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Chronic inflammatory rheumatic diseases in black Zimbabweans

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SUMMARY The pattern of chronic inflammatory rheumatic diseases seen in 52 black Zimbabweans was determined. These diseases constituted 2% of all treatable chronic endemic medical diseases registered around Gweru City. Rheumatoid arthritis (RA) and gout were the commonest, 38·8% and 28·8% of the total respectively. Systemic lupus erythematosus (SLE), polymyositis, progressive systemic sclerosis, mixed connective tissue disease, ankylosing spondylitis, and Reiter's diseases were seen less frequently. While the rarity of ankylosing spondylitis was not surprising, that of SLE was striking. RA seen in Zimbabwe was as severe as in East Africa, with a mean age of onset of 43·6 (SD 9·6) years, mean ESR 67 (SD 33) mm/h, seropositivity 78%, subcutaneous nodules 10%, and overall deformities in 35% of all cases. Gout was as seen elsewhere, with a mean age of onset 41·5 (SD 7·95) years, M:F ratio 6·5 : 1, mean male serum uric acid 10·8 (SD 2·69) mg/dl (0·64±0·16 mmol/l). Alcohol as a precipitating and aggravating factor was supported by a high mean drunkenness score of 10·3 (SD 3·89) out of a maximum of 17. Unawareness and underdiagnosis of these diseases are still likely problems in this part of the world.

Key words: arthritis, endemic medical diseases, comparative disease pattern.

Rheumatoid arthritis (RA) has been said to be relatively uncommon and mild in West Africa[1] and in South African rural blacks,[2] but relatively more severe in East Africa,[3] South African urban blacks,[4] Lesotho rural people,[5] and Western Europe. In Zimbabwe RA has been reported in blacks but is thought to be less frequent than in Europe.[6]

Similarly gout has been said to be probably uncommon in Zimbabwean blacks, though it presents in a typical manner.[6] Reports of polymyositis, ankylosing spondylitis, juvenile chronic polyarthritis (JCP), and polyarteritis nodosa have appeared sporadically.[7–9] The paucity of literature on progressive systemic sclerosis (PSS) and systemic lupus erythematosus (SLE) in Zimbabweans is striking. Despite the reported high incidence of acute non-specific arthritis[8 10] there is very little information on Reiter's disease and other reactive arthritides. The literature on chronic inflammatory rheumatic diseases (CIRD) is rather scarce in this part of the world. Hence the necessity for this broad study to document their pattern in Zimbabwe.

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Patients and methods

There is a register of chronic, recurrent, or important endemic medical diseases requiring long-term follow-up excluding those cured, dead, and those where no further useful treatment is available, in the catchment area of Gweru General Hospital. This is a district which includes Gweru City and the immediate surrounding area, which at the time of initiation of the register in 1973 had a population of 100 000 people. The register was developed for black patients who depended entirely on public funding for their medical care. The hospital has one consultant physician, who runs the specialist medical outpatient clinic, is in charge of the adult medical wards, and sees and supervises treatment and follow-up of the registered patients. Gweru General Hospital is the only hospital serving this area to which all clinics refer patients. Only patients referred to the specialist medical clinic or admitted straight to the adult medical wards, having their permanent residential addresses in the defined area, and suffering from eligible endemic diseases were registered. Any patient temporarily residing in the

area or out of it was not registered.[11] This is a hospital where in 1983 a total of 1740 patients, of whom 872 and 868 were females and males respectively, were admitted as inpatients in adult medical wards. Practically all chronic inflammatory rheumatic diseases seen in the hospital outpatients department are referred to the consultant physician. There is an efficient follow-up and mailing system where those who are dead, cured, or persistent defaulters, and those who leave the area are identified and removed from the register.[11] The records of these registered patients seen over a 10-year period were retrieved and analysed for the individual diseases.

Patients classified as suffering from rheumatological diseases singly or in combination with other non-rheumatic diseases were studied in detail to determine the characteristics of the diseases. There was also a smaller group of unregistered black patients with the same diseases who were included in the study. These were patients whose permanent residential addresses were outside the defined area but were seen at the hospital at the time. The salient clinical features and investigation results were recorded. Whenever applicable only those patients fulfilling specified internationally accepted criteria for classification were included in the study.[12–14]

Diseases generally considered degenerative, traumatic, or mechanical were not included.

The determination of rheumatoid factor (RF) was by latex test and ESR by Westergren methods.

The alcohol drinking habits of patients were routinely assessed by the Endemic Medical Disease Register nursing sister, an indigenous person in the area, who personally interviewed the patients in all cases at the time of registration. The level of drunkenness reached by a patient on an average drinking session as indicated by the degree of mental alertness, behaviour, and gait was based on an extended arbitrary scale of 0–10 as shown in Table 1. It was not always possible to pinpoint exactly the effect level on this scale. Where there were two points on the scale for apparently the same effect level, the assessor selected the lower of the two points if in her judgment the effect level was closer to the preceding lower point on the scale and vice versa. The overall drunkenness score was the sum of the number of drinking days per week and level of drunkenness attained per session.

Table 1 *Assessment of level of drunkeness (arbitrary)*

Points on scale	*Effect of alcohol*
0	No alcohol drunk
1–2	Very little drunk, conscious, normal gait
3–4	Social drinker, conscious, normal gait
5–6	Excited but normal gait
7–8	Excited, drunken gait
9–	Semiconscious, unable to walk
10	Unconscious

Results

There were 2022 patients on the Endemic Disease Register of whom 41 (2%) suffered from chronic rheumatological diseases. Table 2 shows the breakdown of these cases. There were in addition 11 unregistered patients, bringing the total to 52 patients included in the study. There were 29 females and 23 males, whose overall mean age was 47·1 (SD 13·7) years. The breakdown of individual chronic inflammatory diseases (CIRD) is as shown in Table 3.

Twenty patients with RA formed the largest group, constituting 38·8% of the total. The female : male ratio was 2·3 : 1. The mean age of onset was 43·6 (SD 9·5) years. The percentage frequency of the salient clinical feature observed in these RA patients and the percentage frequency distribution of the affected joints are as shown in Tables 4 and 5 respectively.

Fifteen patients with gout formed the second largest group, constituting 28·8% of the total. The female : male ratio was 1 : 6·5 and the mean age of onset 41·5 (SD 7·95) years. The mean serum uric acid level for untreated male gout patients was 10·8 ± 2·6 mg/dl (0·64 ± 0·15 mmol/l). Tophi were seen in 27% of the patients. Of interest is that 85·7% of

Table 2 *Registered treatable chronic endemic medical diseases*

Disease	*No. of points*	*%*
1. Hypertension	741	36·6
2. Cardiac	504	24·9
3. Diabetes mellitus	251	12·4
4. Seizure disorder	169	8·4
5. Psychiatric	93	4·6
6. Chronic renal diseases	64	3·2
7. Rheumatological diseases	41	2·0
8. Bronchial asthma (steroids)	37	1·8
9. Blood diseases (exc. leukaemias)	33	1·6
10. Chronic lung diseases (exc. tuberculosis and pneumoconiosis)	28	1·4
11. Chronic liver diseases (exc. cirrhosis and carcinoma)	23	1·1
12. Metabolic	20	1·0
13. Non-pulm. tuberculosis (exc. TB spine)	6	0·3
14. Persistent peptic ulcer	5	0·2
15. Neurological	5	0·2
16. Malignant disease (on treatment)	3	0·1
Total	2022	100%

these patients were on treatment for hypertension. None of them, however, had gout thought to be secondary to drugs. The percentage frequency of joint involvement is as shown in Table 6. Lastly, the drinking habits of gout patients is as shown in Table 7.

The four cases of JCP were all females in the adolescent group, seronegative, and they had mainly large joint involvement. One case had a severe systemic upset with fever. No skin rash was reported. The three cases of polymyositis were severe, with incapacitating limb muscle weakness, high ESR, elevated creatine phosphokinase (CPK), and suggestive muscle biopsy histology. The female case of progressive systemic sclerosis (PSS) was a 40 years old, with severe face and limb involvement. She had proteinuria and was treated with azathioprine; she later developed carcinoma of the cervix. The single case of SLE was a severe one in a 39-year-old female who had polyarthritis, pulmonary interstitial fibrosis, chronic cardiac failure (CCF) due to a pancarditis with aortic incompetence, and renal involvement. The ESR was 110 mm/h and ANA test +ve. She responded well to prednisone. The cases of mixed connective tissue disease (overlap syndrome) were in females aged 25 and 37 years. One had features of SLE–PSS and the other SLE–polymyositis. Both cases had involvement of large joints, were latex −ve, LE cell phenomenon −ve, with ESR 30 and 67 mm/h. The single case of Reiter's syndrome was a recurrent one in a 20-year-old male, which involved large joints (hip, knees, and lumbar spine), with ESR 89 mm/h. Both reactive arthritides were in females; the predisposing factors were not ascertained. The case of ankylosing spondylitis was a typical severe one in a 30-year-old female. She had the rigid frame with exaggerated truncal flexion. No HLA typing was done. No predisposing factor was found in the 40-year-old female with recurrent erythema nodosum with arthritis.

Table 3 *Distribution of the rheumatic diseases*

Disease	*No. of females*	*No. of males*	*Total patients*	*% of total*
1. Rheumatoid arthritis	14	6	20	38.6
2. Juvenile chronic polyarthritis	4	0	4	7·8
3. Gout	2	13	15	28·8
4. Polymyositis	2	1	3	5·8
5. Progressive systemic sclerosis	1	1	2	3·8
6. Mixed connective tissue disease (overlap syndrome)	2	0	2	3·8
7. Systemic lupus erythematosus	1	0	1	1·9
8. Chronic reactive arthritides	2	0	2	3·8
9. Reiter's disease	0	1	1	1·9
10. Ankylosing spondylitis	1	0	1	1·9
11. Reactive erythema nodosum arthritis	0	1	1	1·9
Total	29	23	52	100%

Table 4 *Rheumatoid arthritis: frequency of clinical and laboratory features*

Clinical feature	*% frequency*
1. Arthritis	100
2. Morning stiffness	48
3. Presence of deformities	35
4. Subcutaneous nodules	10
5. Pulmonary interstitial fibrosis	10
6. Seropositivity (latex)	78
7. Elevated ESR (>33 mm/h)	77·3
8. Erosive *x*-ray changes	33·3

Table 5 *Rheumatoid arthritis: frequency of joint involvement*

Joint involved	*% frequency*
1. Wrist	79
2. Small joints of the hand	53
3. Knee	63
4. Ankle	26
5. Elbow	26
6. Shoulder	10

Table 6 *Gout: frequency of joint involvement*

Joint involved	*% frequency*
1. 1st MTP	80
2. Knee	73
3. Ankle	40
4. Elbow	20
5. Wrist	20
6. Shoulder	13.3

Table 7 *Gout: drinking habits of patients*

Parameter	*Computed mean (±SD)*
1. Years of drinking before onset	15±9
2. Days of drinking per week	4·6±2·1
3. Level of drunkness on scale of 10	5·75±1·96
4. Overall drunkenness score (days+level: out of 17 maximum)	10·3±3·89

Discussion

This hospital-based short series of cases of chronic inflammatory rheumatic diseases (CIRD) gives an idea of their pattern in the community. Their true incidence and prevalence can later be more elaborately documented in community based epidemiological surveys, something which is not yet done in Zimbabwe. From analysing the data obtained from case records ('paper patients') it is possible to determine quite accurately the severity of these diseases as if the actual in-vivo patient is assessed, since it has been shown that judgment of severity of disease in a real interview of a patient correlates with a 'paper patient' based on recorded data.[15]

From this study it is clear that RA in Zimbabwean blacks presents with a relatively frequent occurrence of deformities, erosive arthritis, high ESR, seropositivity, and subcutaneous nodules. This presentation is similar to that found in East Africa,[3] South African urbanised blacks,[4] Lesotho rural blacks,[5] and Caucasians elsewhere. Its presentation is quite unlike that of West Africa[1] and South African rural blacks.[2] RA in Zimbabwe is mainly a seropositive disease. There are much fewer false RF positives, found in 6·91% adult dermatological patients and 0·43% older children,[16] compared with, say, East Africa, where the figure is as high as 14% of the population. A full spectrum of radiological changes of RA was seen, but no attempt was made to study these changes in minute detail to determine whether they were more compatible with seropositive or seronegative RA.[17]

It is worth noting the very low incidence of morning stiffness compared with that recorded in other series. This may mean that the symptom is either so mild that the patient does not volunteer it or it is overlooked by the examining doctor. There could well be a falsely exaggerated incidence of it in other countries due to overemphasis on its importance over the years. It is also interesting to note the frequent involvement of large joints like the knees in Zimbabwean RA.

Gout in black Zimbabweans presents in a similar manner to that seen elsewhere. Whereas the traditional social class classification as one of the factors influencing the occurrence of gout appears to be irrelevant here, the alcohol intake is significant. Workers elsewhere have found that the average daily intake of most nutrients, including total food purine nitrogen, was similar in gout patients and controls, except that the former drank significantly more alcohol, particularly beer.[18] In Zimbabwe, where 'communal drinking' is common, it is difficult to quantify the alcohol intake in absolute terms. Hence the necessity of devising a method based on the effect of alcohol on behaviour and gait to assess how much is drunk by an individual.

The Zimbabwean gout patient, as elsewhere, is a relatively heavy drinker, as demonstrated by a high mean overall drunkenness score. Incidentally, the only two female gout patients had a definite history of carousing. There is a tendency for gout to occur in combination with other diseases like hypertension and obesity. 85% of these patients had concomitant hypertension, and generally they tended to be heavier. The gout was unrelated to drugs except in two patients who had secondary gout, one due to drugs and the other had chronic renal failure. It may be that many cases of gout, particularly acute gout involving large joints, are missed or misdiagnosed as septic arthritis, as happens elsewhere.[19]

Other chronic inflammatory rheumatic diseases (CIRD) are seen less frequently in black Zimbabweans. The ratio of JCP to adult RA is the same as elsewhere, but only the late adolescent group is represented in this series. This may be due to missing the paediatric cases. It has been emphasised that SLE is much commoner in more pigmented people,[20 21] but it is very rarely diagnosed in Zimbabwean blacks. The only case recorded in this series was a severe one. It is possible that many milder cases are missed, otherwise the explanation is not clear. This phenomenon is similar to that seen in East Africa.[22] The clinical presentations of mixed connective tissue disease, PSS and polymyositis were as seen elsewhere.[23] The rarity of ankylosing spondylitis was not surprising, since the gene for HLA–B27 with which the disease is highly associated is rare in blacks.[24] HLA–B27 tissue antigen is found in only 0·68% of black Zimbabweans.[25] Similarly Reiter's disease and other reactive arthritides which could be HLA–B27 associated,[26] are as expected uncommon. It is not known whether those which are non-HLA–B27 associated are being missed.

Chronic inflammatory rheumatic diseases, like hypertension, which only a few decades ago was said to be very rare in blacks in Africa but is now known to be a leading cause of morbidity and mortality, will surface more as medical care and awareness improve in this part of the world.

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