

Teaching Materials and Services; News and Notes

Slit-skin smear in leprosy

This is the title of an article published in the *International Journal of Dermatology*, **29**, No. 1, 1990, and written by Virendra N Sehgal and Joginder from the Department of Dermatology and Venereology, Maulana Azad Medical College and GB Pant Hospital, New Delhi, India. It covers all aspects of the subject and, with 116 references, is almost certainly the most comprehensive review published in recent years. The final paragraph reads as follows:

‘In conclusion, therefore, slit-skin smear examinations should form an integral part of leprosy diagnosis, treatment, and prognosis. Laboratory services in most of the control units, however, are unsatisfactory. Classification of a MB case into PB is a serious repercussion of relying upon slit-skin smears for treatment. Not only may the treatment of such cases be inadequate, but it also may be a perpetuating factor for drug resistance. Therefore arrangement should be made for regular training and supervision of laboratory workers and checking of their equipment. A system of quality control by random checking of smear results by establishing regional reference laboratories should be instituted.’

Partners: a magazine for paramedical workers in leprosy

Partners is published twice yearly by the Leprosy Mission International, 80 Windmill Road, Brentford, Middlesex TW8 0QH, England and edited by Jane Neville. As far as possible it is distributed through local agencies rather than direct from London. Where possible, interested readers should contact their local ILEP representative. For India, Nepal, Sri Lanka and Burma contact: The Leprosy Mission Health Education Centre, Naini Leprosy Hospital, PO Naini, Allahabad District, UP 211008, India.

A French edition, *Associés*, is available from La Mission Evangelique contre La Lèpre, chemin de Rechoz, 1027 Lonay/VD, Switzerland.

Issue No. 21 (received February 1990) carries articles by experienced authors on: Multidrug therapy; MDT update—Zambia; Tuberculosis (diagnosis); Health education in leprosy work; patient education in tuberculosis; relapse and reactions after MDT. A list of teaching and learning materials for leprosy and tuberculosis is also included. *Partners* is now distributed to 24,750 people and is also translated into Indonesian.

Leprosy and the eye

The following is reprinted from the 10 March 1990 issue of the *Lancet* by king permission of the Editor:

Lewallen and colleagues lately described their research on ocular autonomic dysfunction and intraocular pressure in leprosy during the examination of 241 patients and 135 controls in South Korea.¹ Noting that pupil size is a reliable measure of ocular dysfunction in diabetes,² they decided to use this method in their study. Intraocular pressures were measured with a Perkins applanation tonometer, taking readings in both upright and supine positions. In the leprosy patients, mean intraocular pressures were significantly lower and pupil size significantly smaller than in controls.

Although there was no correlation between pupil size and intraocular pressure in this series, the results confirmed the presence of autonomic dysfunction in leprosy. However, the findings did not support a previous suggestion³ that such dysfunction is the primary cause of low intraocular pressure in leprosy. fytche, commenting editorially on the subject of early diagnosis of ocular leprosy, drew attention to the potential importance of tests such as those used by Lewallen et al., and the need to develop others, so that patients at risk can be identified as early as possible and singled out for long-term ophthalmic care. That multiple drug therapy with combinations of dapson, clofazimine, and rifampicin, as recommended by the World Health Organization in 1982,⁴ may well reduce the incidence of ocular complications does not diminish the importance of constant vigilance by leprologists, paramedical workers, and the patients themselves. fytche also noted that in some patients with lepromatous leprosy the eye may continue to harbour antigen, or perhaps even living organisms, long after the completion of a satisfactory course of chemotherapy. In lepromatous (multibacillary) leprosy, damage to the eye is a result of invasion of anterior segment structures and ensuing inflammatory reaction; in paucibacillary forms of the disease there may be impairment of sensation in the cornea and conjunctiva together with paresis of the orbicularis oculi muscle and damage to extraocular structures.

Ophthalmologists and clinicians with experience of leprosy have long recognized another potentially damaging feature of the disease—the occurrence of episodes of ocular inflammation in lepromatous patients long after the disease is deemed to be inactive by standard criteria, including the finding of negative skin smears from numerous body sites.⁵ Such episodes, affecting one or both eyes, may occur in patients who show no signs of clinical activity, or of adverse immunological reactions (cell-mediated or humoral) or any other part of the body. Although tuberculosis may affect the eye after episodes of bacteraemia,⁶ such events are rare and, as Hansen observed in 1873, ‘There is no disease which so frequently gives rise to disorders of the eye, as leprosy does.’⁷ *Mycobacterium leprae* seems to show a preference for cooler body sites and the relatively low temperature of the anterior part of the eye (there is a gradient of no less than 6°C between the cornea and retina in laboratory animals)⁸ may well favour the lodgment, growth, and perhaps the persistence of bacilli in anterior segment structures. However, the affinity of this organism for the eye has yet to be fully explained. As Lewallen and colleagues note: ‘Studies of ocular autonomic function will help clarify the ocular pathophysiology of this disease. Furthermore, studies of intraocular pressure in patients with ocular autonomic dysfunction may help to explain the role of ocular autonomic nervous system in intraocular pressure regulation in healthy eyes’. Not for the first time in recent years, ophthalmology is spreading new light on an ancient disease.

References

- ¹ Lewallen S, Courtright P, Ho-Sung Lee. Ocular autonomic dysfunction and intraocular pressure in leprosy. *Br J Ophthalmol*, 1989; **73**: 946–9.
- ² Smith SA, Dewhurst RD. A simple diagnostic test for pupillary abnormality in diabetic autonomic neuropathy. *Diabetes Med*, 1986; **3**: 38–41.
- ³ Hussein N, Courtright P, Ostler HB, Netherington J, Gelber RH. Low intraocular pressure in Hansen’s disease patients. *Am J Ophthalmol* (in press).
- ⁴ World Health Organization. Chemotherapy of leprosy for control programmes. *WHO Tech Rep Ser*, 1982; **675**.
- ⁵ Brand ME, fytche TJ. Eye complications of leprosy. In: *Leprosy*. Hastings RC, (ed). Edinburgh: Churchill Livingstone, 1985; 223–42.
- ⁶ Rich AR. *The pathogenesis of tuberculosis*. Oxford: Blackwell, 1951.
- ⁷ Hansen GA, Bull OB. *The leprosy disease of the eye*. Christiania: A. Cammermeyer, 1873.
- ⁸ Schwarz E. Environmental temperature and ocular temperature gradient. *Arch Ophthalmol*, 1965; **74**: 237–43.

German Agency for Technical Cooperation

The German Agency for Technical Cooperation (GTZ) is commissioned by the Government of the Federal Republic of Germany to undertake specialist technical planning and implementation of measures for technical cooperation with developing countries. This mandate is based on a General

Agreement with the Federal Government. The guidelines for development policy are formulated by the Federal Ministry for Economic Cooperation (BMZ) as the department responsible. The Agency employs the facilities available in both the private and public sectors, provided this is conducive to the expedient and cost-effective fulfilment of its obligations.

The foremost tasks of the GTZ are:

- specialist planning and implementation, control and monitoring of Technical Cooperation projects and programmes with partners in developing countries;
- the provision of advice to other bodies likewise engaged in development schemes (e.g. organizations in the Federal Republic of Germany or abroad and also private organizations);
- recruiting, selecting, preparing and assigning expert personnel and attending to their professional and personal affairs during their period of assignment;
- planning the technical details of the material and equipment for the projects, also purchasing this equipment and dispatching it to the developing countries;
- examining all the conditions for the granting of nonrepayable financing contributions from the Technical Cooperation funds, disbursing these grants on the basis of an agreement, according to the progress of the project, monitoring the use of the grants and providing specialist advice, if required, to the project executing organization in the developing country.

For further information write to: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, PO Box 5180, Dag-Hammarskjöld-Weg 1 + 2, D 6236 Eschborn. Telephone (061 96) 79-0. Telex 407501-0 gtz d. Fax No. (061 96) 79-11 15.

World Neighbors, USA

World Neighbors is a people-to-people, non-profit organization working at the forefront of worldwide efforts to eliminate hunger, diseases and poverty in Asia, Africa and Latin America.

It affirms the determination, ingenuity and inherent dignity of all people. By strengthening these primary resources, people are helped to analyse and solve their own problems. Success is achieved by developing, testing and extending simple technologies at the community level, and training local leaders to sustain and increase results.

Programme priorities are food production, community-based health, family planning, water and sanitation, environmental conservation and small business.

Founded in 1951 and rooted in the Judeo-Christian tradition of neighbour helping neighbour, World Neighbors is a non-sectarian, selfhelp movement supported by private donations.

This Organization has developed a filmstrip and slide projector which may be of interest to those who have teaching responsibilities. The 'Illustrator' filmstrip and slide projector is a newly designed and tooled projector designed to meet the needs of development educators everywhere.

Using a new high-tech lamp—12-volt 20-watt ESX Tungsten Halogen with a multifaceted Dichroic reflector—the 'Illustrator' provides an incredibly bright image. And the low-watt bulb makes it possible to power the 'Illustrator' with our 12-volt solar-chargeable gel-type battery. Using the optional AC power module, the 'Illustrator' can also be used at home or office by plugging into either 110- or 220-volt electricity.

Made of high performance plastic and aluminium, the 'Illustrator' is small and lightweight—easy to carry over the shoulder or in your back pack. The 'Illustrator' kit includes the projector, horizontal and vertical filmstrip adapters, slide inserter and carrying case. Weight: 1 lb, 7 oz, bulb: 20 watt, power: 12-volt rechargeable gel-type battery, 12-volt car battery (110- or 220-volt with optional AC power module).

They also have a wide range of training materials, details of which are available from a catalogue: World Neighbors, 5116 North Portland Avenue, Oklahoma City, OK 73112, USA.

Manual of epidemiology for district health management. Eds *J P Vaughan* and *R H Morrow*

This book fills the need for a simple, practical, step-by-step guide to the use of epidemiology as a tool for improving the management of health services. Addressed to general health workers, the book uses clear definitions, analogies, examples, checklists, sample forms and calculations, and abundant illustrations to demystify the methods of epidemiology and show how they can work in concrete situations. Particular emphasis is placed on the simple knowledge and skills needed to collect and then use epidemiological data to monitor health problems commonly found in developing countries.

The book has 14 chapters. Readers are first introduced to the main tasks involved in the management of district health services and the types of information that can contribute to more effective management. The second chapter shows how a four-phase epidemiological approach, involving descriptive, analytical, intervention, and evaluation epidemiology, can supply virtually all the information needed to pinpoint health problems, design targeted interventions, and define reliable indicators for monitoring progress. Basic definitions of incidence versus prevalence, of numbers versus rates, and of episodes versus attendances are also set out in an effort to simplify the concepts of epidemiology and prevent common errors in the design or interpretation of studies. Other chapters offer guidance in the collection of demographic data, the conduct of routine health surveillance, the use of epidemiology to control an epidemic, and the design of special surveys to collect additional information. Details range from a formula for estimating crude birth rate, through examples of diagnostic criteria useful when developing case definitions, to advice on the use of cluster samples and the determination of sample size. Readers are also alerted to problems in the use of questionnaires and the strict need for confidentiality when conducting investigations.

The second half of the book concentrates on the analysis, presentation, and use of results. Topics covered include the use of record forms and coding, methods of data processing and analysis, and the presentation of health information in tables and figures, graphs, frequency histograms, bar charts, pie charts, scatter diagrams and maps. Guidelines for the preparation of health reports, including a model outline, are also provided. The final chapter, which constitutes the core of the manual, shows how the knowledge and skills previously described can be used to formulate plans for the management and monitoring of district health services.

The book concludes with a series of six appendices offering further details on methods outlined in the manual. Following a list of ethical principles to follow during epidemiological investigations, readers are shown how to estimate sample size for a prevalence study, use random numbers, organize an epidemiological survey, assess the validity and predictive value of screening and diagnostic tests, and use age-specific rates and direct age standardization to protect against incorrect conclusions.

Available from: WHO Publications, 1211 Geneva 27, Switzerland. 1989, pp 198 (available in English; French in preparation); Sw.fr. 35.-/US\$28.00; Order no. 1150335.

Royal Tropical Institute, Amsterdam

The Koninklijk Instituut voor de Tropen (Royal Tropical Institute) is active in the field of development cooperation. The basis of all the Institute's activities is the collection and dissemination of knowledge on tropical countries.

The publications of the Royal Tropical Institute reflect the Institute's policies and expertise in anthropology, history, tropical agriculture and tropical hygiene. Its present publications policy focuses on multidisciplinary research, both basic and applied, in the field of:

(a) rural development; (b) health and development; (c) tropical hygiene; (d) culture, history and anthropology.

A brochure is available with a list of publications. Those under tropical hygiene include: 'Mycobacterial disease: development in serodiagnosis and therapy' (Proceedings of a 1988 Symposium); 'Intermediate technology and ophthalmology' (1985); and 'Patient compliance with dapsone administration in leprosy' (1980). Further enquiries: Publications Department, Royal Tropical Institute, 63 Mauritskade, 1092 AD Amsterdam, The Netherlands.

Leprosy and the polymerase chain reaction

The following is extracted from 'Opinion' in the *British Medical Journal*, No. 6707, Volume 299 (1989):

'A sensitive and specific method for the detection of *M. leprae* would add an unbiased criterion to the available means of diagnosis and it might allow diagnosis at a very early stage, before the appearance of clinical signs,' write Rudy Hartskeerl and colleagues in the current issue of the *Journal of General Microbiology* (1989; **135**: 2357). If the organism could be identified rapidly leprologists could be far more discriminating in investigating such cardinal issues as the sources of infection, numbers of infected individuals, the clustering of infectious reservoirs, the risks of infection and disease, and the effect of prophylactic treatment within a population.

Existing methods are certainly far from satisfactory. *M. leprae* can be grown in armadillos—but only slowly, expensively, and in modest quantities. It can be stained for microscopic examination—but not specifically. It is detectable by serological tests—but only just. Relatively insensitive at present, serology will remain forever useless (even if vastly improved) as a means of detecting infection before the onset of the immune response. Likewise, monoclonal antibody probes are insufficiently sensitive for the purposes for which they are required.

Hartskeerl and his coworkers at the Royal Tropical Institute in Amsterdam have now come up with the answer: the polymerase chain reaction. One of the most recent products of the burgeoning craft of applied molecular biology, this is an elegant and highly efficient means by which particular segments of DNA can be amplified by many orders of magnitude. Although devised little more than two years ago by Randall Saiki and colleagues at the Cetus Corporation in California, it is already being applied with spectacular power to tasks as diverse as cloning immunoglobulin genes, detecting latent viruses, and diagnosing cystic fibrosis in utero.

The key component is the enzyme known as DNA polymerase. Provided with DNA building blocks, plus one of the two strands of the DNA molecule as a template and a short segment of the other strand as 'primer', the enzyme will synthesise a new strand complementary to the template by extending the primer. If two primers are added, one from each strand, which lay on either side of a targeted region of DNA, then that sequence—that is, the one which runs between the two primers—can be selectively copied. The copies themselves can then serve as templates for further copying. The process requires a sequence of temperature changes, allowing in turn the two DNA strands to separate, the primers to stick to their complementary sequences, and then the polymerase to do its work. Repeated cycles over two or three hours amplify the targeted sequence a million or more times.

The Amsterdam team chose as a target the gene coding for the so called 36 kDa antigen of *M. leprae* and then made primers flanking this region of DNA. Adding DNA polymerase (and DNA building blocks), they found that the technique worked a treat. It was not only capable of detecting *M. leprae* in armadillo tissue as well as in a purified state, but it did so down to the level of a single bacillus. The enormous potential of this technique for diagnosis, follow up, and epidemiology surely now means that *M. leprae* is truly in retreat.

Robert Cochrane Fund for Leprosy

The Fund, in memory of the great leprologist Robert Cochrane, is administered by the Royal Society of Tropical Medicine and Hygiene. It is to be used to finance up to three travel Fellowships each year, to a maximum value of £1500 each. The Fund will support travel for:

**Leprosy workers who need to obtain practical training in field work or in research.
Experienced leprologists to provide practical training in a developing country.**

There is no restriction on the country of origin or destination providing the above requirements are fulfilled.

Application forms are available from the Society and completed forms must be received by the Society at least six months ahead of the proposed visit. All applications must be sponsored by a suitable representative of the applicant's employer or study centre, and agreed by the host organization. A two-page report on the travel/study should be submitted to the Society within one month of the recipient's return.

Health for no one by the year 2000. David Werner

Adapted from a talk given by the author at the annual meeting of the National Council for International Health (NCIH), a group of US NGOs involved in international health and development. A controversial exposé of how global power structures consistently place profit ahead of human welfare. Includes appendix detailing the destruction and human suffering being caused by eight powerful multinational 'killer industries' that have targeted the Third World as their newest, fastest-growing, and most vulnerable market. These industries include alcoholic beverages, tobacco, illegal narcotics, pesticides, infant formula, non-essential medicines, arms and military equipment, and international banking (money-lending for profit).

The cost is US\$3.00 and its available from: The Hesperian Foundation, PO Box 1692, Palo Alto, California 94302, USA.

Disabled people in developing countries; horticulture and agriculture

At a recent meeting of Action Health 2000 (The Bath House, Gwydir Street, Cambridge, England) Mr Chris Underhill, Director, Action on Disability and Development, 23 Lower Keyford, Frome, Somerset, BA11 4AP, England, spoke on the training and rehabilitation of disabled people in developing countries, using horticultural and agricultural activities. He emphasized the high level of success which has been attained by his own and other organizations in the training of disabled people for market and domestic gardening, and light agriculture. This approach has been described in detail in an article entitled, 'Skills for survival' by Chris Underhill and Peter Lee published in *Growth Point Magazine* by Horticultural Therapy and Third World Group for Disabled People, 16 Bath Street, Frome, Somerset BA11 1DN, England.

Mycobacterial diseases

This new publication, 'gives dermatologists, microbiologists, immunologists, dermatologists in training, registrars in other specialities and interested family practitioners a concise appraisal of some recent developments in various aspects of mycobacterial skin diseases. The up-to-date information will contribute an enhanced ability to diagnose and treat this important and widespread group of conditions.

The chapters dealing with bacteriology, pathology and immunology at the beginning of the book provide the necessary conceptual framework for the later sections on clinical aspects. Subjects covered include leprosy, tuberculosis and environmental (atypical) mycobacterial skin diseases.

The editor is Marwali Harahap, Professor of Dermatology, University of North Sumatra Medical School, Rumah Sakit Pirngadi, Medan, Indonesia. Price: £30.00 (US\$52.50); 142 pages. It can be obtained from any medical bookshop or Kluwer Academic Publishers, Falcon House, Queen Square, Lancaster LA1 1RN, England, or the Sales Department, POB 989, 3300 AZ, Dordrecht, The Netherlands.

Editorial notice

For this issue 'Teaching Materials and Services' and 'News and Notes' have been combined and reduced to save space. Future issues are to be larger, at no extra cost, to accommodate the increase in manuscripts suitable for publication.