VIEWPOINT

Rheumatology in the Third World

A O Adebajo

With communicable diseases as the major medical problem in many parts of the Third World, it is pertinent to ask whether rheumatology is a relevant discipline in these countries. Should inadequate health budgets, reduced even further by crippling debt crises, be spent on research, teaching, and the provision of health services in rheumatology or is rheumatology simply a luxury specialty for Third World countries?

My submission is that rheumatology research needs to be nurtured and encouraged in the Third World. Not only will this be of benefit to such countries but it will also contribute to the growth and advance of rheumatology world wide.

Health service provision

Reports from various parts of the Third World indicate that the burden of illness from rheumatic diseases is greater than previously presumed. Furthermore, there are suggestions that this burden may be increasing.

Significant morbidity from rheumatic diseases has been reported from China,[1] India,[2] Puerto Rico,[3] Jamaica,[4] Iraq,[5] Saudi Arabia,[6] Latin America,[7] Polynesia and the Philippines,[8] New Guinea,[9] Zimbabwe,[10] Kenya,[11] and Malawi.[12] In the first year of a newly established rheumatology clinic in an urban West African teaching hospital, we were surprised by the response. At least 210 cases of chronic arthropathy were seen in addition to patients with acute arthritis and arthralgia. Although the morbidity of rheumatic diseases in the Third World does not yet approach that in developed countries, there are sufficient patients with musculoskeletal symptoms to warrant provision of rheumatological health care services. In view of the inadequate ratio of doctors to patients, particularly in the rural areas, emphasis must be placed on participation by community health workers in the development of rheumatic disease prevention and control. To develop such preventive and rehabilitation strategies we need to assess the degree of disability from rheumatic diseases in the Third World in order to establish health priorities as well as to monitor the effectiveness of interventions in these diseases. Mortality statistics and disease prevalence studies on their own are inadequate in determining accurately the burden of rheumatic diseases in individuals and communities. Functional disability has to be assessed in relation to the prevailing environment and sociocultural lifestyle. Measures of disability used in developed countries are not always applicable in developing countries and often require modification and regional variation.

If urbanisation influences rheumatic diseases, as has been suggested for rheumatoid arthritis,[13 14] continuing population migration from rural to urban areas will result in an increase in rheumatic complaints. This may also occur owing to improved life expectancy, which leads to larger elderly populations. It has been suggested that tropical infections may protect against the development of autoimmune diseases.[15 16] If this is true then continuing control and eradication of infective diseases may lead to an increase in diseases like rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE) in some Third World areas.

Therapeutic problems in the Third World are not only due to inadequate funds but also occasionally to the unethical intrigues of the pharmaceutical companies. Certain antirheumatic drugs also pose peculiar problems, including the use of antimalarial drugs for RA and SLE in regions with endemic malaria, as well as the use of sulphasalazine in areas where glucose 6-phosphate dehydrogenase deficiency is common.

Continuing assessment of rheumatological services is essential to ensure their effectiveness and efficiency in the community.[17] The Chinese experience may prove useful in this regard.[18]

Research

Epidemiological research can provide clues to the causes of rheumatology. A study of the variations in disease pattern between populations is useful in determining the effects of factors such as climate, diet, cultural patterns, and race. Such studies may prove useful in identifying risk factors for certain rheumatic diseases. This knowledge can be used to improve rheumatology services in developing countries while at the same time leading to a better understanding of rheumatic diseases in general. The search for remediable causes of arthritis must continue. New therapeutic interventions must be shown to be effective under field conditions with a consideration of the sociocultural acceptability of and compliance with such interventions before final implementation. Funds and manpower will otherwise be wasted.

Various disease patterns for rheumatic disorders have emerged. Osteoarthritis (OA) has a worldwide distribution, but polyarticular disease is uncommon in many parts of the Third World.[19–21] Heberden's nodes are similarly uncommon in Africans and Jamaicans.[22–23] Osteoarthritis of the hip joint is uncommon in

Department of Medicine, University College Hospital, Ibadan, Nigeria
A O Adebajo

Correspondence to:
Dr A O Adebajo, Rheumatology Research Unit, Unit E6, Addenbrooke's Hospital, Hills Road, Cambridge CB2 2QQ

Accepted for publication 25 January 1990

contrast with OA of the knee among the Chinese,[24 25] Africans,[26 27] Indians,[28] and in the Middle East.[6] Various sociocultural activities, including squatting and kneeling either in prayer or as a form of greeting, have been suggested to influence this distribution of joint OA. These postulates remain unproved. Developmental knee abnormalities from rickets, trauma, or parasitic infections and a low prevalence of congenital hip abnormalities in certain areas may also determine OA joint distribution. The habit of carrying loads on the head by some populations does not seem to predispose to cervical spondylosis.

Ankylosing spondylitis (AS) is uncommon in Africans[29] and in the Middle East,[6] in keeping with the low prevalence of HLA-B27 in these areas. Ankylosing spondylitis is less common in the Chinese than in white populations,[1] but its prevalence may be higher in rural parts of China.[30]

Reiter's syndrome occurs predominantly after venereal disease in Africa and in New Guinea.[9 31 32] This has also been our experience in West Africa. The cases of Reiter's syndrome after enteric disease in North Africa seem to be due mainly to European migrants.[33] Other seronegative arthropathies have been rarely reported from the Third World.

Brucellosis occurs throughout the Third World, particularly among Somali nomads.[34] Viral arthropathies, including chikungunya and dengue arthropathies, are well established rheumatic problems, especially in Africa.[35 36] Lyme arthritis has not yet been reported from the Third World, but the isolation of the causative spirochaete from the mosquito in addition to the tick is of interest.[37]

Connective tissue disorders such as SLE are uncommon in Africa,[10–12 38] but common in China,[1] Malaysia,[39] India,[40] Puerto Rico,[3] Iraq,[5] and the West Indies.[41] In Malaysia those of Chinese ethnic origin seem to be more vulnerable to SLE than Malays or those of Indian origin.[3 42] Tropical infections such as malaria may protect Africans.[15 16]

Studies indicate that hypermobility is more prevalent in Indians than Africans.[43] The latter, however, have greater spinal mobility than white subjects,[44] as was the case with an Arab population.[45] Hyperuricaemia and gout are common in some Polynesian islands,[46] but controversy exists as to whether gout in Africans is related to socioeconomic status.[47–49]

Rheumatoid arthritis is the most widely studied rheumatic disorder in the Third World. In India RA is mild with systemic manifestations and subcutaneous nodules occurring rarely.[2] In Jamaica there is a high prevalence of RA, but it is mainly mild and rheumatoid factor seronegative.[50] In East Africa and among urban but not rural South African blacks RA has a similar pattern to that of white populations.[13 14 51 52] In West Africa, however, the disease is uncommon and mild.[53] A similar pattern of mild RA is found in China.[1 30 54] In Malaysia rheumatoid nodules and other extra-articular features are uncommon,[55] whereas in Iraq the pattern is similar to that in white populations.[56]

It is clear that there is not a common problem throughout the Third World, and more information needs to be collected on rheumatic diseases in different regions. Such information is essential in order to plan rheumatological services and enable a judicial use of limited funds. Research yields a variety of messages. It has established that diseases prevalent in developed countries also exist in the developing world, but usually depend on the establishment of special clinics or community surveys for their recognition. Some diseases such as OA and RA, which are common to both developing and developed countries, vary in presentation and severity. In addition, there are some arthropathies which are peculiar to the developing world—for example, Mseleni's disease in South Africa[57] and acute tropical polyarthritis throughout the tropics.[58] Tropical infections—for example, the parasitic infections onchocerciasis and dracunculiasis may themselves be associated with rheumatic problems. Tuberculous arthritis and rheumatic fever still commonly occur in the Third World, as does septic arthritis, particularly in those with sickle cell disease. Rickets is a considerable problem in children.

Diagnostic criteria developed for rheumatic disorders in the Third World must entail simple, effective, and inexpensive means of arriving at a diagnosis. The American Rheumatism Association criteria for RA and SLE may not be strictly applicable universally.[50 59] Evaluation of various diagnostic tests is also important. Rheumatoid factor tests, for example, have hitherto been of little value in our West African rheumatoid patients. Similarly, the stability of reagents and variability of test results in the tropics and subtropics require analysis.

Useful information on possible pathogenetic mechanisms of rheumatic disease—for example, the role of immune complexes in meningococcal arthritis,[60] can be obtained by research in the Third World. We do not yet know why certain rheumatic disorders, such as soft tissue lesions, are uncommon in many parts of the Third World. Considerable input from developed countries is important in achieving more information about these and other problems. As long ago as 1974 the World Health Organisation (WHO), after a conference in London,[61] suggested a possible blueprint for collaborative epidemiological studies.

Community surveys in the developing world are fraught with constraints and are undoubtedly difficult to undertake owing to a shortage of manpower and of financial resources. It is not surprising that most Third World studies are hospital based. These studies, though useful, are limited in their applicability to the population as a whole. We must consequently put more emphasis on cross-sectional and longitudinal community studies. Bodies such as the WHO, the International League Against Rheumatism (ILAR), and the Independent International Commission on Health Research for Development are already committed to assisting such work in developing countries. The WHO/ILAR COPCORD study[8] is an example of how important epidemiological information can be obtained

from the Third World. In addition to assisting Third World countries in planning rheumatological services, this information will increase our understanding of both Western and Third World disease.

Medical education

There is a dearth of rheumatologists in the Third World—some countries do not have one rheumatologist. More attention to rheumatology is required in Third World medical schools and to postgraduate medical training in particular. At present rheumatology is often neglected and dismissed as a specialty for the developed nations. In addition to the training of rheumatologists, those in allied health care professions, such as physiotherapists, occupational therapists, and primary health care workers, should be encouraged to take an interest in rheumatological care. Rheumatological education is needed for health workers from the community right through to the specialist services.

How can developing countries assist in this process? Provision of opportunities for continuing education and exchange of knowledge is important. Collaborative studies and the exchange of visits between rheumatologists in developed and developing countries also have a useful role. The Arthritis and Rheumatism Council and ILAR are committed to improving the medical education of rheumatologists in the Third World. In 1982, at a conference in California on the 'Epidemiology of rheumatic diseases and specific needs of developing and developed countries', it was decided that continuing interaction between nations was important. It was further suggested that bodies such as ILAR and WHO should continue to play a pivotal part in such interactions.

More such forums for Third World rheumatologists and allied health professionals to meet and exchange ideas on rheumatic problems are needed. A few years ago representatives from ILAR met with some African doctors and encouraged them to set up national leagues against rheumatism. It was suggested that these national bodies should encompass health care professionals with a rheumatological interest and also serve as a prelude to an African regional rheumatology grouping, which has now been formed.

Two decades after, the declaration of Alma Ata, 'Health for all by the year 2000' is still some way away, particularly in the Third World. To achieve this goal, however, advance in the health care of non-infectious diseases must parallel that of communicable disease control and eradication.

The Third World needs rheumatology and rheumatology needs the Third World.

1 Chang N C. Rheumatic diseases in China. *J Rheumatol* 1983; **10** (suppl): 41–5.
2 Chopra A, Raghunath D, Singh A, Subramanian A R. The pattern of rheumatoid arthritis in the Indian population: a prospective study. *Br J Rheumatol* 1988; **27**: 454–6.
3 Mendez-Bryan R, Gonzalez-Alcover R, Roger L. Rheumatoid arthritis: prevalence in a tropical area. *Arthritis Rheum* 1964; **7**: 171–6.
4 Wilson W A, Hughes G R V. Rheumatic disease in Jamaica. *Ann Rheum Dis* 1979; **38**: 320–5.
5 Al-Rawi Z S, Al-Shaanbaf H, Al-Raheem E, Khalifa S T. Clinical features of early cases of systemic lupus erythematosus in Iraqi patients. *Br J Rheumatol* 1983; **22**: 165–71.
6 Rajapakse C N. The spectrum of rheumatic diseases in Saudi Arabia. *Br J Rheumatol* 1987; **26**: 22–3.
7 Boffi-Braggero H J. Epidemiological studies on medical care for rheumatism in Latin American countries. *J Rheumatol* 1983; **10** (suppl): 25–7.
8 Manahau L, Carngay R, Muirden K D, *et al.* Rheumatic pain in a Philippine village; a WHO-ILAR COPCORD study. *Rheumatol Int* 1985; **5**: 149–53.
9 Maddocks I. Reiter's syndrome in Port Moresby Papua. *British Journal of Venereal Disease* 1967; **43**: 280–3.
10 Gelfand M. Medical arthritis in African practice. *Cent Afr J Med* 1969; **15**: 131–5.
11 Bagg L R, Hansen D P, Mutibuko I K, Lewis C. Chronic polyarthritis at the Kenyatta National Hospital. *East Afr Med J* 1976; **53**: 567–72.
12 Goodall J W D. Joint swelling in Africans. A review of 90 cases. *Cent Afr J Med* 1956; **2**: 220–4.
13 Solomon L, Robin G, Valkenburg H A. Rheumatoid arthritis in an urban South African negro population. *Ann Rheum Dis* 1975; **34**: 128–35.
14 Beighton P, Solomon L, Valkenburg H A. Rheumatoid arthritis in a rural South African negro population. *Ann Rheum Dis* 1975; **34**: 136–41.
15 Greenwood B M, Herrick E M, Voller A. Can parasitic infection suppress autoimmune disease? *Proceedings of the Royal Society of Medicine* 1970; **63**: 19–20.
16 Greenwood B M, Voller A. Suppression of autoimmune disease in New Zealand mice associated with infection with malaria—1 (NZB×NZW F_1 hybrid mice). *Clin Exp Immunol* 1970; **7**: 793–803.
17 Tugwell P, Bombardier C. Methodologic issues in international rheumatologic clinical epidemiology. *J Rheumatol* 1983; **10** (suppl): 65–7.
18 Kuan-Ching H. Epidemiologic methodology used in China. *J Rheumatol* 1983; **10** (suppl): 82–4.
19 Bremner J M, Lawrence J S, Miall W E. Degenerative joint disease in a Jamaican rural population. *Ann Rheum Dis* 1968; **27**: 326–32.
20 Brighton S W, de la Harper A L, van Staden D A. The prevalence of osteoarthrosis in a rural African Community. *Br J Rheumatol* 1985; **24**: 321–5.
21 Adebajo A O. The pattern of osteoarthritis in West Africa. *Ann Rheum Dis* (in press).
22 Lawrence J S, Molyneux M. Degenerative joint disease among populations in Wensleydale, England and Jamaica. *International Journal of Biometeorology* 1968; **12**: 163–75.
23 Solomon L, Beighton P, Lawrence J S. Osteoarthrosis in a rural South African population. *Ann Rheum Dis* 1976; **35**: 274–8.
24 Hoagkund F T, Yau A, Wong W L. Osteoarthritis of the hip and other joints in southern Chinese in Hong Kong—incidence and related factors. *J Bone Joint Surg [Am]* 1973; **55**: 545–7.
25 Gunn D R. Don't sit—squat! *Clin Orthop* 1974; **103**: 104–5.
26 Ebong W W, Lawson E A L. Pattern of osteroarthritis of the hip in Nigerians. *East Afr Med J* 1978; **55**: 81–4.
27 Solomon L. Pathogenesis of osteoarthritis. *Lancet* 1972; **i**: 1072.
28 Mukhopadhaya B, Barooah B. Osteoarthritis of the hip in Indians: an anatomical and clinical study. *Indian Journal of Orthopedics* 1967; **1**: 55–63.
29 Chalmers I M. Ankylosing spondylitis in African blacks. *Arthritis Rheum* 1980; **23**: 1366–70.
30 Beasley P, Bennett P H, Lin C C. Low prevalence of rheumatoid arthritis in Chinese. *J Rheumatol* 1983; **10** (suppl): 11–15.
31 Hall L. Polyarthritis in Kenya. *East Afr Med J* 1966; **43**: 161–70.
32 Csonka G W. The course of Reiter's syndrome. *Br Med J* 1958; **i**: 1088–90.
33 Roumagnac H. The Fiessinger-Leroy-Reiter syndrome in Algeria. *Revue du Practicien* 1960; **10**: 2516–24.
34 Manson-Bahr P E C. Clinical aspects of brucellosis in East Africa. *J Trop Med Hyg* 1955; **59**: 103–6.
35 Carey D E, Myers R M, DeRanitz C M, Jodhar M, Reuben R. The 1964 chikungunya epidemic at Vellore, South India, including observations on concurrent dengue and chikungunya virus infection in man in Thailand. *Trans R Soc Trop Med Hyg* 1969; **63**: 434–45.
36 Nimmannitya S, Halstead S B, Cohen S N, Margiotta M R. Dengue and chikungunya virus infection in man in Thailand. *American Journal of Tropical Medicine* 1969; **17**: 107–11.
37 Johnson R C, Schmid G P, Hyde P W, Steigerwalt A B, Brenner D J. Borrelia burgdorferi: aetiologic agent of Lyme disease. *International Journal of Systematic Bacteriology* 1984; **34**: 496–7.
38 Taylor H G, Stein C M. Systemic lupus erythematosus in Zimbabwe. *Ann Rheum Dis* 1986; **45**: 645–8.
39 Frank A O. Apparent predisposition to systemic lupus erythematosus in Chinese patients in West Malaysia. *Ann Rheum Dis* 1980; **39**: 266–9.
40 Malaviya A, Misra R, Banerjee S, *et al.* Systemic lupus erythematosus in Indian Asians: a prospective analysis of clinical and immunological features. *Rheumatol Int* 1986; **6**: 97–101.
41 Harris E N, Williams E, Shah D J, De Ceulaer K. Mortality of Jamaican patiens with systemic lupus erythematosus *Br J Rheumatol* 1989; **28**: 113–7.
42 Veerapen K, Wong F, Bosco J, Manivasagar M. Systemic

lupus erythematosus (SLE)—a profile of 419 patients from Malaysia [Abstract]. *Br J Rheumatol* 1988; **27**: 40.
43 Beighton P, Solomon L, Soskilne C L. Articular mobility in an African population. *Ann Rheum Dis* 1973; **32**: 413–8.
44 Harris H, Joseph J. Variation in extension of the metacarpophalangeal and interphalangeal joints of the thumb. *J Bone Joint Surg [Br]* 1949; **31**: 347–59.
45 Al-Rawi Z S, Al-Azzawi A J, Al-Chalabi T. Joint mobility among University students in Iraq. *Br J Rheumatol* 1985; **24**: 326–31.
46 Prior I A M, Rose B S, Harvey H P B, Davidson F. Hyperuricaemia, gout and diabetic abnormality in Polynesian people. *Lancet* 1966; **i**: 333–8.
47 Mngola E N, Odeny J W. Gouty arthritis. *Nairobi Journal of Medicine* 1972; **5**: 6.
48 Fleischmann V, Adadevoh B K. Hyperuricaemia and gout in Nigerians. *Trop Geogr Med* 1973; **25**: 255–61.
49 Mody G M, Naidoo P D. Gout in South African Blacks. *Ann Rheum Dis* 1984; **43**: 394–7.
50 Lawrence J S, Brenner J M, Bull J A, Burch T. Rheumatoid arthritis in a subtropical population. *Ann Rheum Dis* 1966; **25**: 59–66.
51 Lutalo S K. Chronic inflammatory rheumatic diseases in black Zimbabweans. *Ann Rheum Dis* 1985; **44**: 121–5.
52 Bagg L R, Hansen D P, Lewis C, Houba V. Rheumatoid arthritis in Kenya. I. Clinical observations. *Ann Rheum Dis* 1979; **38**: 23–5.
53 Greenwood B M. Polyarthritis in Western Nigeria. I. Rheumatoid arthritis. *Ann Rheum Dis* 1969; **28**: 488–96.
54 Moran H, Chen Shun-le, Muirden K D, *et al*. A comparison of rheumatoid arthritis in Australia and China. *Ann Rheum Dis* 1986; **45**: 572–8.
55 Toy B H, Sengupta S, Any A H, White J C, Law K S. Pattern of rheumatoid arthritis in West Malaysia. *Ann Rheum Dis* 1973; **32**: 151–6.
56 Al-Rawi Z S, Al-Azzawi A J, Alajici F M, *et al*. Rheumatoid arthritis in population samples in Iraq. *Ann Rheum Dis* 1978; **37**: 73–5.
57 Yach D, Botha J L. Mseleni joint disease in 1981: decreased prevalence rates, wider geographical location than before, and socioeconomic impact of an endemic osteoarthrosis in an underdeveloped community in South Africa. *Int J Epidemiol* 1985; **14**: 276–84.
58 Anonymous. Acute tropical polyarthropathy: Homogeneous entity or diagnostic scrap-heap? [Editorial]. *Lancet* 1988; **i**: 627–8.
59 Adebajo A O. ARA criteria for rheumatoid arthritis. *Br J Rheumatol* 1989; **28**: 177–8.
60 Greenwood B M, Mohammed I, Whittle H C. Immune complexes and the pathogenesis of meningococcal arthritis. *Clin Exp Immunol* 1985; **59**: 513–9.
61 WHO memorandum. Future co-operation in the field of rheumatoid arthritis and related diseases. *Bull WHO* 1974; **51**: 597–607.