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ABSTRACT

Objective: **To review prevalence of rheumatic disorders in Sub-saharan Africa and in the context of current medical practice in the region assess the need for service and educational provision.**

Data sources: **Medline, (English, French). Pre-medline literature review from the 1950's (Current contents). Various conference reports including attendance at all three AFLAR (African League Against Rheumatism) congresses in the 1990's. Author's personal database. All cited references read in full.**

Conclusions: **The evidence shows rheumatoid arthritis and systemic lupus erythematosus to be increasing in frequency in the indigenous populations of East, Central and South Africa but remaining rare in West Africans. Gout is now more prevalent than ever throughout the subcontinent. HIV has spawned a variety of previously rare spondyloarthropathies (reactive arthritis, psoriatic arthritis, enthesopathy) and changed the epidemiology of pyomyositis and osteomyelitis. Osteoarthritis is a universal problem. Juvenile chronic arthritis is not rare and rheumatic fever is common. Acute and chronic locomotor problems associated with diverse entities such as leprosy, brucellosis, meningococcus, alpha viruses, parasites, fluorosis, rickets and haemoglobinopathies enhance diagnostic diversity and therapeutic and educational requirements. Suggestions made to address the challenge posed by the burden of rheumatic disorders.**

INTRODUCTION

Because of a scarcity of rheumatologists in Sub-saharan Africa (SsA) those disorders normally managed nowadays by a rheumatologist in the West will usually fall to the orthopaedic surgeon or general physician. While there may be debate concerning appropriate sub-specialisation within internal medicine in the African setting there is no doubt that at present rheumatology is being left far behind. The following is an attempt to set the records strait by demonstrating that the breadth and severity of rheumatic disorders encountered in SsA today justify where possible the provision of a specialist service. The African League Against Rheumatism (AFLAR) recognises the importance of rheumatic disease to the health of the region and is committed to promoting the speciality.

In "The Sick African" first published in 1944 and re-issued in 1957 Michael Gelfand discusses briefly a few rheumatic diseases(1). By the mid 1960s he hints at change which has now unfolded into a plethora of rheumatic disease(2).

Inflammatory disorders. Rheumatoid arthritis: Gelfand noted that rheumatoid arthritis was rare. "The absence of Rheumaotid arthritis (RA) in the native is in marked contrast to its frequency in the European"(1). Today in urban populations of East, Central and South Africa RA is no longer a rarity(3). Some patients attending hospital clinics have severe disease and require treatment with disease modifying agents and many extra articular manifestations have been described(4). However Black Zimbabweans with RA seem to have disease that is clinically and radiologically less severe when compared to UK white patients(6). Community studies from South Africa and Nigeria report a variable but mainly low prevalence of RA (0%-0.9%) with the highest prevalence and more severe cases being encountered in urban Soweto(7-9). However the number of new patients attending hospital clinics is in all likeliness much less than for an equivalent Western population. For example in Lusaka approximately 50 patients with RA have been attended in three years at a hospital rheumatic clinic(10). In rural African communities RA is rare, perhaps because adverse socio economic factors associated with African rural setting predispose to a higher mortality in RA(11). In West Africa, and in Nigeria in particular RA appears to this day to be a mild and uncommon disorder in urban and rural populations(12). In 1970 Greenwood suggested that the rarity of autoimmune disorders in general and RA in particular in western Nigeria was the result of an altered immunological state produced by multiple parasitic infections the most important being malaria(13). An alternative explanation may lie in the selection of genes protective against malaria rather than the haplotypes associated with autoimmune disease(14). Nevertheless the population frequency of DR4 of 0.5% in Nigerians is low compared to 2.9% in Zaireans, 3.9% in Zimbabweans

and 6.9% in South African Xhosas(15-16). Studies from South Africa and Zimbabwe report an increased frequency of HLA DR4 in association with RA(17-18).

Spondyloarthropathy: Gelfand recorded "Arthritis is said to complicate acute bacillary dysentery but I have not encountered a case"(1). Gastrointestinal and sexually transmitted infections are common in the African setting yet reactive arthritis and Reiters syndrome were until recently considered uncommon and other spondyloarthropathies such as psoriatic arthritis and ankylosing spondylitis(AS) rare. The explanation for this frequency has been the virtual absence of the B27 gene in the black races of Central and South Africa and Zaire(19-20). In South Africa SpA is confined almost exclusively to White and Coloured (mixed race descendants of Khoisan, Hottentot and bushmen) who share a similar prevalence of HLA B27(21). By contrast 6% of the Fula people in Gambia in whom clinical AS is virtually absent possess the B27 gene and in 68% of these the predominant subtype B*2705 associated with AS in Caucasians(22).The absence of an environmental trigger or the presence of genetic or environmental protective factors connected possibly to malaria need further study. At present in some regions of Africa the spondyloarthropathies represented by reactive arthritis and undifferentiated spondyloathropathy are common and are predicted to increase in other regions. A prospective study of over 400 Zambian patients clearly linked the phenomenon to HIV infection(23). However the precise cause is debatable(24). Treatment with sulphasalasine may help in resistant cases(25). An increased prevalence of psoriatic arthritis has also been linked to HIV infection(10).

Systemic Lupus Erythematosus (SLE) and related disorders: Gelfand does not mention vasculitis or other connective tissue disorders in his treatise. SLE was unknown in SsA before 1960 but has been reported with increasing frequency throughout the subcontinent with over 150 cases from South Africa(26). The reports parallel closely those of RA even to its persisting rarity in West Africa. Immunosuppression due to malaria remains an appealing hypothesis and proposed effector mechanisms include a role for nitric oxide and tumour necrosis factoralpha allele(27). African- American and West Indian populations have a higher prevalence of SLE than Caucasians lending support to the absent/present environmental trigger/ suppressor factor hypothesis(28). Clinical features are similar to those in caucasians. Renal disease is common, and an early mortality rate of around 30% provides a clear therapeutic challenge to improve the prognosis(29).

Systemic sclerosis occurs in African blacks but is rarely reported outside South Africa(53). Other connective tissue diseases including systemic vasculitis are uncommon but may be detected more frequently in the future.

Rheumatoid factors, antinuclear and antineutrophil cytoplasmic antibodies are found in the sera of patients with a variety of acute and chronic infections including HIV infection and may limit the diagnostic value of these tests in the tropical setting(31).

Chrystal arthritis: "Gout, well known in the white man .... is not seen in the African."(1). Occasional case reports before 1980 emphasise the rarity of gout in the indigenous African. Nowadays the frequency of reports indicate a rising and universal problem in the region(32-33). All socio economic groups are affected and changing socio-economic conditions including dietary habits and lifestyle in particular, reduced occupational physical activity and high alcohol consumption are likely contributory factors(33). The belief that gout is uncommon in the African leads to delay in diagnosis and the development of chronic tophaceous gout in many cases. Chondrocalcinosis (pseudogout, calcium pyrophosphate deposition disease, CPPD) has not been reported in Africans although the author has seen a case.

Osteoarthritis: "Osteoarthritis (OA) on the other hand is often encountered in the native"(1). OA indeed occurs in all populations in black Africa however it is likely at present to be less common than in Caucasians in particular OA of the hip joint and Heberdens nodes(34). Degenerative spinal disease is not as rare in Black Africa as previously thought and OA of the knee is quite common throughout the subcontinent. A progressive degenerative arthropathy found in the Mseleni region of Zululand affects up to 20% of the population. No cause has been established although it may be a mild form of spondyloepiphyseal dysplasia. Symptoms begin in teenage years and patients are often seriously handicapped by adulthood. Although total hip replacement is an effective remedy for Mseleni joint disease, resources are not yet available to cope with the very large numbers affected in the endemic regions.

Rheumatic disorders related to infection: Rheumatic fever and tuberculosis of bone and joint now rare in the West are common in Africa. Rheumatic fever thrives in the presence of overcrowding and poverty. In some regions of sub-saharan Africa a rising incidence of bone and joint tuberculosis is clearly related to the prevalence of HIV related pulmonary tuberculosis. HIV positive patients respond poorly to chemotherapy and are susceptible to infectious complications at fracture, operation and sites of joint implant(35). Tropical *(staphylococcal)* pyomyositis and long bone osteomyelitis are diseases of childhood in the tropics, but are being recorded with increasing frequency in association with HIV in young adults(35).

Other bacterial infections associated with rheumatic disease are brucellosis and leprosy. Brucellosis causes sacroiliitis spondylitis and osteomyelitis. *Brucella abortus* is endemic in cattle from the Sudan to Cameroon and poses a considerable threat in some districts in Kenya(36). Arthritis is a common but not widely recognised feature of leprosy. A destructive mono-arthropathy is associated with the lepromatous leprosy and an inflammatory polyathritis resembling RA occurs in reactional states(37). Numerous parasitic infections are associated with a variety of musculoskeletal disorders. Schistosomiasis and filariasis can cause polyarticular disease but these complications have not been recorded in SsA populations. Alpha viruses are carried by mosquitoes and may cause a high fever

arthralgia /arthritis and a rash. Chikungunya, is the most important in the region and onyong-nyong has re-emerged in Uganda after an absence of almost 40 years(38). Dengue is a related virus which causes intense arthralgia but not arthritis. Fungal diseases which may disseminate to bone and into joints include Histoplasmosis var. duboisii, African blastomycosis and cryptococcosis and the prevalence of these is rising due to HIV infection. Maduromycosis due to fungi *(eumycetoma)* or bacteria *(actinomycetoma)* occur throughout the subcontinent but especially in the Sahelian countries from Senegal and Mauritania in the west to Somalia and Djibouti in the east(39).

Rheumatic disorders in children: In children predominant conditions include bone and joint infection, and vaso occlusive crises due to a haemoglobinopathy, juvenile chronic arthritis, rheumatic fever and meningococcal arthritis. Nutritional rickets is surprisingly common and is likely due to calcium malnutrition in the majority of cases(39).

Osteoporosis/petrosis: Black Africans fracture less than Caucasians(40). There is evidence that factors other than bone mineral density may account for this large difference in fracture rate between the two populations. Female occupational physical activity and/or genetic qualitative changes in bone collagen may be critical in determining the liability to fracture. In the Rift valley provinces of Ethiopia, Kenya and Tanzania the osteopetrosis associated with endemic fluorosis is responsible for significant musculoskeletal morbidity(41).

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