos (27) foi produzida por profissionais da área de Medicina em estudos epidemiológicos e da área de Enfermagem (7) em estudos qualitativos e quanti-qualitativos. A produção científica sobre o assunto cresceu até 2002, caindo a partir desse ano. Nas definições descritas pelos autores, a idéia recorrente foi a de que o papel do paciente é o de ser submetido às recomendações dos profissionais de saúde e que ele tem autonomia para seguir ou não o tratamento, mas o profissional exime-se da responsabilidade sobre as conseqüências dessa decisão. A maioria dos fatores

apontados pelos autores como contribuintes para a não-adesão está relacionada ao paciente, mostrando que a maior carga de responsabilidade pela adesão/não-adesão é conferida a ele. As medidas assinaladas pelos autores para a resolução do problema permitem a identificação da responsabilidade dos profissionais, serviços de saúde, governos e instituições de ensino.

Reiners AA, Azevedo RC, Vieira MA, Arruda AL. Bibliographic production about adherence/non-adherence to therapy. Cien Saude Colet. 2008 Dec; 13 (Suppl 2): 2299-306.

Critical analysis of the Latin American bibliographical production over the last 10 years regarding the adherence/non-adherence to treatment of people with chronic health problems: leprosy, tuberculosis, hypertension, diabetes and AIDS. Thirty six articles were analyzed identifying the variables: year of publication, publication area and kind of study. Most of the articles (27) were produced by professionals of the medical area, in epidemiological studies, and of the nursing area (7) in qualitative and quanti-qualitative studies. The scientific production on the subject increased until 2002, when it began to drop. The authors repeatedly defended the idea that the role of the patient is to follow the recommendations of the health professional and that the patient is free to follow or not the treatment, the professional however being exempt from the responsibility for the consequences of this decision. The greater part of factors pointed out by the authors as contributing to non-adherence relates to the patient, showing that the major responsibility for the adherence / non-adherence to treatment is conferred upon him. The measures the authors indicate for solving the problem point to responsibility of professionals, health services, governments and teaching institutions.

TELEMEDICINA

Trindade MA, Wen CL, Neto CF, Escuder MM, Andrade VL, Yamashitafuji TM, et al. Accuracy of store-and-forward diagnosis in leprosy. J Telemed Telecare. 2008; 14(4): 208-10.

Telemedicine might increase the speed of diagnosis for leprosy and reduce the development of disabilities. We compared the accuracy of diagnosis made by telemedicine with that made by in-person examination. The cases were patients with suspected leprosy at eight public health clinics in outlying areas of the city of São Paulo. The case history and clinical examination data, and at least two clinical images for each patient, were stored in a web-based system developed for teledermatology. After the examination in the public clinic, patients then attended a teaching hospital for an in-person examination. The benchmark was the clinical examination of two dermatologists at the university hospital. From August 2005 to April 2006, 142 suspected cases of leprosy were forwarded to the website by the doctors at the clinics. Of these, 36 cases were excluded. There was overall agreement in the diagnosis of leprosy in 74% of the 106 remaining cases. The sensitivity was 78% and the specificity was 31%. Although the specificity was low, the study suggests that telemedicine may be a useful low-cost method for obtaining second opinions in programmes to control leprosy.

TERMINOLOGIA

Cross HA, Lethman L. The validity and reliability of a simple semantic classification of foot posture. *Lepr Rev.* 2008 Dec; 79(4): 416-24.

The Simple Semantic Classification (SSC) is described as a pragmatic method to assist in the assessment of the weight bearing foot. It was designed for application by therapists and technicians working in underdeveloped situations, after they have had basic orientation in foot function. **OBJECTIVE:** To present evidence of the validity and inter observer reliability of the SSC. **METHOD:** 13 physiotherapists from LEPROA India projects and 12 physical therapists functioning within the National Programme for the Elimination of Hansen's Disease (PNEH), Brazil, participated in an inter-observer exercise. Inter-observer agreement was gauged using the Kappa statistic. The results of the inter-observer exercise were dependent on observations of foot posture made from photographs. This was necessary to ensure that the procedure was standardised for participants in different countries. The method had limitations which were partly reflected in the results. **RESULTS:** The level of agreement between the principle investigator and Indian physiotherapists was Kappa = 0.58. The level of agreement between Brazilian physical therapists and the principle investigator was Kappa = 0.70. **CONCLUSION:** The authors opine that the results were sufficiently compelling to suggest that the Simple Semantic Classification can be used as a field method to identify people at increased risk of foot pathologies.

ÚLCERA

Reinar LM, Forsetlund L, Bjørndal A, Lockwood D. Interventions for skin changes caused by nerve damage in leprosy. *Cochrane Database Syst Rev.* 2008 Jul 16;(3): CD004833.

BACKGROUND: More than three million persons are disabled by leprosy worldwide. The main complication of sensory nerve damage is neuropathic ulceration, particularly of the feet. In this review we explored interventions that can prevent and treat secondary damage to skin and limbs. **OBJECTIVES:** To assess the effects

of self-care, dressings and footwear in preventing and healing secondary damage to the skin in persons affected by leprosy. **SEARCH STRATEGY:** We searched the Cochrane Skin Group Specialised Register (April 2008), the Cochrane Central Register of Controlled Trials (The Cochrane Library Issue 1, 2008), MEDLINE (from 2003 to April 2008), EMBASE (from 2005 to April 2008), CINAHL (1982-2006) and LILACS (1982- April 2008) as well as online registers of ongoing trials (April 2008). **SELECTION CRITERIA:** Randomised controlled trials involving anyone with leprosy and damage to peripheral nerves treated with any measures designed to prevent damage with the aim of healing existing ulcers and preventing development of new ulcers. **DATA COLLECTION AND ANALYSIS:** Two authors assessed trial quality and extracted data. **MAIN RESULTS:** Eight trials with a total of 557 participants were included. The quality of the trials was generally poor. The interventions and outcome measures were diverse. Although three studies that compared zinc tape to more traditional dressings found some benefit, none of these showed a statistically significant effect. One trial indicated that topical ketanserin had a better effect on wound healing than clioquinol cream or zinc paste, RR was 6.00 (95% CI 1.45 to 24.75). We did not combine the results of the two studies that compared topical phenytoin to saline dressing, but both studies found statistically significant effects in favour of phenytoin for healing of ulcer (SMD -2.34; 95% CI -3.30 to -1.39; and SMD -0.79; 95% CI -1.20 to 0.39). Canvas shoes were not much better than PVC-boots, and double rocker shoes did not promote healing much more than below-knee plasters. **AUTHORS' CONCLUSIONS:** One study suggested that topical ketanserin is more effective than clioquinol cream or zinc paste. Topical phenytoin (two studies) may be more effective than saline dressing regarding ulcer healing. For the other dressings the results were equivocal. Canvas shoes were a little better than PVC-boots, but not significantly, and the effect of double rocker shoes compared to below-knee plasters was no different in promoting the healing of ulcers. No side effects were documented. There is a lack of high quality research in the field of ulcer prevention and treatment in leprosy. New trials should follow the current standards for design and reporting of randomised controlled trials.

Walsh DS, Portaels F, Meyers WM. Buruli ulcer (Mycobacterium ulcerans infection). Trans R Soc Trop Med Hyg. 2008 Oct; 102(10):969-78. Epub 2008 Jul 26.

Mycobacterium ulcerans is an emerging infection that causes indolent, necrotizing skin lesions known as Buruli ulcer (BU). Bone lesions may include reactive osteitis or osteomyelitis beneath skin lesions, or metastatic osteomyelitis from lymphohematogenous spread of *M. ulcerans*. Pathogenesis is related to a necrotizing and immunosuppressive toxin produced by *M. ulcerans*, called mycolactone. The incidence of BU is highest in children up to 15 years old, and is a major public health problem in endemic countries due to disabling scarring and destruction of bone. Most patients live in West Africa, but the disease has been confirmed in at least 30 countries. Treatment options for BU are antibiotics and surgery. BCG vaccination provides short-term protection against *M. ulcerans* infection and prevents osteomyelitis. HIV infection may increase risk for BU, and renders BU highly aggressive. Unlike leprosy and tuberculosis, BU is related to environmental factors and is thus considered non-communicable. The most plausible mode of transmission is by skin trauma at sites contaminated by *M. ulcerans*. The reemergence of BU around 1980 may be attributable to environmental factors such as deforestation, artificial topographic alterations and increased manual agriculture of wetlands. The first cultivation of *M. ulcerans* from nature was reported in 2008.

Forsetlund L, Reinar LM. Quality of reporting and of methodology of studies on interventions for trophic ulcers in leprosy: a systematic review. Indian J Dermatol Venereol Leprol. 2008 Jul-Aug; 74(4): 331-7.

BACKGROUND: In the process of conducting a systematic review on interventions for skin lesions due to neuritis in leprosy, we assessed several primary papers with respect to the quality of reporting and methods used in the studies. Awareness of what constitutes weak points in previously conducted studies may be used to improve the planning, conducting and reporting of future clinical trials. **AIMS:** To assess the quality of reporting and of

methodology in studies of interventions for skin lesions due to neuritis in leprosy. **METHODS:** Items of importance for preventing selection bias, detection bias, attrition bias and performance bias were among items assessed. The items for assessing methodological quality were used as a basis for making the checklist to assess the quality of reporting. **RESULTS:** Out of the 854 references that we inspected eight studies were included on the basis of the inclusion criteria. The interventions tested were dressings, topical agents and footwear and in all studies healing of ulcers was the main outcome measure. Reporting of both, methods and results suffered from underreporting and disorganization. The most under-reported items were concealment of allocation, blinding of patients and outcome assessors, intention to treat and validation of outcomes. **CONCLUSION:** There is an apparent need to improve the methodological quality as well as the quality of reporting of trials in leprosy ulcer treatment. The most important threat in existing studies is the threat of selection bias. For the reporting of future studies, journals could promote and encourage the use of the CONSORT statement checklist by expecting and requiring that authors adhere to it in their reporting.

Tinen T, Iha H, Miyagi C, Yusa M, Taira H, Matsumoto K. Improved care of foot ulcer using foot pressure measurement and foot care method sheet. Nihon Hansenbyo Gakkai Zasshi. 2008 Sep;77(3): 231-5.

At this sanatorium, the number of foot bottom ulcer patients was 13 and the tenure of the foot bottom ulcer was average 11 years. According to the treatment that was not unified, we thought about the cause of the prolongation. Therefore, we made evaluation and care method sheet ("foot care sheet") of the ulcer for the unification. We used the foot pressure measurement system (F-scan) to 4 patients for the pressure dispersion of the ulcer. We devised the protection law of the ulcer, and an ulcer did not require pressure more than 5 kilos/cm². We recorded the size of the ulcer, weight of the liquid from ulcer, a photograph to care sheet once a week. I performed ulcer protection law and management with the foot care sheet to 4 patients for average 4 months. As a result, the ulcers of 3 patients out of 4 patients became small.

