

Systemic Autoimmune Diseases: Not So Rare in Black Africans

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Abstract

Conventional beliefs and some publications, had in the past, asserted that systemic auto-immune diseases such as inflammatory arthritis, connective tissue diseases and vasculitis are rare. Many of such reports had been hospital based and were not based on the ACR criteria. Rheumatoid arthritis was reported as being rare, especially among West Africans; so also Systemic Lupus Erythematosus, Scleroderma and Inflammatory myopathies. Even rarer are the Vasculitis. However, increasing reportage of these conditions may indicate that these conditions do occur, although under reported. As efforts are being made to overcome acute and chronic infections such as Malaria, Tuberculosis, chronic debilitating diseases such as arthritis and cancers may rear their head.

Keywords: Sytemic auto immune disease; Black Africans; Rheumatology; Arthritis; Vasculitis

Introduction

Conventional beliefs and some publications, had in the past, asserted that systemic auto-immune diseases such as inflammatory arthritis, connective tissue diseases and vasculitis are rare among black Africans. Rheumatoid arthritis (RA) was reported as being rare, especially among West Africans. Systemic lupus erythematosus (SLE), scleroderma and inflammatory myopathies, vasculitis have also been reported as rare. However, increasing reportage of these conditions may indicate that these conditions do occur, although under reported. As efforts are being made to overcome acute and chronic infections such as malaria and tuberculosis, chronic debilitating diseases such as arthritis and cancers will become prominent.

This review is intended to highlight recent reports of these systemic auto immune diseases among black Africans. Differences and similarities with reports elsewhere will be discussed.

Materials will be obtained from the search of data bases such as Pubmed, African Journals Online as well as abstracts from the proceedings of conferences of the African League of Associations of Rheumatology (AFLAR).

Rheumatoid Arthritis

Rheumatoid Arthritis (RA) is a chronic systemic auto immune inflammatory disease affecting mostly the joints as well as other organs. Genetic factors may play a big role in the pathogenesis of RA. Genes encoded within HLA DRB1 provide the most consistent genetic evidence. It is well recognised that HLA DRB1 shared epitope alleles largely influence development of seropositive RA and specifically Anti CCP positive disease. Smoking is a very important environmental factor. Other suggested environmental factors include obesity, silica dust, exposure to mineral oils and socio-economic class. Viruses and mycoplasma organisms may also be implicated. The highest prevalence is found among the Native American populations [1].

Prevalence among Caucasian North American and European populations is of the order of 0.5 to 1 % [2]. Population studies from South Africa, especially the rural black populations, have shown a low prevalence. [3, 4]. On the contrary, reports from Zimbabwe showed that prevalence of RA may be as high as among Caucasians and that there is no difference in the frequency between the rural and urban populations [5]. RA, on the other hand, had been reported as rare among West Africans [6]. For instance, in a study of 2,000 inhabitants of two rural townships in southern Nigeria in West Africa, there was not a single case of RA reported [6, 7]. Further genetics studies in this cohort showed a rarity of HLA DR 3, although HLA DR 1 was seen in 13% in this group.

However, recent reports from Nigeria in which 200 cases of RA were reported may negate this [8]. RA presently constitutes 10 – 15% of the rheumatologic cases seen in many of the rheumatology clinics in Nigeria (unreported observation). Other reports from Burkina Faso [9]; Kenya [10]; Cameroun [11]; South Africa [12]; Democratic Republic of Congo [13]; Senegal [14]; Zambia [15] also indicate that this condition may not be rare after all.

From the foregoing, the frequency of RA relative to other rheumatological cases, however, vary from country to country: Nigeria – 12.3%; Zambia – 4.7% (1994 – 1998), 24% (2010 – 2012); Kenya – (37.3%); Democratic Republic of Congo – 0.9% - 1.4%; South Africa – 52%. The wide variations may be due to the patients' selection. The sex distribution is as seen elsewhere, with female preponderance – Kenya (F: M – 6.5:1); Zambia (F: M – 10:1); Nigeria (F: M -2.4:1). The frequencies of rheumatoid factor positivity also vary – Nigeria (38.5%); Democratic Republic of Congo (48.6%); Zambia (64%). A previous rheumatoid factor estimation among black South Africans showed a positivity of 12.1% [4], though a more recent study showed similar frequency with Caucasians [16]. Anti- CCP was seen in only 48.6% of cases of RA from DRC [17]. Although anti- CCP is said to be more specific and sensitive than rheumatoid factor, Hodkinson et al in a report from South Africa concluded that the diagnostic ability of anti-CCP is no better than rheumatoid factor in South Africans with early RA.

Owing to the general non-availability or non-affordability of DMARDs, most RA patients from Africa have often not been treated with these drugs and even less with biologic agents. Singwe – Ngandeu has asserted that methotrexate should be the drug of choice considering its low cost [18]. However, a study from South Africa has shown that less than a third of black RA patients on traditional DMARDs achieved a low disease activity at 12 months. Patients who are unable to achieve adequate response at 6 months are unlikely to show further improvement [19]. Biological agents have been sparingly used among black Africans and there are reports of their efficacies from Nigeria [20] and South Africa [21].

Systemic Lupus Erythematosus

Systemic lupus erythematosus (SLE) is a multi-systemic autoimmune connective tissue disease. Its aetiology is still poorly understood, though factors such as genetic, environmental, hormonal and immunologic have been implicated in its aetiopathogenesis. The major factor is genetic. B cells produce autoantibodies that mediate tissue injuries by many mechanisms. Also abnormal T cell signalling and gene expression lower T cell activation threshold and facilitate production of pro-inflammatory cytokines. Environmental factors such as UV light, ionising radiation, exposure to heavy metals, drugs and viruses have also been implicated. Apoptotic debris also play a role by being source of auto antigens. SLE had been said to be rare among black Africans, in contrast to its high prevalence among American blacks and Hispanics. Symmons [22] had proposed a prevalence gradient theory which postulates an increasing prevalence of SLE as one moves from Africa to North America and Europe. Butcher [23] has also postulated that the endemic malaria in sub-Saharan Africa inhibits occurrence of auto-immune diseases such as SLE and sarcoidosis. This has been attributed to inhibition of macrophage function in the immune process. It has been postulated that despite the increase in frequency of SLE in the indigenous populations of East, Central and Southern Africa, SLE remains rare among West Africans [6, 24].

Despite these, there have been increasing reportage of SLE among black Africans – Dessein et al [25], Tikly et al (South Africa) [26]; Adelowo et al (Nigeria) [27]; Ekwom et al (Kenya) [28]. As a corroboration of this increased reportage there were for instance only three abstracts on SLE during the 5th AFLAR Congress, Nairobi, Kenya in 2007 whereas there were 15 abstracts during the 7th Congress held in Durban, 2013. This may suggest an increasing awareness of the disease.

There have been other reports from Cameroun [29], Zambia [30] and Zimbabwe [31]. Complications of lupus have also been reported such as lupus nephritis [32,33] and neuropsychiatric lupus [34]. Rare complications have also been reported such as an associated digital gangrene [35]. Juvenile SLE has also been reported in 14 black patients out of 36 cases of lupus nephritis from a study in South Africa [36].

The female preponderance, as elsewhere, is also seen in all these reports e.g Cameroun (F: M – 12:1); Zambia (29:0); Nigeria (10:1). In the report by Adelowo, SLE constituted 5.3% of a total of 1,250 cases seen in a rheumatology clinic in Nigeria [27].

Serologic markers are as seen elsewhere – Nigeria - ANA (95.7%); ds DNA (54.4%); Anti- Sm (75.7%); Ro/SSA (69.7%) [37]. Among South African blacks – ANA (98.2%); ds DNA (66.2%), Ro/SSA (60.5%). Cameroon – ANA (86%) [38]. Mean age at presentation were similar. For instance, South Africa (35 years); Kenya (34 years);

Nigeria (33 years); Cameroun (38 years). Mortality among black SLE has only been extensively studied among South African blacks and this is reported as being high [39].

Clinical features of SLE such as skin manifestations are less frequently reported in most of the studies. However, polyarthritis and polyarthralgia are common as well as serositis. Many of the Nigerian patients for instance presented with fever of unknown origin variously diagnosed as malaria or typhoid fever. Alopecia and hair loss are quite common presentations as well as neuropsychiatric symptoms [34].

Systemic Sclerosis

Scleroderma is a rare systemic autoimmune connective tissue disease of unknown aetiology. The pathogenetic mechanisms of the disease include immune dysregulation, endothelial dysfunction, and excessive fibrous deposits in the skin and internal organs. The incidence varies among different populations with a reported incidence of 3.7 per million per year in the United Kingdom [40] and 18.7-22.8 per million per year in the USA [41]. Most studies have shown ethnic variations with a higher frequency of the diffuse subset among African Americans [42]. This higher incidence has been attributed to certain connective tissue responses involved in protection against infection and repair after injury also predisposing to certain chronic diseases [43]. There is also increasing reports of systemic sclerosis among caucasians [44,45]

There is no community based study in black Africa and most of the recent reports have been case series. Tager et al have reported a high incidence especially among South African gold miners [46].

Fourteen cases had been reported among Nigerians, this number constituting 1.1% of the total of 1,240 cases presenting to a rheumatology clinic during the study period [47]. Of the reported systemic sclerosis patients seen, 8 had diffuse scleroderma, 3 patients were diagnosed with limited scleroderma, 2 cases with undifferentiated connective tissue disease and 1 with one case of sine scleroderma.

Inflammatory Myopathies

Inflammatory myopathies are rarely reported among black Africans. There were single case reports from Nigeria, 1960 [48]; South Africa, 1969 [49]. Of recent however, there have been some case series from Senegal [50], Nigeria [51] and South Africa [52].

In the Nigerian report, 7 had probable polymyositis (PM), 4 possible PM and 3 probable dermatomyositis. Mean age at presentation was 35 years and there were 13 females to 1 male. Although reports from South Africa have shown association with HIV [53], this was not so in other reports from black Africa.

Juvenile Idiopathic Arthritis

This condition has rarely been reported among black Africans. There has however been a recent upsurge in reportage [54, 55, 56]. The reports show predominance of the rheumatoid factor negative polyarticular type.

Antiphospholipid Syndrome

This disease has rarely been reported among black Africans, although recent case series may indicate expected increased reportage

[57,58, 59]. It is usually seen in conjunction with systemic lupus erythematosus and is, as expected, associated with pregnancy losses.

Spondyloarthropathy

Spondyloarthropathies have rarely been reported among black Africans. It has been suggested that lack of recognition may play a part in the underreporting. Another explanation may be the near absence of HLA B27 among black Africans [60]. Of recent however there has been an upsurge in reportage of spondyloarthropathy especially among patients with HIV. Psoriatic arthritis and Reactive Arthritis have also been associated with HIV infection among Zambians [61,62]. Psoriatic arthritis in association with HIV infection has been reported from Congo Brazzaville [63]

Overall, systemic auto-immune diseases may not be rare after all. Increasing awareness and dearth of trained rheumatologists have accounted for this increasing reportage. There is still a markedly low number of rheumatologists in sub Saharan Africa. It is expected that as more physicians train in this specialty, further elucidation of these conditions will be possible. Community based studies are also needed

Summary

Systemic auto immune diseases such as rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, inflammatory myopathies and vasculitis had previously been rarely reported among black Africans. This is despite the fact that these conditions occur commonly in black Americans. Various hypotheses have been proffered. However recent reports emanating from African countries have indicated that these conditions may not be rare after all. These conditions may even run as severe a course as in black Americans. An awareness of these diseases is therefore important for physicians practicing in this continent.

This review highlights the frequency, clinical and laboratory presentations of systemic auto immune diseases in black Africans.

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