CURRENT LITERATURE

This department carries selected abstracts of articles published in current medical journals dealing with leprosy and other mycobacterial diseases.

General and Historical

Campos-Outcalt, D. and Pust, R. E. Hansen's disease in Arizona. Ariz. Med. **41** (1984) 658–660.

With the recent influx of refugees from Third World countries where Hansen's disease is endemic, the incidence of leprosy in the United States is increasing. The number of cases reported, however, remains small and the risk to the general public is very low.

Physicians should entertain the possibility of Hansen's disease whenever a patient, who has lived in a Third World country, presents with chronic complaints referable to the skin, peripheral nerves or upper respiratory tract. A high index of suspicion, appropriate use of skin punch biopsy and a basic knowledge of Hansen's disease clinical types, treatment regimens and resources for referral will lead to appropriate care.—Authors' Abstract

Kumar, A., Thangavel, N., Durgambal, K. and Anbalagan, M. Community leaders' involvement in leprosy health education. Indian J. Lepr. **56** (1984) 901–911.

As an alternative approach, 310 community leaders consisting of village political leaders, school teachers, government staff, members of socio-welfare and religious agencies, graduate students and traders from 21 villages of Chingleput district of Tamil Nadu (India) were interviewed to explore the possibilities of their involvement in leprosy health education in the community.

Although a majority (76%) of respondents were not fully aware about various aspects of leprosy and showed negative reactions (51%) toward leprosy patients, almost all realized the importance of educating the community about leprosy for its early control, for which a large majority (88%) of them expressed their willingness to participate in leprosy health education and control programs by devoting an average of 4.4 ± 5.4 hours per week. A good number (54%) of them had also been educating people about leprosy in one or the other. The leaders who had been exposed to leprosy health education, especially in the recent past, were significantly better equipped with knowledge about leprosy and its control and were much more willing to participate in the program than others. The study concluded that if the community leaders are approached, educated and motivated properly, they would certainly involve themselves to provide a valuable strength to our leprosy health education and control program.—Authors' Abstract

Chemotherapy

Anokhina, V. V. *In vitro* cultivation of leprosy granulation tissue and the effect of rifampin on it. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 151–155. (in Russian)

In vitro cultivation of leprosy granulation tissue is performed and the possibility of using it for initial screening of antileprosy drugs is stated. Certain morphological dynamics dependent on the terms of cultivation are observed. A marked effect of rifampin on the culture is found, as judged by a significant decrease in intracellular *Mycobacterium leprae.*—English Summary

Daneshmend, T. K. The neurotoxicity of dapsone. Adv. Drug React. Acute Poison. Rev. **3** (1984) 43–58.

Dapsone (4,4-diaminodiphenyl sulfone, DDS) is a sulfonic used in the treatment of leprosy and a wide variety of nonleprotic skin disorders. The vast majority of the documented adverse effects of dapsone are, fortunately, rare. This review deals with dapsone-associated neuropathy in diseases other than leprosy, dapsone neuropathy in leprosy, dapsone and the eye, dapsone-associated movement disorders, and dapsone-associated psychosis.

Dapsone as a cause of severe peripheral neuropathy was first reported in 2 patients in 1969. Subsequently, there have been only 11 further reports in as many years. The possibility of dapsone causing further nerve damage in patients with leprosy is unlikely to be easily resolved.

There are 2 case reports of visual impairment associated with dapsone. In both of these patients vascular damage was proposed as a cause of their illnesses.

From the published accounts, the nature and mechanism of the abnormal movements associated with dapsone is unclear. All occurred following acute dapsone poisoning; the abnormal movements did not persist or recur after recovery from poisoning; and all patients had significant anemia, methemoglobinemia, hemolysis, or cyanosis. Thus, cerebral anoxia secondary to these abnormalities has been suggested as the mechanism.

The existence of dapsone psychosis is questionable.—(*From* the Article)

Evstratova, V. A., Urlyapova, N. G., Chernysheva, L. M., Bragina, V. S., Nazarov, K. I. and Sim, V. S. Combined therapy of leprosy patients with solusulfone, rifampin, and prothionamide. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 110–112. (in Russian)

Daily and intermittent regimens of combined therapy with three drugs—sulfones, rifampin, and prothionamide—are of high effectiveness in leprosy, especially in the cases of bacilliferous leprosy. The intermittent regimen is more convenient, sparing and economical and may be recommended for the treatment of the patients of old age and those with concurrent diseases.—English Summary

Gnenjuk, T. S. Dimociphon in combined therapy of drug-resistant and relapsed leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 116–121. (in Russian)

The results of the treatment of 120 LL patients with drug resistance and relapses showed the effectiveness of dimociphon in a dose of 200 mg a day. It is stated that intermittent administration of dimociphon combined with rifampin and clofazimine is superior over the treatment with dimociphon alone.—English Summary

Gnenjuk, T. S. Some data on pharmacokinetics of dimociphon in leprosy (experimental and clinical investigation). In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 122–126. (in Russian)

Dimociphon levels in blood and some tissues as well as its clearance from organisms of laboratory animals and LL patients were assayed. Based on the results of the experimental and clinical investigations, a single dose of 200 mg with intervals of 24–48 hours is recommended.—English Summary

Hooper, M. The search for new drugs for the treatment of leprosy. Lepr. Rev. **56** (1985) 57–60.

The reasons for wanting to develop completely novel antileprotic drugs are stated. A number of promising lead compounds are identified from a consideration of the biochemistry and structure of *Mycobacterium leprae* and the natural product, oil of chaulmoogra. Their structures provide a rational basis for the development of programs of research which could lead to new antileprotic agents. Some early success in one such program is reported.—Author's Summary

Irtuganova, O. A. and Urlyapova, N. G. The use of "*M. lufu*" for initial screening of antileprosy drugs. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed.

Astrakhan, USSR, 1984, pp. 147–150. (in Russian)

The possibility of using "*Mycobacterium lufu*" as a test strain for *in vitro* screening of compounds with antileprosy activity is studied. The modified method for a comparative assessment of the effectiveness of antileprosy drugs using "*M. lufu*" is developed.—English Summary

Jagannathan, R. and Mahadevan, P. R. Synergistic activity of dapsone and brodimoprim (a dihydrofolate inhibitor) against *Mycobacterium leprae.* IRCS Med. Sci. **13** (1985) 265–266.

Seydel and his colleagues have used brodimoprim (BDP), a trimethoprim derivative with dihydrofolate inhibitory activity which, by itself, has anti-"*Mycobacterium lufu*" activity at the level of 40 μg/ml. However, in combination with dapsone, the two drugs will inhibit growth of "*M. lufu*" at a concentration of 8 μg/ml BDP with 0.003 μg/ml dapsone, and 4 μg/ml BDP with 0.006 μg/ml dapsone. Since, as noted above, dapsone alone was active against "*M. lufu*" only at the 0.03–0.05 μg/ml level, these drugs in combination showed a dramatic synergistic effect.

We have earlier reported an *in vitro* assay system using macrophage-associated Fc receptors in the presence of *M. leprae* and drugs. In this system, live *M. leprae* will induce reduction of Fc receptor-bearing macrophages after phagocytosis of the bacteria. Such a change does not take place if bacteria are killed before use or if anti-*M. leprae* drugs are present inside the macrophages. Using this assay system we have shown activity of BDP against *M. leprae* and synergistic activity of dapsone and BDP against the organism.—(*From* the Article)

Juscenko, A. A., Rezaev, A. A. and Efremova, T. V. The usage of liposomes for directed transport of drugs in leprosy (a preliminary report). In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 143–146. (in Russian)

The preliminary results of experimental investigation on potential usage of liposomes for directed transport of drugs in leprosy are presented. Further development of the method proposed is deemed to be advisable and of perspective for a more effective chemotherapy of leprosy patients.—English Summary

Kadantsev, N. D. and Kogan, V. R. The analysis of causes of relapses in leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 106–109. (in Russian)

Annual relapse rate has averaged 1.3% in recent years. The main cause of leprosy relapses is due to the ability of *Mycobacterium leprae* to persist even in the background of antileprosy chemotherapy. The occurrence of relapses is also due to the combination of endogenous and exogenous factors. The mechanism of the action of these factors is a complex one, the influence of one being mediated and strengthened by the other. Defaulting plays a particularly important part and in 70% of relapses is related to the negative attitudes of the patients.—English Summary

Kar, H. K. and Roy, R. G. Reversible acute renal failure due to monthly administration of rifampicin in a leprosy patient. Indian J. Lepr. **56** (1984) 835–839.

Special complications due to intermittent rifampin administration have been well documented, especially for the treatment of tuberculosis. Multidrug therapy recommended for the treatment of leprosy by WHO (1982) advocates the administration of rifampin at monthly intervals and at this level of infrequent administration, complications linked with intermittent therapy are seldom noted. An adult male put on the WHO regimen for treatment of lepromatous leprosy developed acute renal failure at the time of second and third monthly doses of rifampin therapy, but recovered completely due to prompt treatment.—Authors' Abstract

Li, W., Ye, G., Wang, H., Tao, M., Ma, B. and Zhang, Y. [Survey on prevalence rate of dapsone resistant leprosy in Yangzhou District.] Chung Kuo 1 Hsueh Ko Hsueh Yuan Hsueh Pao **6** (1984) 59–61. (in Chinese)

Two thousand one hundred-one cases of secondary dapsone-resistant leprosy were

investigated in Yangzhou District, Jangsu Province, China, 56.3% being multibacillary leprosy. Since 1974, in a series of 1095 cases of leprosy, 36 had been found to be dapsone resistant, 28 being proved with the mouse foot pad test and with clinical trials, giving a prevalence rate of 7% since 17 of 242 cases of leprosy were found to be dapsone resistant. Six cases of untreated BL leprosy were selected for the investigation of primary dapsone-resistant leprosy. In 2 of them, the organism was able to multiply in mice treated with dapsone, one showing high and the other low resistance.—Authors' English Summary

Loginov, V. K., Ryzhova, N. Y. and Gnenjuk, T. S. Drug interactions in combined antileprosy therapy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 113–115. (in Russian)

No antagonism of the drugs in combined administration of sulfetrone and rifampin, clofazimine, or prothionamide is discovered. Intensification of hypoxia and worsening of liver functions in the patients under such therapy necessitates withdrawing the drugs, especially when the combination of sulfetrone and rifampin is used.—English Summary

Naik, S. S. Comparative value of dapsone "spot test" and dapsone "tile test" in leprosy control programme. Indian J. Lepr. **56** (1984) 847–851.

The sensitivity of the dapsone "spot test" with modified Ehrlich's reagent and the dapsone "tile test" using Barton-Marshall reagents—both being qualitative tests for screening of dapsone in urine—are compared with the dapsone/creatinine ratio—a quantitative test. Three hundred sixteen urine samples were processed by paramedical workers in the field for the dapsone "tile test" and the dapsone "spot test." The same samples were brought to the laboratory and subjected to these two tests in addition to the dapsone/creatinine estimation. These three tests correlated well at the level of 91%. The results obtained by paramedical workers and experienced workers at the laboratory showed 97% concordance.—Author's Abstract

Paradkar, S., Malvi, H., Sharma, D. R. and Misra, N. P. Multidrug regime in management of leprosy. Clinician (India) **47** (1983) 277–280.

Eighty patients were selected at random from untreated and treated cases of lepromatous leprosy. Of these, 56 patients had been receiving dapsone previously without much clinical improvement. The rest of the cases were virgin cases. The patients were diagnosed on the basis of clinical features and demonstration of *Mycobacterium leprae* in skin by the slit and scrape method. In group I, 65 patients received rifampin (RMP) 600 mg daily + clofazimine (CLF) 100 mg daily + dapsone (DDS) 50 mg daily. In group II, 10 patients received monthly administration of RMP in 2 doses, i.e., 900 mg each on two successive days for 3 months + DDS 200 mg per week and in group III, 5 patients received RMP 150 mg daily + CLF 300 mg per week. Drugs were given for 3 months in each group. It is evident from the study that the results of group I are most satisfactory. The study also clearly shows the superiority of RMP over DDS.—Authors' Summary

Pattyn, S. R. Eerste resultaten van prospectieve gecontroleerde behandelingsproeven bij lepra. [Initial results of prospective controlled treatment trial in leprosy.] Ver. K. Acad. Geneeskd. Belg. **46** (1984) 207–219. (in Flemish)

During our prospective therapeutic trials in the treatment of leprosy it was discovered that 50% of relapses in paucibacillary (PB) leprosy occur within 3½ years and within 2 years in multibacillary (MB) leprosy. This information is essential to determine the duration of follow-up in our studies.

Different treatment regimens were applied in PB and MB leprosy, allowing a first evaluation mainly concerning their efficacy. Their value in the prevention of relapses will only be known in 1–2 years more time.

It has been shown to be possible to reduce the duration of treatment of MB leprosy to 1 year and there are indications that regimens of 6 months' duration may be effective. An unexpected complication was the appearance of hepatotoxicity as a result of daily administration of rifampin and ethionamide. Therapeutic regimens tending

to avoid this complication are discussed.—Author's English Summary

Reddy, B. N. and Neelan, P. N. Role of dapsone in chemotherapy of leprosy—a comparison of responses to therapy in two cohorts in 1960s and 1970s. Indian J. Lepr. **56** (1984) 912–918.

Two cohorts of bacterio-positive cases registered and started on treatment during 1960–1962 (I cohort) and 1968–1970 (II cohort) were studied for differences in their response to dapsone monotherapy. The proportion of male and female cases, mean Bacteriological Index (BI) and the distribution of cases according to the initial BI did not differ between the two cohorts; 49.7% of the patients in the II cohort were taking regular treatment against 27.4% in the I cohort. At the end of 7 years of treatment, the proportions of the cases that were bacteriologically negative were 68.6% and 83.0%, respectively. Relapse rates in I and II cohorts were 14.3% and 7.9%, respectively, over a period of 7 years. The findings showed that dapsone continued to be an effective antileprosy drug and must be included in all multidrug regimens in the therapy of leprosy.—Authors' Abstract

Samuel, N. M., Samuel, S., Loudon, J. and Adiga, R. B. Primary dapsone resistant leprosy in Nepal. Indian J. Lepr. **56** (1984) 819–822.

Mouse foot pad testing for primary dapsone-resistant leprosy was performed in 15 patients; 13 (87%) were resistant to some degree and bacilli from 7 (47%) were resistant to 0.01% dapsone in the mouse diet. Two patients below 10 years of age were living with lepromatous leprosy mothers; 1 male, aged 21, was born in Kokana Leprosarium; and 10 others gave no history of known contact of leprosy.—Authors' Abstract

Samuel, N. M., Samuel, S., Loudon, J., Neupani, K. and Adiga, R. B. Prevalence of secondary dapsone resistance in Nepal. Indian J. Lepr. **56** (1984) 823–827.

Between 1980–1982, 56 patients suspected of developing dapsone-resistant leprosy were seen at the skin clinic of Anandaban Leprosy Hospital and Kokana Leprosarium. Out of 56, 16 control mice had no growth and 29 patients (72.5%) were proved resistant by the mouse foot pad test.—Authors' Abstract

Wong, P., Bottorff, M. B., Heritage, R. W., Piccoro, J. J., Jr. and Rodgers, G. C., Jr. Acute rifampin overdose: A pharmacokinetic study and review of the literature. J. Pediatr. **104** (1984) 781–783.

The rifampin pharmacokinetic profile is well defined in both single-dose and multiple-dose regimens; however, pharmacokinetic information in overdose is scarce. In addition, there is still limited knowledge about adverse effects from acute ingestion of large amounts of rifampin. This case report provides pharmacokinetic information on rifampin ingested in a single massive dose (12 grams) and illustrates the general absence of hemodynamic, hematologic, renal, or hepatic side effects despite a markedly elevated serum concentration.—Authors' Abstract

Clinical Sciences

Baño Aracil, M., Monferrer Guardiola, R., Beltran Fabregat, J., Monferrer Guardiola, J. F., Simon Marco, E., Vargas Molguin, S. M. and Vera-Roman, J. M. Eritema nodoso como primera manifestacion de una lepra. Descripción de un caso. [Erythema nodosum leprosum as the first manifestation of leprosy. Description of a case.] Med. Española **83** (1984) 97–102. (in Spanish)

A case of leprosy that initially manifested as erythema nodosum leprosum (ENL) is presented. The ENL appeared much before the diagnosis of leprosy was made. Since in the majority of the cases of leprosy ENL develops following treatment, it seems of interest to publish this new case as one of the rare instances when ENL precedes the better known manifestations of leprosy—Authors' English Summary

Baranov, Y. N., Evstratova, V. A. and Podoplelov, I. I. Digital dermatoglyphics in leprosy patients with severe nerve damage. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 90–93. (in Russian)

A comparative study on quantitative and qualitative characters of digital dermatoglyphics in leprosy patients with severe peripheral nerve damage and those with no such damage is carried out. It is stated that severe nerve damage has developed far more frequently in male patients showing a whorl type pattern in the area innervated by n. ulnaris (IV and V fingers) and in females showing a whorl type pattern in the area innervated both with n. ulnaris and n. medialis (mainly III and IV fingers).—English Summary

Baranov, Y. N. and Podoplelov, I. I. Distribution of blood groups and finger patterns in the families with leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 94–97. (in Russian)

Family studies showed that blood relatives of leprosy patients having blood groups which are by isoantigenic composition similar to the blood group of the index case and identical dermatoglyphic patterns on the first fingers contract leprosy far more frequently than the relatives with dissimilar blood groups and digital patterns.—English Summary

Chattopadhyay, S. P., Borua, P. C. and Rathore, B. S. Value of pilocarpine test in early diagnosis of leprosy. Indian J. Lepr. **56** (1984) 877–883.

A modified pilocarpine test was carried out in 48 patients under investigation for leprosy; 37 cases showed deficient sweating of varying degrees. Many of these patients did not reveal confirmatory histopathological changes and were bacteriologically negative. In the absence of other causes of neuropathy, this finding of deficient sweating by the modified pilocarpine test was significant. The same test was carried out in 8 confirmed cases of tuberculoid leprosy. All cases showed positive results.—Authors' Abstract

Durairaj, V., Radhabai, K., Alagappan, R., Koteeswaran, A., Venkataraman, V. and Kannan, K. Adrenal cortical function and reserve in lepromatous leprosy. Indian J. Lepr. **56** (1984) 828–834.

Twenty-two chronic lepromatous leprosy patients of over 10 years duration, 17 nonreactional and 5 reactional states who have not taken steroids as part of their treatment, were selected for study. Serum cortisol was estimated by radioimmunoassay. Samples for basal values were collected at 8:00 a.m. Stimulated values were estimated in samples collected 8 hr after ACTH gel 40 units IM or 2 hr after 0.15 unit/kg regular insulin I.V. Basal serum cortisol in the nonreactional state is slightly lower than in normals but not statistically significant. The basal cortisol in reactional subjects is slightly higher than in normals but not significant statistically. The percentage rise over the basal value of the stimulation test is found to be significantly low in both the reactional and nonreactional states, and also there is no statistically significant difference between these two groups. Hence, it is concluded that the adrenal cortical reserve is low in both the nonreactional and reactional states of lepromatous leprosy.—Authors' Abstract

Esca, S. A. and Zelger, J. Dimorphe Lepra. [Dimorphous leprosy.] Hautarzt **35** (1984) 298–302. (in German)

In 1981 we observed 2 cases of leprosy in Salzburg. The 2 Vietnamese refugees already had advanced borderline disease. Treatment with dapsone resulted in clearing of the skin in both cases. One of the patients developed a leprosy reaction during treatment.—Authors' English Summary

Ghei, S. K., Girdhar, B. K., Ramu, G., Katoch, K., Ramanathan, U., Sengupta, U. and Desikan, K. V. Dermatoglyphics in leprosy (I. Finger patterns). Indian J. Lepr. **56** (1984) 855–860.

Finger dermatoglyphic patterns were studied in leprosy families selecting patients and controls from each family. A total of 100 leprosy cases (50 of TT/BT types and 50 of BL/LL types) and 100 control subjects were investigated. While a statistically sig-

nificant association was noted with some fingerprint patterns (loop ulnar, loop radial, loop twin and loop central pocket) in the lepromatous type, no such association was observed with the patterns in the tuberculoid type.—Authors' Abstract

Gupta, C. M., Tutakne, M. A. and Bhanu, B. V. Absence of triradius d on the palm of a leprosy patient. Indian J. Lepr. **56** (1984) 852–854.

An extremely rare finding of the absence of the digital triradius d in a case of borderline tuberculoid leprosy from Maharashtra (India) is reported with a review of literature.—Authors' Abstract

Gupta, C. M., Tutakne, M. A., Tiwari, V. D. and Chakrabarty, N. Inoculation leprosy subsequent to dog bite. A case report. Indian J. Lepr. **56** (1984) 919–920.

Development of a leprosy lesion at the site of inoculation or injury is described by many workers off and on. An interesting case of indeterminate leprosy developing at the site of a dog bite is reported.—Authors' Abstract

Gupta, O. P., Jain, A. P., Jajoo, U. N., Kumar, K. and Parvez, K. Respiratory dysautonomia in leprosy. Indian J. Lepr. **56** (1984) 844–846.

Autonomic neuropathy in leprosy has been reported recently. Twenty-five cases of polar lepromatous leprosy with and without lepra reaction and 25 normal controls have been studied for respiratory dysautonomia. In 12 cases out of 25 (48%), involvement of sympathetic respiratory reflexes has been observed. Possible causes of the same are discussed.—Authors' Abstract

Jain, A. P., Khan, N., Gupta, O. P., Gupta, G. and Moghe, K. V. Clinico-pathological study of nephrotic syndrome in leprosy. J. Assoc. Physicians India **31** (1983) 437–438.

The present study comprised 4 cases of nephrotic syndrome, of which 3 had lepromatous leprosy with recurrent episodes of lepra reaction and 1 had tuberculoid leprosy. Edema and anemia were the commonest presenting symptoms in all the cases. Massive proteinuria with hypoproteinemia was seen in lepromatous leprosy cases, but in a case of tuberculoid leprosy hypoproteinemia was associated with moderate proteinuria. Hypercholesterolemia in association with hypoproteinemia was seen in all of the cases. Amyloid changes in 2 cases and proliferative glomerulonephritis and membranous proliferative glomerulonephritis each in 1 case was seen in the present study.—Authors' Summary

Jesudasan, K. and Christian, M. Spontaneous healing in paucibacillary leprosy. Indian J. Med. Res. **81** (1985) 119–122.

The spontaneous healing of leprosy in 88 paucibacillary leprosy patients was studied. Depending on the criteria used, 40–75% of the patients had undergone spontaneous regression within a period of 5 years from detection; 94% of the patients had indeterminate or tuberculoid leprosy; 76% of the patients had a single patch at the time of detection; and 89% of them were detected by surveys.—Authors' Abstract

Kaipbergenov, U. K. The changes in upper respiratory organs in the discharged patients with "burnt out" lepromatous leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 102–105. (in Russian)

The data on incidence and pattern of the changes in upper respiratory organs in the discharged patients with "burnt out" lepromatous leprosy in Karakalpak, USSR, are presented with reference to local factors. Specific recommendations with respect to the correction of the defects noted are made.—English Summary

Kuzina, Z. A. The study of antibodies to DNA in the patients with complicated lepromatous leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 69–72. (in Russian)

The indirect hemagglutination test with DNA as an antigen showed statistically more high titers of antibodies to DNA in 117 sera from 96 leprosy patients as compared with those from healthy persons. No relation was

found between types of leprosy, severity of the lepromatous disease, and titers of antibodies to DNA. High titers of autoantibodies were seen with the most frequency in the patients with complicated lepromatous leprosy (osteomyelitis, ENL, polyneuritis). Correlation analysis revealed a direct relation between the levels of circulating immune complexes and titers of antibodies to DNA in lepromatous leprosy patients with ENL and polyneuritis. A significant role of autoantibodies in the formation of immune complexes and pathogenesis of lepromatous complications is suggested.—English Summary

Loginov, V. K. and Vishnevetsky, F. E. Associated hepatic and renal damages in lepromatous leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 98–101. (in Russian)

Based on functional state and analysis of biopsy and sectional material, the dependence of the development of associated damages of liver and kidneys on the activity of leprosy process and duration of antileprosy therapy is noted. Hepatic investigation showed the pattern of chronic persisting hepatitis and cirrhosis, and the study of kidneys revealed the damage of tubular epithelium, glomerulonephritis, and interstitial nephritis.—English Summary

Lucht, F., Rifle, G., Portier, H., Chalopin, J. M. and Bonhomme, J. Successful plasma exchange in type 1 leprosy reversal reaction. Br. Med. J. **289** (1984) 1647–1648.

A 24-year-old man admitted to hospital with borderline lepromatous leprosy was treated with rifampin, dapsone, and clofazimine. After 4 months he developed a reversal reaction and the diagnosis was modified to borderline tuberculoid leprosy. The dose of clofazimine was raised and prednisolone added to the regimen without any symptomatic response. His condition improved dramatically after 5 plasma exchanges on 5 successive days.—Authors' Abstract

Mende, V. B., Stein, G. and Kreysel, H. W. Knochenveränderungen bei Morbus Hansen. [Bone changes in leprosy.] Fortschr. Geb. Röntgenstr. Nuklearmed. Ergänzungsband. **142** (1985) 189–192. (in German)

Bone lesion is a frequent organic manifestation in leprosy. Osseal destructions caused by the granulomatous process induced by *Mycobacterium leprae* are so-called specific lesions in contrast to nonspecific lesions based on nerve or arterial diseases. The specific osseal alterations are characterized by cystic brightenings in the roentgenograms, while nonspecific osseal changes show absorption to bone structure as acroosteolysis and osteoporosis. Typical radiologic findings in different stages of mutilation are demonstrated.—Authors' English Abstract

Naumov, V. Z. and Balybin, E. S. The production of endogenous hydrocortisone and functional activity of lymphocytes in lepromatous leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 61–64. (in Russian)

Glucocorticoid function of the adrenal cortex was studied in 32 patients with lepromatous leprosy as related to blast transformation of lymphocytes to PHA and PPD. It is stated that low levels of LTT to stimulation with PPD in active leprosy patients and in some cases with stable regression of their disease are accompanied by the decrease in glucocorticoid reserve function of the adrenal cortex and high basal levels of hydrocortisone in blood sera. The role of hydrocortisone as an immune regulator in leprosy is discussed.—English Summary

Pareek, S. S. and Al-Nozha, M. *Mycobacterium leprae* in seminal fluid: A case report. Lepr. Rev. **56** (1985) 49–50.

Testicular involvement leading to impotence, sterility, and gynecomastia is well documented in lepromatous leprosy. Rogers and Muir described the presence of *Mycobacterium leprae* in the seminal vesicles. Bacteria were also demonstrable in the form of globi in seminiferous tubules of lepromatous patients. This report concerns a patient with lepromatous leprosy who showed the presence of *M. leprae* in seminal fluid.—(*From* the Article)

Ryzhova, N. Y. The assessment of activity of leprosy process and effectiveness of antileprosy therapy by excess lactate in blood. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 130–134. (in Russian)

The assessment of excess lactate (EL) in blood revealed that in newly recognized, untreated leprosy patients the accumulation of lactic acid (LA) occurred through the nonanaerobic pathway. Under antileprosy therapy resulting in clinical recovery, the shift into anaerobic pathway of LA accumulation was observed due to activation of glycolysis. The calculation of EL might be an additional test for assessment both of activity of leprosy process and effectiveness of antileprosy therapy.—English Summary

Seang Hoo Nah, Marks, S. C. and Subramaniam, K. Relationship between the loss of maxillary anterior alveolar bone and the duration of untreated lepromatous leprosy in Malaysia. Lepr. Rev. **56** (1985) 51–55.

Alveolar bone loss and the duration of untreated disease were compared in 31 patients with lepromatous leprosy. In general, those patients with the longest confirmed untreated disease also had the greatest alveolar bone loss in the anterior maxilla. These data, taken together with previous observations, suggest that early detection and uninterrupted treatment of lepromatous patients will reduce the osseous deformities of the disease.—Authors' Summary

Selezneva, S. P., Baranov, Y. N. and Podoplelov, I. I. The relation between cell-mediated immunity and blood groups in leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 73–75. (in Russian)

The indicators of cell-mediated immunity in leprosy patients with different blood groups of ABO-system were studied. The patients with LL leprosy and blood group "B" showed a significant decrease in the number and functional activity of T lymphocytes in peripheral blood as compared to those patients with other blood groups.—English Summary

Sengupta, U., Ramu, G., Revankar, C. R., Ganapati, R., Garg, B. R., Ghosh, M. and Desikan, K. V. Evaluation of standard Dharmendra lepromin. Indian J. Lepr. **56** (1984) 748–753.

Dharmendra lepromin standardized at the Central JALMA Institute for Leprosy (CJIL) by bacterial counts was used by different observers in 4 different centers to assess the early and late reactions. Patients taken into the study were from different ethnic groups in different regions of the country. Comparable skin reactions were found at the Bombay Leprosy Project (BLP), Bombay, and at the CJIL, Agra, where a large number of patients were taken in the study. Similarly, when a smaller number of patients were taken in the study at the Base Hospital (BH), Barrackpore, and at the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, the skin reactions noted in patients at these centers were again found to be statistically comparable.—Authors' Abstract

Immuno-Pathology

Balybin, E. S. The *in vitro* dynamics of cyclic adenosine monophosphate levels in lymphocytes from lepromatous leprosy patients (the first report). In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 46–50. (in Russian)

The levels of cyclic adenosine monophosphate (cAMP) were studied in lymphocytes incubated with different concentrations of sensitin from *Mycobacterium leprae* (SML) and purified tuberculin derivative (PPD) at various periods of time from 30 seconds to 2 hours (early dynamics of cAMP). The influence of activity of the lepromatous leprosy process on early dynamics of cAMP in lymphocytes when incubated with SML was stated. The hypothesis that the dynamics of cAMP levels would

reflect the interactions between patients' lymphocytes and *M. leprae* antigens was put forward.—English Summary

de Vries, R. R. P., van Eden, W. and Ottenhoff, T. H. M. HLA class-II immune response genes and products in leprosy. Prog. Allergy **36** (1985) 95–113.

In this paper we have described an immunogenetic approach to study the role of HLA class-II Ir genes and products in disease susceptibility and discussed leprosy as an example. We have focused on HLA class-II products assuming they are closely linked with or even themselves are products of Ir genes, thus leading to differential immune responses in different individuals.—(*From* the Article)

Deo, M. G. Antileprosy vaccines—field trials and future prospects. Indian J. Lepr. **56** (1984) 764–775.

Development of a vaccine for prevention of leprosy is today one of the major challenges for biomedical sciences. Two vaccines containing a) *Mycobacterium leprae* + BCG and b) ICRC, a cultivable mycobacterium, have reached advanced stage with reference to human trials. This article describes comparative features of the two vaccines and the mechanism of their action. Future possibilities with reference to antileprosy vaccine are also discussed.—Author's Abstract

Dyachina, M. N., Vorobyeva, Z. G., Pervukhin, Y. V., Nazarov, K. I., Eshchanov, T. B. and Vinnik, L. A. Assessment of sensitin from *M. leprae* by cell-mediated and humoral immune reactions. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 35–39. (in Russian)

The diagnostic value of sensitin prepared from *Mycobacterium leprae* (SML) at the Leprosy Research Institute is assessed. Intracutaneous injection of SML caused different reactions in patients with various types of leprosy. *In vitro* tests using SML showed a reverse correlation between LTT values and humoral immunity reactions (indirect hemagglutination tests) in leprosy patients. In blood neutrophil reaction (PPN test), SML caused a specific damaging effect on leprosy neutrophils. Low levels of cross-reactions to SML and tuberculin are noted in both *in vivo* and *in vitro* tests.—English Summary

Gad, S. M., Shannon, E. J., Krotoski, W. A. and Hastings, R. C. Thalidomide induces imbalances in T lymphocyte subpopulations in circulating blood of healthy males. Lepr. Rev. **56** (1985) 35–39.

Lepromatous leprosy patients experiencing erythema nodosum leprosum (ENL) have been reported to have an increase in the ratio of circulating T helper to T suppressor cells (H:S ratio). Thalidomide is an effective drug in the management of ENL. To determine if thalidomide affected cells of the immunoregulatory system, B cells, T cells, T suppressor cells, T helper and natural killer cells in the blood of the healthy males were enumerated. Thalidomide induced a decrease in the T helper to T suppressor cell ratio. The decrease was due to a significant reduction in the percentage and absolute number of T helper cells and an apparent increase in the percentage and absolute number of T suppressor cells. B cells and natural killer cells were not affected.

Thalidomide's ability to decrease the H:S ratio in healthy individuals suggests that it may act in ENL by reducing an elevation of that ratio.—Authors' Summary

Ibraimov, M. The cell interaction in lepromin test. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 51–60. (in Russian)

The biopsies from the sites of lepromin test of the patients with TT, BT, BL, LL leprosy and healthy persons were studied electron microscopically and electron cytochemically, comparing with those from guinea pigs and rats. Cellular contents, ultrastructure and cell interaction were described in early (48 hour) and late (3 week) reactions to lepromin.—English Summary

Jeevan, A. and Bapat, C. V. Induction of delayed-type hypersensitivity by ICRC antileprosy vaccine and the adoptive

transfer of cell-mediated immunity in mice. Indian J. Lepr. **56** (1984) 754–763.

The immunogenic potency of antileprosy ICRC vaccine preparations was determined by foot pad enlargement in mice. Female BALB/c mice were sensitized by the intradermal route with irradiated, heat-killed or live antigens of 2 strains (C-44 and C-75) of ICRC bacilli and tested against lepromin and ICRC antigens. ICRC antigens sensitized mice against lepromin; similarly, BCG and *Mycobacterium leprae*-sensitized mice showed good crossreactivity with ICRC antigens. A mixture of irradiated ICRC bacilli and live BCG was not more immunogenic to mice than its single constituents. The immunity induced by ICRC antigens could be adoptively transferred to syngeneic recipients by sensitized spleen cells.—Authors' Abstract

Kuzina, Z. A. The dynamics of immunological parameters in lepromatous leprosy patients as related with various methods of therapy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 139–142. (in Russian)

The levels of immune complexes, titers of antibodies to DNA and skin reactions to PHA were studied in two groups of LL patients receiving for a year either combined antileprosy treatment or antileprosy drugs together with immune modulators. The dependence of therapy effectiveness on the complications of leprosy process and various methods of specific treatment, with superiority of a combined usage of chemotherapy and immunity correcting drugs, i.e., levamisole and leukocyte suspensions, was stated.—English Summary

Mathew, R. C., Katayama, I., Gupta, S. K., Curtis, J. and Turk, J. L. Analysis of cells of the mononuclear phagocyte series in experimental mycobacterial granulomas by monoclonal antibodies. Infect. Immun. **39** (1983) 344–352.

Two distinct types of granulomas were produced in the draining lymph nodes by immunizing guinea pigs with *Mycobacterium bovis* BCG or *M. leprae,* as reported earlier. In the BCG-induced granuloma there is successful containment, killing, and degradation of the organisms with the presence of epithelioid cells and fibrosis. *M. leprae,* on the other hand, induces a granuloma where there is an absence of organization of the cells, failure to completely degrade the organisms, absence of epithelioid cells, and minimal fibrosis. By using a macrophage-specific monoclonal antibody and an anti-Ia monoclonal antibody and applying the immunoperoxidase, immunofluorescence, and fluorescence-activated cell sorter analysis techniques, the epithelioid cells of the BCG granuloma were found to have macrophage-specific antigen, but not detectable amounts of Ia antigen. This suggests that these cells have a close relationship to other cells of the mononuclear phagocyte series with which they share a common antigen. The absence of Ia antigen, on the other hand, suggests that epithelioid cells may not be involved in antigen presentation or other accessory cell functions where the presence of Ia antigen is crucial. The macrophages in the *M. leprae*-induced granuloma expressed both macrophage-specific and Ia antigens.—Authors' Abstract

Mathur, N., Agarwal, U. S., Mukul, Mangal, H. N., Bedwal, R. S., Mathur, R. S., Bajpai, V. K. and Shipstone, A. C. Ultrastructural study of epidermal Langerhans' cells in leprosy. Indian J. Lepr. **56** (1984) 840–843.

ATPase staining and an ultrastructural study of skin biopsies from 6 patients of leprosy (2 TT, 4 LL) and 3 normal subjects was carried out to study Langherhans' cells (LC). ATPase staining showed normal counts of LC in tuberculoid patients, while a significant reduction was observed in lepromatous cases. Electron microscopy revealed morphological changes in LL cases in the form of dense matrix and indistinct cristae of mitochondria, decreased number of lysosomes and rough endoplasmic reticulum, and numerous vacuoles in the cytoplasm. TT cases showed normal morphology. The possible role of Langerhans' cells in the pathogenesis of leprosy is discussed.—Authors' Abstract

Modlin, R. L., Hofman, F. M., Horwitz, D. A., Husmann, L. A., Gillis, S., Taylor, C.

R. and Rea, T. H. *In situ* identification of cells in human leprosy granulomas with monoclonal antibodies to interleukin-2 and its receptor. J. Immunol. **132** (1984) 3085–3090.

Leprosy is a chronic granulomatous disease with an immunologic spectrum in which lepromatous leprosy patients have defective cell-mediated immune responses, in comparison to tuberculoid leprosy patients. Immunoregulatory aspects of this spectrum were investigated by using monoclonal antibodies to interleukin-2 (IL-2), IL-2 receptors (Tac), and T lymphocyte subpopulations with immunoperoxidase techniques on frozen sections of skin biopsy specimens from 10 tuberculoid and 10 lepromatous patients. A comparison of IL-2+ cells revealed markedly fewer IL-2+ cells in lepromatous specimens (lep. 0.028% ± 0.02 vs tub. 0.46% ± 0.28, $p < 0.001$). These IL-2+ cells were large, exhibited cytoplasmic staining, and on double immunostaining were Leu4+, Leu3a+, Leu2a−, Tac−, and OKT6−, consistent with the fact they are IL-2 producers. Equivalent numbers of Tac+ cells were observed in both lepromatous and tuberculoid granulomas (lep. 1.5% ± 0.5 vs tub. 2.1% ± 0.7, p, NS), suggesting that the responder cells are present in both conditions. The tuberculoid granuloma was highly organized, composed of a central core of mature macrophages, Leu3a+ and Tac+ cells with a surrounding mantle of Leu2a+, Leu3a+, IL-2+, Tac+, and OKT6+ cells. In lepromatous granulomas, Leu2a+, Leu3a+, Tac+, and rare IL-2+ cells were randomly admixed with bacilli-laden macrophages. The defective cell-mediated immune responses in lepromatous leprosy appear to be associated with diminished IL-2 production and disorganization of the granuloma.—Authors' Abstract

Narayanan, R. B., Laal, S., Sharma, A. K., Bhutani, L. K. and Nath, I. Differences in predominant T cell phenotypes and distribution pattern in reactional lesions of tuberculoid and lepromatous leprosy. Clin. Exp. Immunol. **55** (1984) 623–628.

The nature and histological pattern of the cutaneous infiltrates of 17 leprosy patients in reversal reactions (Type I) and erythema nodosum leprosum (Type II, ENL) were compared with tissues from 18 nonreactional borderline leprosy (BT, BL) and lepromatous leprosy (LL) patients using monoclonal antibodies and immunofluorescence. Reactional BT lesions showed a mild increase in OKT11+ pan T cells as compared to nonreactional tissues and a significant influx of OKT8+ (suppressor/cytotoxic) cells which were peripherally localized in the lymphocyte mantle surrounding the epithelioid cells. The Leu3a+ (helper/inducer) cells were scattered among the lymphocytes and macrophages. The mean ratio (±S.D.) of Leu3a+/OKT8+ cells was 1.88 ± 0.64 in Type I BT reactions as compared to 2.95 ± 0.95 in BT lesions. In contrast, lesions of BL reversal reactions and ENL showed a more marked increase in pan T cells with a preponderance of the helper/inducer subset, Leu3a+/OKT8+ ratio being 2.26 ± 0.61 and 0.93 ± 0.57 in BL reactional and nonreactional lesions, respectively. Interestingly, this increase in the numbers of the T cells reached levels observed in BT lesions. The distribution pattern of OKT8+ cells was similar to Leu3a+, both being diffusely scattered among the bacilli-laden macrophages. Ia-like antigens were present in all granulomas and were abundant on lymphocytes and macrophages and less conspicuous on epithelioid cells. T6+ Langerhans' cells were uniformly increased in all reactional lesions. It would appear that the changes observed in both Type I and Type II reactions are similar in the lepromatous group of patients. They differ significantly from the BT reversal reaction in terms of the dominant T cell subset and the microanatomical distribution of the OKT8+ cells in the lesions.—Authors' Summary

Patil, S. A., Ramu, G., Dwivedi, P. D., Sinha, S., Ghei, S. K. and Sengupta, U. Effect of leprosy sera and foetal calf serum (FCS) on the T cell number of peripheral blood of leprosy patients. Indian J. Lepr. **56** (1984) 784–791.

A study was conducted in 24 cases of various types of leprosy and 10 healthy controls to find out the effect of various sera on the T cell count of peripheral blood lymphocytes by the sheep erythrocyte rosetting

method. The percentages of T lymphocytes in lepromatous and tuberculoid cases were significantly lower compared to that in normal healthy controls. All sera except FCS had a stimulatory effect on the number of T cells. The cells incubated for 24 hr in FCS did not show any stimulatory effect on the number of T cells; however, these FCS incubated cells showed a significant elevation in the number of T cells when further incubated in sera either from leprosy cases or from healthy subjects.—Authors' Abstract

Poulter, L. W., Collings, L. A., Tung, K. S. and Waters, M. F. R. Parasitism of antigen presenting cells in hyperbacillary leprosy. Clin. Exp. Immunol. **55** (1984) 611–617.

Full thickness skin biopsies from 4 patients with borderline lepromatous leprosy (BL leprosy) have been examined. Immunohistological techniques have been employed to analyze the non-lymphoid mononuclear cells present in the dermal infiltrates associated with the BL lesions. This analysis was performed using 3 monoclonal antibodies, RFD2 (recognizing macrophages), RFD1 (recognizing interdigitating cells) and NA1/34 (recognizing Langerhans' cells). It was found that the vast majority of non-lymphoid mononuclear cells in the lesions were RFD2+ macrophages. However, a significant number (15–30%) of macrophage-like cells were RFD1+ interdigitating cells. A very small number of NA1/34+ Langerhans' cells were also identified within the dermal infiltrates. Combination immunohistology and Ziehl-Neelsen staining revealed that all these cell types could be found containing the *Mycobacterium leprae* organisms. The proportion of parasitized cells within each subpopulation was equivalent to the overall proportion of each cell type within the infiltrate. The significance of parasitism of cell types thought to be involved in antigen presentation and induction of immune responses is discussed.—Authors' Summary

Saha, K., Bhatnagar, A., Sharma, V. K. and Chakrabarty, A. K. Enzyme immunoassay of serum β-2-microglobulin levels in various histological forms of leprosy with special reference to its elevation in type I and type II lepra reactions. J. Clin. Microbiol. **21** (1985) 658–661.

The mean β-2-microglobulin level in serum (3362 $\pm$ 2494 μg/liter) for 76 leprosy patients, including 9 borderline-tuberculoid, 8 borderline-borderline, 9 borderline-lepromatous, and 16 lepromatous-lepromatous patients and 34 patients with type I or type II lepra reactions, was significantly higher ($p < 0.001$) than that (2122 $\pm$ 1844 μg/liter) for 35 normal subjects. It decreased significantly ($p < 0.001$) as the disease glided down from borderline tuberculoid (3173 $\pm$ 899 μg/liter) to the lepromatous end (1813 $\pm$ 1391 μg/liter). At the onset of type I or type II reaction, the mean β-2-microglobulin level in serum increased (4447 $\pm$ 2863 μg/liter), and it remained unchanged (4433 $\pm$ 2623 μg/liter) after clinical remission. The β-2-microglobulin level in serum decreased in 55.5% of the patients tested after subsidence of reaction. The level was significantly higher in patients with type II reactions (5433 $\pm$ 3299 μg/liter) than in patients with type I reactions (3558 $\pm$ 2171 μg/liter).—Authors' Abstract

Sehgal, V. N., Srivastava, G. and Saha, K. Immunological status of histoid leprosy. Lepr. Rev. **56** (1985) 27–33.

The first report of the immunological profile in histoid leprosy revealed an impaired cell-mediated immunity because of the low percentage of early and total T lymphocytes, and negative lepromin test. The humoral immunity, however, was greatly increased; this was shown by the increased percentage and absolute count of B lymphocytes and the raised levels of IgG, IgA and IgM. Hypocomplementemia (C3) was another significant complement.—Authors' Summary

Selezneva, S. P. The value of using T and B lymphocytes for assessment of immunotherapy in leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 135–138. (in Russian)

The possibility of using T and B lymphocytes for the assessment of the effect of immunotherapy of leprosy patients with leukocyte suspensions from healthy donors was studied. It was shown that injections of leu-

kocyte suspensions together with standard chemotherapy tended to normalization of the contents of T and B lymphocytes in all LL patients under investigation. The effect of therapy depended on the initial state of the disease and the number of injections of leukocytic suspension.—English Summary

Sukhenko, L. T., Dyachina, M. N. and Ermolin, G. A. Diagnostic test systems based on enzyme-linked immunosorbent assay for detection of anti-*M. leprae* antibodies. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 84–89. (in Russian)

Optimal parameters of diagnostic test systems based on ELISA for detection of mycobacterial antibodies in blood sera from leprosy patients and *Mycobacterium leprae*-infected armadillos are developed. Using the test systems the specificity of antigen from *M. leprae* passed on rats as well as high sensitivity and specificity of the reaction is demonstrated. The optimal conditions of using ELISA in the test systems developed are the following: 100 mcg/ml; pH of fixing buffer = 9.6; time and temperature of antigenic incubation in polystyrene = 1 hour at 37°C or 12 hours at 4°C; screening titer of the test sera for leprosy patients = 1:800, for *M. leprae*-infected armadillos = 1:400.—English Summary

Umerov, G. G. A comparative study of antigens from human peripheral nerves and *M. leprae* antigens. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 26–30. (in Russian)

With an immunochemical method of investigation, a common antigen was found in the specific antigenic composition of human peripheral nerves and in *Mycobacterium leprae.* It is shown that in a response to *M. leprae* multiplication and antigenic stimulation host organism produces antibodies, a part of which reacts with a specific antigen from human peripheral nerves as judged by precipitation and binding of complement.—English Summary

Umerov, G. G., Viktorov, I. V., Evstratova, V. A., Lyzhin, A. A. and Zajcev, R. A. Myelinotoxic effect of serum antibodies from leprosy patients. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 65–68. (in Russian)

The effect of sera from 62 leprosy patients is studied experimentally with culture of spinal ganglia. It is stated that sera from the patients with active leprosy have a marked myelinotoxic activity which is due to the presence of antibodies against specific mycobacterial antigen similar to the antigen of human peripheral nerves.—English Summary

Vieregge, P., Reinhardt, V., Gerhard, L., Schlinwinski, U. and Jörg, J. R. Untreated borderline-leprosy in the ulnar nerve: Light and electron microscopical studies. Lepr. Rev. **56** (1985) 5–16.

A case of a 41-year-old Indian patient with an untreated neuritis of multiplex type is presented. Clinical and microscopical examination revealed borderline leprosy.

The difficulties in discriminating between changes due to the primary inflammatory process and secondary changes such as edema, fibrosis, vascular occlusion and compressive factors, are discussed. Detailed morphological data from both light and electron microscopical studies are presented.—Authors' Summary

Yushin, M. Y. Morphology and cytochemistry of cultivated monocyte-macrophage in leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 76–79. (in Russian)

The *in vitro* cultivation of blood monocytes from lepromatous patients showed accelerated macrophage transformation and increased esterase activity. The dynamics of changes in β-glucuronidase activity was revealed. The data obtained are considered as evidence for the activation of mononuclear phagocytic system and the changed immunological status of LL patients.—English Summary

Zajcev, R. A. and Umerov, G. G. Protective properties of some bacterial antigens in experimental leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A.,

ed. Astrakhan, USSR, 1984, pp. 43–45. (in Russian)

Using mice infected with *Mycobacterium leprae* into foot pads by Shepard, immunogenic properties of 8 cultures of acidophilic microorganisms isolated from leprosy patients were compared to those of 4 museum "leprosy" cultures and 4 strains of *M. leprae* passed on mice. It was stated that bacterial antigens prepared from *M. leprae* passed on mice showed the highest immunogenicity.—English Abstract.

Microbiology

Badovskaya, Z. V. The influence of ultrasonication of *M. leprae* growth. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 12–16. (in Russian)

The influence of ultrasonication (8 v/cm^2, 23 kHz) on *Mycobacterium leprae* growth at the exposition of 2, 4, and 8 minutes was studied. It is stated that previous sonication stimulates *M. leprae* growth in foot pads of mice infected by Shepard's method. The dependence of stimulation on the exposure time is noted. It is shown that previous sonication promotes obtaining cultures of mycobacteria from biopsy material.—English Summary

Dhople, A. M. Application of ATP assays to patient care in leprosy. In: *Analytical Applications of Bioluminescence and Chemiluminescence.* Kricka, L. J., ed. New York: Academic Press, 1984, pp. 29–32.

It can be stated that on the basis of the results obtained so far, the ATP assay technique seems to be promising in obtaining the information on the status of *Mycobacterium leprae* from leprosy patients under chemotherapy, especially their viability and drug sensitivity. This method gives instantaneous information and is far cheaper to adopt widely in endemic areas.—(*From* the Article)

Juscenko, A. A. Some new data on *Mycobacterium leprae* biology. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 3–7. (in Russian)

The brief review relates on literature data concerning biological properties of *Mycobacterium leprae* (chemical structure of microcapsule, respiratory enzymes, O-diphenoloxidase, superoxide dismutase, genome, mass, survival).—English Summary

Juscenko, A. A. and Irtuganova, O. A. Cultivation of *M. leprae* using perfluorocarbon beddings. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 21–25. (in Russian)

The promising results of cultivating *Mycobacterium leprae* from lepromatous patients and infected animals on liquid media using perfluorine dequaline as a bedding are presented.—English Summary

Mankar, M. V., Jagannathan, R. and Mahadevan, P. R. *In vitro* drug screening system using membrane alteration in macrophages by *Mycobacterium leprae.* J. Biosci. **6** (1984) 709–716.

The observation that live *Mycobacterium leprae* on entry into macrophages from lepromatous leprosy patients reduced the number of EA rosetting macrophages was extended to macrophages from Swiss white mice also. Further, the fact that dead *M. leprae* do not bring about such a change in macrophages from mice allowed us to develop this into a bacterial viability testing system. Thus drug-treated macrophages in the presence of *M. leprae* showed normal rosetting ability if *M. leprae* are inactivated by the drug, but showed reduced level of rosetting when bacteria were not susceptible to the drug. It was shown that a drug like dapsone does act on *M. leprae* based on its permeability, quantity available inside the macrophages and inhibition of its action by para amino benzoic acid. The inactivation of *M. leprae* by sulfone and rifampin was also proved by the fluorescein diacetate

method, which showed poorly viable bacteria after exposure to drugs. Thus it has been possible to develop a rapid drug screening method for testing the activity of unknown compound against *M. leprae.*—Authors' Abstract

Marolia, J. and Mahadevan, P. R. Hydrolytic enzymes in macrophages from leprosy patients in presence of *Mycobacterium leprae.* Indian J. Lepr. **56** (1984) 776–783.

The presence of *Mycobacterium leprae* in association with *in vitro*-cultured macrophages—from bacillary-negative, long-term treated, lepromatous leprosy patients—induces reduced levels of protein and lowering of hydrolytic enzymes like β-glucuronidase, lysozyme and lactic dehydrogenase. Alkaline phosphatase, on the other hand, is increased. In the macrophages from normal healthy individuals or tuberculoid leprosy patients, the presence of *M. leprae* increases both protein and levels of all of the above enzymes. This observation shows that, in the presence of *M. leprae,* macrophages from lepromatous leprosy patients are unable to manifest the key enzymes involved in the degradation of the complex biological entities phagocytosed by the cells.—Authors' Abstract

Maslov, A. K. Morphometrical characteristics of *M. leprae* and *M. lepraemurium* intracytoplasmatic inclusions. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 17–20. (in Russian)

Intracytoplasmatic inclusions (volutin granules and "homogeneous bodies") in the cells of *Mycobacterium leprae* and *M. lepraemurium* were studied electron microscopically and morphometrically. The possibility of differentiation between *M. leprae* and *M. lepraemurium* using mean volume of "homogeneous bodies" in bacterial cells was demonstrated.—English Summary

Mukherjee, R., Mistry, Y., Antia, N. H., Klein, N. and Vemuri, N. Incorporation of [^{14}C]-acetate into the specific phenolic glycolipid of *M. leprae* maintained within cultured cells. IRCS Med. Sci. **13** (1985) 203–204.

Recent revelation of the existence of a phenolic glycolipid (PGL) in *Mycobacterium leprae* has generated considerable interest because of its species specificity, antigenicity, and presence in large amounts in leprosy-infected tissues. Very little is known about the metabolism of this molecule. Initial experiments demonstrating the *in vitro* synthesis of PGL by *M. leprae* within a Schwannoma cell line are reported.

PGL obtained from *M. leprae* maintained in the Schwannoma cells showed significant incorporation of [^{14}C]-acetate in all of 10 experiments. Incorporation was evident after a week of incubation; thereafter, there was a continuous increase. This correlated with the counts of intracellular bacilli. The radioactivity in the PGL of bacilli autoclaved or maintained in the medium was, in comparison, insignificant. DDS partially inhibited the incorporation, while rifampin blocked it.—(*From* the Article)

Pinchuck, L. M., Dyachina, M. N., Lazovskaya, A. L. and Juscenko, A. A. Fatty acids in *M. leprae* purified from the tissues of the animals with experimental leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 8–11. (in Russian)

Fatty acid spectrum of *Mycobacterium leprae* (ML) passed on animals with experimental leprosy and purified from their tissues by different methods is studied with the help of gas liquid chromatography. Fatty acids of mammalian tissue cells are identified, suggesting tissue contamination of biomass. It is supposed that the composition of ML cell lipids should be dependent on the biochemical peculiarities of ML host animals.—English Summary

Prabhakaran, K. and Harris, E. B. Diphenoloxidase of *Mycobacterium leprae* is not iron-dependent. IRCS Med. Sci. **13** (1985) 223.

The objective of this study was to see whether iron-chelation would suppress phenoloxidase of the leprosy bacilli. The results suggest that diphenoloxidase of the bacilli, which is found to be unique to *Mycobacterium leprae,* is a copper protein, like other similar enzymes.—(*From* the Article)

Šula, L. and Sulova, J. Lytic potency against various mycobacterial strains of the phage isolated from *Mycobacterium lepraemurium* "Douglas." Czech. Med. **7** (1984) 167–173.

The lytic potency of a newly isolated phage Al-1 obtained from the laboratory strain *Mycobacterium lepraemurium* "Douglas" was examined.

The phage multiplied on the laboratory strain *M. smegmatis* ATCC 607 and for the lytic test 0.1 ml of suspension containing PFU 10^5 was used. In the whole 18 mycobacterial strains, both slowly and fast-growing, multiplied in liquid Šula's medium and were tested. For phage lytic tests 2 simple agar media and standard Redmond's medium RVA-24 were used. The examined slowly growing mycobacteria (H37Rv. *M. bovis* "Ravenel," *M. avium* "Kirchberg," *M. kansasii* "Sviženský," *M. tbc* INH resist., *M. tbc* INH, STM, PAS resist.) were resistant to the tested phage similarly as *M. phlei* from the group of fast-growing strains. The results of phage tests on all 3 used media were characterized by a confluent phage lysis with the exception of the strain *M. butyricum* "Rabinovič," in which even on very rich media an incomplete lysis with countable plaques was found. The use of the phage Al-1 for the phage typification also of the strain *M. lepraemurium* is considered on the basis of the inhibition growth tests on Ogawa's egg media.—Authors' Summary

Šula, L., Sulova, J., Matejka, M. and Malkova, J. Isolation of mycobacterial phage from the laboratory strain *Mycobacterium lepraemurium* "Douglas." Czech. Med. **7** (1984) 174–180.

The colony microstructure of the laboratory strain *Mycobacterium lepraemurium* "Douglas" cultivated on Ogawa's egg medium was examined. A bioptical sample from the liver of a white mouse subcutaneously infected and observed for 10 months was used as inoculum. The inoculum contained 5.2×10^9 acid-fast rods. The Ogawa's media were incubated in 5% atmosphere of CO_2 at 33°C to 37°C for 6 to 10 months. The outgrown colonies were killed with a Formol solution, then embedded into the agar-paraffin and cut out with the aid of Reichert's microtome. In thin sections there was an apparent vacuolization of colonies proving the presence of the temperate phage, which was isolated from the bacterial suspension inoculated on the host nonlysogenic strain *M. smegmatis* ATCC 607. On the simple agar medium N-4 the number of 2.4×10^9 living particles was achieved, which shows the possible use of this phage for differential diagnostic purposes in the taxonomy studies of mycobacteria.—Authors' Summary

Talati, S. and Mahadevan, P. R. Lipase and penicillinase activity in *Mycobacterium leprae.* IRCS Med. Sci. **13** (1985) 290–291.

The expression of penicillinase when *Mycobacterium leprae* were incubated with penicillin and the consequent release of penicilloic acid into the incubation mixture was demonstrated by rapid decolorization of the starch-iodine complex. There was no decolorization within 15–30 min when *M. leprae* were not added to the incubation mixture or when heat-killed *M. leprae* were used. Penicillinase was produced when live *M. leprae* were present, but not in the controls. The production of lipase by *M. leprae* was demonstrated by conversion of tributyrin to butyric acid which, in turn, reduced the opacity of calcium carbonate solution. The extent to which the optical density was reduced related to the level of butyric acid and was thus an index of the level of enzyme activity. Live *M. leprae* showed the presence of lipase activity, and this was absent in the controls.—(*From* the Article)

Ye, S., *et al.* [Simplified periodic acid stain and its application to examining acid-fast bacilli in the smears of lepers.] Chin. J. Clin. Dermatol. **14** (1985) 8–11. (in Chinese)

The number of acid-fast bacilli and morphological index (MI) in mouse foot pad homogenate smears could be increased, just as in tissue sections as previously reported by Harada, by pretreating the smear with 1%, 5%, and 10% periodic acid in our routine acid-fast stain (RAS). A simplified periodic acid stain (SPAS, in which pretreatment of the smear with 1% periodic acid for 5 min and heating to vapor slightly seems very important) was used for the demon-

stration of *Mycobacterium leprae* in 53 skin smears of leprosy patients in comparison with our RAS. The positive rate was 81% with SPAS, while it was 60% with RAS. Also, the MI of *M. leprae* in smears increased from 13% with RAS to 26% with SPAS. Therefore, the difference between these two methods is quite significant.—(*From* Authors' English Abstract)

Experimental Infections

Hoffenbach, A., Lagrange, P. H. and Bach, M.-A. Strain variation of lymphokine production and specific antibody secretion in mice infected with *Mycobacterium lepraemurium*. Cell. Immunol. **91** (1985) 1–11.

Mice from strains showing either phenotypical expression of *Bcg* gene (C57BL/6, BALB/c, DBA/1, and (C57BL/6 × DBA/2)/F_1, CBA, A/J, DBA/2) were infected intravenously with 10^7 *Mycobacterium lepraemurium* (MLM). The number of acid-fast bacilli (AFB) within the spleens, the ability of spleen cells to produce *in vitro* interleukin-1 and -2, and the serum levels of specific anti-MLM antibodies were assessed 3 months later. The number of AFB recovered from the spleens of various strains followed the strain distribution of genetically controlled innate resistance established for *M. bovis* infection. A decrease of interleukin-2 production by spleen cells could be detected in C57BL/6, DBA/1, DBA/2 and (C57BL/6 × DBA/2)F_1 mice only. The level of anti-MLM antibodies was found to be higher in C57BL/6, BALB/c and A/J mice than in the other strains tested. Thus no evidence appeared of a direct influence of the *Bcg* gene on lymphokine production and antibody secretion.—Authors' Abstract

Juscenko, A. A. Reversal reactions in *M. leprae*-infected nine-banded armadillos. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 40–42. (in Russian)

For the first time, the development of reversal reaction in armadillos with experimental leprosy is described. In the course of the reaction the animals showed desquamation and hypopigmentation of the skin, followed by generalized hyperemia and erosions with high body temperature and hurried breathing. After the reaction has subsided, the lepromas begin to decrease in size and the number of *Mycobacterium leprae* in infected tissues sharply diminishes. Our data offer the possibility of using *M. leprae*-infected armadillos for the study of the mechanisms of leprosy reversal reaction and some other aspects of immunity in leprosy as well.—Author's English Summary

Vaishnavi, C., Kaur, S., Kumar, B., Ganguly, N. K. and Chakravarti, R. N. Trophic changes and extensive dissemination in normal mice with human *Mycobacterium leprae*. Indian J. Lepr. **56** (1984) 742–747.

Closely bred Swiss albino normal mice (Lacca strain) were inoculated in the foot pad with *Mycobacterium leprae,* at room temperature. The animals were harvested at 3, 6 and 9 months post-inoculation, and bacillary counts were made. Trophic changes were observed in the tailtips, ears, foot pads and fore paws 12–14 months post-inoculation in a group which was allowed to survive. The histopathological changes and bacillary infiltration were found in many tissues/organs. The possibility of studying this normal strain of mice as an experimental model for human leprosy has been discussed.—Authors' Abstract

Epidemiology and Prevention

Bharadwaj, V. P., Ramu, G., Desikan, K. V. and Katoch, K. Extended studies on subclinical infection in leprosy. Indian J. Lepr. **56** (1984) 807–812.

There is sufficient evidence which indicates that in leprosy, as in tuberculosis, the number of persons with subclinical infection are far more than overt disease. It is for this reason that the detection of subclinical infection is of great importance. Various methods have been tried to detect the subclinical infection in leprosy, but due to the great problem of crossreactivity on account of other mycobacteria, tests were found nonspecific.

Presently, in our laboratory the FLA-ABS (indirect immuno-fluorescence) test and the lepromin test are being used simultaneously in the healthy contacts of all types of established cases of leprosy with an aim that the FLA-ABS test would detect *Mycobacterium leprae*-specific antibodies and the lepromin test as an indicator of cell-mediated immunity.

Lepromin positivity is low in the 0–5 and 6–10 years age groups, whereas FLA-ABS positivity is high. There was no correlation in the reactivity of either the lepromin or the FLA-ABS test with the sex of the contacts. It was observed that FLA-ABS positivity was greater among the contacts of LL and BL patients than among contacts of nonlepromatous patients. All 11 contact children in our study who have developed disease so far belong to the group who are lepromin negative and FLA-ABS positive.—(*From* the Article)

Chidambaram Pillai, S., Kandamuthan, M. and Joseph, A. Observations on the intrafamilial clustering of leprosy cases in Trivandrum City. Indian J. Lepr. **56** (1984) 868–876.

A survey in the southern wards of Trivandrum City, India, showed that 552 houses are harboring 699 leprosy patients, 84.2% of the houses having single cases and 15.8% with 2 or more cases. As the size of the household increases the average number of cases per house increases. In some houses there are more leprosy patients than healthy persons showing significant clustering. Out of the total cases, 9.87% are lepromatous, 5.58% borderline, and 84.55% neural type. The prevalence rate was lowest in the less than 10 year age group and highest in the 21–40 age group. The overall prevalence rate is almost equal in males and females.—Authors' Abstract

González de Canales Cerisola, F. and Piñedo Jiménez, J. M. Antecendentes, situación actual y perspectivas de erradicación de la lepra en la provincia de Huelva. [History, present situation and perspectives for the eradication of leprosy in the province of Huelva.] Actas Dermosifiliogr. **75** (1984) 397–409. (in Spanish)

Historically, it is considered that leprosy reached the Iberian peninsula with the Phoenician traders in the region of Tartesus, a main Tartesic nucleus having been what is now the present-day city of Huelva. After analyzing the census of the province of Huelva for the last 3 years, the possibility of eradicating leprosy is contemplated.—Authors' English Summary

Jesudasan, K., Bradley, D., Smith, P. G. and Christian, M. Time trends in the analysis of incidence rate of leprosy among household contacts. Indian J. Lepr. **56** (1984) 792–806.

Analysis of time trends in the incidence rates among 9598 household contacts of 1614 primary cases of leprosy showed that the incidence rates (IR) remained high even 10 years after treatment was started in the primary case. The IR during the first year of follow-up was 3.8 per 1000 person years at risk (PYR), and the IR was 3 per 1000 PYR after 10 or more years of follow-up. The significance of these findings in relationship to the epidemiology of leprosy among household contacts in an endemic area for leprosy is discussed.—Authors' Abstract

Kant, V. P. Socio-economic problems of leprosy patients and their relatives in Gujarat State. Indian J. Lepr. **56** (1984) 889–900.

There is a significant relationship between leprosy and social conditions. It creates important social and economic problems along with medical and public health problems. The efforts to control this disease only from medical and public health points of view will not be successful in

achieving the goal. It is therefore essential to understand these socio-economic problems and solve them for the eradication of leprosy. This paper is an attempt to examine the socio-economic problems of leprosy patients and their relatives in Gujarat State (India).—Authors' Abstract

Ojha, K. S., Chaudhary, R. C. and Choudhary, S. K. Socio-environmental factors in relation to leprosy at Jaipur. Indian J. Lepr. **56** (1984) 884–888.

In a house-to-house study of leprosy cases (148) at Jaipur (India), a majority (91) had NL leprosy, 50 had LL leprosy and the remaining 7 had indeterminate leprosy. Most cases (84.5%) had poor housing, overcrowding, and low socioeconomic status. Out of 59 persons giving a history of contact, a majority had it at home and others at work places. The period of contact was more than 5 years in 74.6% of the cases. Most of the cases had lesions on exposed or easily accessible parts of the body.—Authors' Abstract

Pfau, R. Analysis of leprosy control program in Pakistan. J. Pakistan Med. Assoc. **34** (1984) 160–185.

Statistics collected from the past 9 years of leprosy control in Pakistan indicated that, considering the entire country, no further progress has been made toward control and final eradication of the disease. However, definite improvement has been achieved in case holding. Interpreting the figures, no operational conclusions can be drawn since too many variables have entered into the consolidated figures.—Author's Conclusions

Rehabilitation

Alamdarov, I. N., Mineeva, E. I. and Pukhov, E. B. The treatment of early nerve damages due to leprosy. In: [*The Problems of Today in Leprology.*] Juscenko, A. A., ed. Astrakhan, USSR, 1984, pp. 127–129. (in Russian)

The influence of various antileprosy drugs and their combinations on the development of leprosy neuritis is reviewed. It is shown that antileprosy monotherapy and combined therapy do not always prevent leprosy neuritis from appearing and worsening. The effectiveness of combined administration both of specific (antileprosy) and nonspecific (drug therapy, physiotherapy and exercise therapy) treatment, especially in subclinical and early stages of nerve damage due to leprosy is stressed.—English Summary

Berreman, J. M. Childhood leprosy and social response in South India. Soc. Sci. Med. **19** (1984) 853–865.

This paper reports a field study of childhood leprosy in the state of Karnataka, India, as encountered through a private, secular leprosy hospital and its rural outpatient program serving some 60 villages. Symptoms of leprosy among children are subtle, ambiguous and not readily distinguishable from those of relatively innocuous skin ailments with which villagers of the region commonly lump them. In addition, severe stigma attaches to the disease. As a result, diagnosis tends to be resisted, rendering effective treatment difficult.

The research focused on the hospital's comprehensive program of diagnosis, treatment, education and rehabilitation, and the responses of people to it. Three categories of response to diagnosis and treatment, as defined by the hospital program, were investigated: regular acceptors, irregular acceptors and refusers. Contrary to expectation, those who accept treatment irregularly and hence ineffectively express greater awareness of the cause, symptoms and treatment of the disease than either those who accept regular treatment or those who refuse treatment. Despite frequent verbal denials of belief in, or fear of, contagion, people's behavior regarding leprosy and its victims indicates that such beliefs are indeed harbored. The effectiveness of the program is assessed with reference to its policies and procedures as they affect the rural population. Especially effective is the policy

of not confronting people with diagnoses of leprosy in problematic childhood cases, but of asserting instead that leprosy can be averted if treatment is accepted. Resistance generated by the fear and stigma of leprosy is thus mitigated by presenting its childhood symptoms as pre-leprous rather than as early leprosy. The research concludes that the program has achieved notable success in each of its aspects and is therefore worthy of emulation elsewhere.—Author's Abstract

Brandsma, J. W. and Brand, P. W. Median nerve function after tendon transfer for ulnar paralysis. J. Hand Surg. **10** (1985) 30–32.

This is a long term follow-up study of the median nerves of 128 leprosy patients who originally had pure ulnar palsy for which they had tendon transfers to correct claw hand. Of the 31 cases in which the carpal tunnel was not used as a pathway for tendon grafts, 16% developed median palsy in the subsequent years. Of the 97 cases in which tendon grafts were passed through the carpal tunnel, 7% developed a transient median nerve palsy and 11% developed permanent median palsy. None of the median nerve palsies developed during the weeks or months of post-operative re-education or observation, but were noted at follow-up visits months or years later. It is concluded that the use of the carpal tunnel did not significantly affect the status of those high-risk median nerves in cases of leprosy.—Authors' Abstract

Mohamed, H. A. A. Leprosy—the Moslem attitude. Lepr. Rev. **56** (1985) 17–21.

Some of the Islamic principles and teachings regarding health and diseases and specific attitudes towards leprosy patients are outlined. The underlying etiology for the beliefs prevailing in the Moslem communities is discussed and the need for giving due consideration to the social aspects in the control programs is stressed.—Author's Summary

Reddy, N. B. B., Satpathy, S. K., Krishnan, S. A. R. and Srinivasan, T. Social aspects of leprosy: A case study in Zaria, Northern Nigeria. Lepr. Rev. **56** (1985) 23–25.

This is a study of the socio-economic impact of leprosy on a group of 129 patients under treatment in Zaria, Northern Nigeria, with additional notes on their views about leprosy, their reasons for delays in seeking medical advice, their expectations from the government, and the role of patients in a leprosy control program.—Authors' Summary

Shah, A. and Pandit, S. Reconstruction of the heel with chronic ulceration with flexor digitorum brevis myocutaneous flap. Lepr. Rev. **56** (1985) 41–48.

The management of chronic non-healing plantar ulcers on the heel in leprosy is a difficult and challenging task. It represents a defect on the heel, the reconstruction of which has been an enigma to most reconstructive surgeons, the problem being compounded by plantar anesthesia and intrinsic paralysis inherent in leprosy. Recent advances in closure of heel defects by flexor digitorum brevis myocutaneous flap, as presented in this article, have been applied by us to the chronic non-healing ulcers on the heel in leprosy. Surgical anatomy and the technique of flap elevation is described in brief. The short-term evaluation up to 1½ years following the operation has shown its value in durability, weight bearing, and prevention of recurrent ulceration.—Authors' Summary

Sundararaj, G. D. and Mani, K. Surgical reconstruction of the hand with triple nerve palsy. J. Bone Joint Surg. [Br.] **66** (1984) 260–264.

Simultaneous paralysis of the ulnar, median and radial nerves is seen in about 1% of hands with nerve involvement in Hansen's disease. Forty such cases were treated between 1955 and 1976; 35 of these have been followed up. In 2 hands there was a high radial, median and ulnar palsy and these left no scope for reconstruction. The other 33 cases which underwent two-stage reconstructive surgery are presented here. The first stage consisted of restoring active extension of the wrist, fingers and thumb: for this purpose the ideal muscles for transfer are pronator teres, flexor carpi radialis and palmaris longus, respectively, and muscle

power exceeding Grade 3 (on the MRC classification) was achieved in 89%, 96%, and 100% of these individual transfers. Arthrodesis of the wrist is not recommended when suitable muscles are available for transfer. The second stage of reconstruction attempts to restore intrinsic function of the fingers and opposition of the thumb; the sublimis is ideal for both purposes and satisfactory restoration of function was achieved in 89% and 85% of cases, respectively. Ten of the 18 hands in which all 5 tendons were transferred had good or excellent results.—Authors' Abstract

Other Mycobacterial Diseases and Related Entities

Horney, D. A., Gaither, J. M., Lauer, R., Norins, A. L. and Mathur, P. N. Cutaneous inoculation tuberculosis secondary to "jailhouse tatooing." Arch. Dermatol. **121** (1985) 648–650.

Cutaneous inoculation tuberculosis is rare in the United States today. When seen, it usually occurs in individuals whose occupations or environments place them at increased risk for exposure to *Mycobacterium tuberculosis*. The reaction of the skin to *M. tuberculosis* infection is polymorphous and depends upon the interplay of bacterial virulence and host immunity. Thus, both a high index of suspicion and positive cultures are required to make the diagnosis. Herein, we report a case of cutaneous inoculation tuberculosis occurring in a tattoo.—Authors' Abstract

Kirkpatrick, C. H., Rozzo, S. J., Mascali, J. J. and Merryman, C. F. Murine transfer factor. II. Transfer of delayed hypersensitivity to synthetic antigens. J. Immunol. **134** (1985) 1723–1727.

Synthetic polyaminoacid antigens were used to examine the specificity of transfer of delayed-type hypersensitivity with spleen cell dialysates in mice. Dialysates from GAT^{10}-sensitized donors sensitized recipients to GAT^{10}, but not GLA^5 or cytochrome *c*. Dialysates from GLA^5-sensitized donors sensitized recipients to GLA^5, but not GAT^{10} or cytochrome *c*. We interpret these findings as consistent with the concept that passive transfer of delayed hypersensitivity with dialyzable materials is an immunologically specific event.—Authors' Abstract

Samuel, A. M., Kadival, G. V., Ashtekar, M. D. and Ganatra, R. D. Evaluation of tubercular antigen and antitubercular antibodies in pleural and ascitic effusions. Indian J. Med. Res. **80** (1984) 563–565.

Antitubercular antibody and tubercular antigen were assessed in ascitic and pleural effusions from 41 patients of tuberculosis as also in 38 samples of nontubercular ascitic and pleural fluids (controls). The mean ($\pm$S.E.) tubercular antigen levels were 75.23 ± 20.5 ng/ml, 10.72 ± 3.1 ng/ml in 7 patients of biopsy or culture-proved disease and 34 clinically and radiologically diagnosed disease as compared to control levels of 2.8 ± 0.62 ng/ml ($p < 0.005$). Antitubercular antibody levels expressed as ratios of lowest detectable standard antibody titers/unknown antibody titers were 10.22 ± 7.23, 29.97 ± 6.89 in the 2 groups of patients and were higher than control values of 0.74 ± 0.03 ($p < 0.005$). While none of the controls showed demonstrable tubercular antigen or antitubercular antibody, all but one of the patients with tuberculosis revealed either tubercular antigen or antitubercular antibody or both. Thus, this simple technique is recommended for confirming the clinical diagnosis and help in early institution of appropriate treatment.—Authors' Abstract

Wulff, C. H., Høyer, H., Asboe-Hansen, G. and Brodthagen, H. Development of polyneuropathy during thalidomide therapy. Br. J. Dermatol. **112** (1985) 475–480.

Seven patients with prurigo nodularis and one with aphthous stomatitis were given 40–115 g of thalidomide for 1 to 6 years. They all developed a predominantly sensory peripheral neuropathy, mainly involving the lower limbs. Five patients had an unpleasant tight feeling around the feet. Nerve conduction studies showed small sensory ac-

tion potentials from the lower limbs with normal or only mild slowing of sensory conduction velocity, indicating an axonal neuropathy. The dermatological disorder improved dramatically in all, but treatment had to be discontinued because of the severe side effects. Thalidomide, if used, should be given only over a short period because of its neurotoxic effect.—Authors' Summary