ANCA and ANA in eight of 145 (5.3%) ANCA-positive silica exposed patients

Patient	Silica status	Renal diseases	ANCA		PR-3	MPO	ANA		ENA	RF
			St.	Titre			St.	Titre		
1	Lung disease	FSH	p	200	-	+	H	200	NI	+
2	Lung disease	FSGS	c	160	-	+	-	-	SS-A	-
3	Lung disease	CRF	p	20	-	+	S	50	-	-
4	Exposure	MGN	p	320	ND	+	S	50	SS-A	-
5	Exposure	NCGN	p	640	-	+	S	100	-	-
6	Exposure	FSGS	p	160	-	+	-	-	-	-
7	Exposure	NCGN	c	100	-	+	H	50	-	-
8	Exposure	NCGN	p	320	-	+	H	1000	-	-

FSH = Focal and segmental hyaline; FSGS = focal and segmental glomerulosclerosis; CRF = chronic renal failure; MGN = membranous glomerulonephritis; NCGN = necrotising and crescentic glomerulonephritis; St. = staining pattern; p = perinuclear; c = cytoplasmic; PR-3 = proteinase-3; ND = not done; H = homogeneous; S = speckled; ENA = antibodies against extractable nuclear antigens; RF = rheumatoid factor; NI = not identified.

Since then, two additional patients with silicon nephropathy and MPO-ANCA have been found: one had a membranous glomerulonephritis and the other a necrotising crescentic glomerulonephritis (NCGN). For the latter (No 5 in the table), MPO-ANCA were already present in a 10 year old frozen serum sample. In addition, three other patients with renal disease (one with FSGS and two with NCGN) having MPO-ANCA were exposed to silica without documented lung disease. Indeed, the overall incidence of patients with silica exposure and renal involvement among our ANCA-positive patients is 5.5% (eight of 145). All had MPO-ANCA whatever the staining pattern; it is now well known that some MPO-ANCA may have a c-ANCA staining pattern.⁵

In view of our observations, we would like to know more about the renal status (haematuria, proteinuria, glomerular filtration rate) of the 32 affected individuals of Sanchez-Roman's group. It could be of great interest to screen for ANCA in this silicotic population.

Silica is well known to trigger autoimmune processes, probably by macrophage stimulation and subsequent increased interleukin-1 production.⁶ Only a few such patients develop silicon nephropathy and this almost always presents as RPGN.³

Antinuclear antibodies (ANA) positivity in sera of such patients is well documented.⁷ In our group all but one patient had ANA: three had antibodies against extractable nuclear antigens (two anti-SS-A and one unidentified), and only one had rheumatoid factor. No patient had anti-native DNA. Finding of ANCA may be just another marker of polyclonal activation. Silica could also have direct tissue toxic effects to explain the nephropathy.

Conversely, MPO-ANCA may be of importance in the pathogenesis of the associated disease, in association with lysosomal enzymes and release of oxygen metabolites as suggested by recent studies in an animal model.⁸ Nevertheless two of our patients (Nos 1 and 5) had stable chronic renal failure for eight to 10 years with persistent ANCA positivity, confirming the observations of a previous report.⁹

In our area, which has numerous slate mines, a prospective study is in progress to determine the relevance of this new association that has also been observed in another country and was reported to the 4th International ANCA Workshop.¹⁰

A CHEVAILLER
F CARRERE
G RENIER
D HUREZ

Laboratoire d'Immunopathologie, CHU 49033
Angers Cédex 01, France

J F SUBRA
P REBOUL
P RIBERI
Service de Néphrologie

C MASSON
Service de Rhumatologie

Correspondence to: A Chevailler.

- 1 Sanchez-Roman J, Wichmann I, Salaberri J, Varela J M, Nunez-Roldan A. Multiple clinical and biological autoimmune manifestations in 50 workers after occupational exposure to silica. *Ann Rheum Dis* 1993; 52: 534-8.
- 2 Chevailler A, Subra J F, Renier G, et al. Antimyeloperoxidase antibodies and silicosis with renal involvement: new association or coincidental event? [abstract 61] *Am J Kidney Dis* 1991; 28: 213.
- 3 Dracon M, Noel C, Wallaert B, Dequiedt P, Lelievre G, Tacquet A. Rapidly progressive glomerulonephritis in silicotic coal miners. *Nephrology* 1990; 11: 61-5.
- 4 Falk R J, Jennette J C. Anti-neutrophil cytoplasmic auto-antibodies with specificity for myeloperoxidase in patients with systemic vasculitis and idiopathic necrotizing and crescentic glomerulonephritis. *N Engl J Med* 1988; 318: 1651-7.
- 5 Chevailler A, Subra J F, Renier G, Carrere F, Hurez D. Anti-myeloperoxidase antibodies and associated diseases. *Adv Exp Med Biol* 1993; 336: 263-6.
- 6 Schmidt J A, Oliver C N, Lepe-Zuniga J L, Green I, Gery I. Silica-stimulated monocytes release fibroblast proliferation factors identical to interleukin-1: a potential role for interleukin-1 in the pathogenesis of silicosis. *J Clin Invest* 1984; 37: 1462-72.
- 7 Lippman M, Eckert H L, Hahon N, Morgan W K C. Circulating anti-nuclear antibodies and rheumatoid factors in coal miners: a prevalence study in Pennsylvania and West Virginia. *Ann Int Med* 1973; 79: 807-11.
- 8 Brouwer E, Huitema M G, Klok P A, et al. Antimyeloperoxidase associated glomerulonephritis: an animal model. *J Exp Med* 1993; 177: 905-14.
- 9 Cohen Tervaert J W, Goldschmeding R, Elema J D, et al. Association of antibodies to myeloperoxidase with different forms of vasculitis. *Arthritis Rheum* 1990; 33: 1264-72.
- 10 Gregorini G, Ferioli A, Donato F, et al. Association between silica exposure and necrotizing crescentic glomerulonephritis with p-ANCA and anti-MPO antibodies. *Adv Exp Med Biol* 1993; 336: 435-40.

AUTHOR'S REPLY: We read carefully the letter by Dr Chevailler and colleagues. Their findings are very interesting in relation to the pathology we are studying. We wish to make the following comments:

- 1) The methods of selection of Chevailler's patients and ours were different: our selection criterion was an occupational exposure to silica, while Chevailler's subjects were selected for positivity for ANCAs.
- 2) Renal disease was not present in any of the 50 individuals of our study: creatinine clearance and urine sediment were normal; proteinuria was absent in all of them. In addition, we have information about three

other subjects that worked at the same factory but were not included in our study. Two suffered from renal insufficiency and died before our study began; their diagnosis was an extracapillary glomerulonephritis. The third, still living, has been a dialysis patient for 14 years; her biopsy showed extracapillary glomerulopathy. A serum from 1985 and a recent one were negative for ANCAs by immunofluorescence and gave negative results in an antimyeloperoxidase enzyme linked immunosorbent assay (Ferring/Diagnostica). This patient is hyperimmunised against HLA antigens, with a negative autocrossmatch. At present, antinuclear antibodies are negative.

Our present study has now included 150 individuals, two of whom have renal disease: one has a nephrotic syndrome and has refused further studies. The other patient has SLE with a renal disease of slow evolution; her biopsy is pending. On neutrophil substrate her serum shows a perinuclear pattern at 1/10.

3) We did not study ANCAs in our first 50 patients, but it would be interesting to perform this test in our patients exposed to silica.

4) Further, we think it could be very interesting to compare the frequency of ANCAs in these patients with the frequency in specified connective tissue diseases (the antimyeloperoxidase antibodies are very rare in systemic sclerosis, but frequent in SLE).^{1,2} In the light of Chevailler's data from patients exposed to silica, myeloperoxidase antibodies would not be markers for systemic disease but, rather, predictors or markers for renal sequelae of slow evolution.

ANTONIO NUÑEZ-ROLDAN
JULIO SANCHEZ-ROMAN
INGEBORG WICHMANN
Servicio de Inmunología, Hospital Universitario Virgen del Rocío, Seville, Spain

- 1 Font J, Bosch X, Mirapeix E, Revert L, Ingelmo M. Anticuerpos anticito plasma de neutrófilo en el lupus eritematoso sistémico. *Rev Clin Esp* 1991; 188: 167-8.
- 2 Nässberger L, Sjöholm A G, Jonsson H, Sturfelt G, Akesson A. Autoantibodies against neutrophil cytoplasm components in systemic lupus erythematosus and in hydralazine-induced lupus. *Clin Exp Immunol* 1990; 81: 380-3.

Rheumatoid arthritis in black Americans

Recently, MacGregor and colleagues¹ have reported a low prevalence of rheumatoid arthritis (RA) in black Caribbeans compared with white patients in inner city Manchester. Although clinical features of RA were similar in both groups, the small number of subjects precluded detailed comparison. Similar studies in black Americans are scanty. López-Méndez *et al*² observed no significant clinical differences between black and white Americans with regard to frequency of extra-articular manifestations (EAM), disability, fatality rate, and functional outcome.

We undertook a cross sectional study of 47 black American outpatients with RA (American Rheumatism Association classification³) who were consecutively examined and interviewed using a questionnaire that sought information on their demographic and clinical status. The following data were recorded: formal educational level, marital status, and employment (during more than

half the duration of the illness), presentation of RA, rheumatoid factor (RF) (by nephelometry), patient's assessment of pain,⁴ physician's assessment of RA,⁴ Health Assessment Questionnaire (HAQ),⁵ swollen joint count,⁴ erythrocyte sedimentation rate (ESR), EAM, comorbidity, and treatment. The investigation was conducted at The Charity Hospital in New Orleans, which is a primary care centre. Univariate and multivariate analysis, logistic regression, and Kaplan-Meier method were used to analyse variables.⁶⁻⁷

Table 1 shows the demographic and clinical characteristics of the patients. In 18 patients (38%), at least one EAM was observed, nodulosis being the most common (observed in 17 patients). In 39 patients (83%), at least one comorbid condition was noted; hypertension was the most common (present in 14 patients). Physician's assessment of RA was the most highly inter-correlated measure in assessing patients when correlated with HAQ ($r = 0.5$, $p = 0.001$), patient's assessment of pain ($r = 0.6$, $p = 0.0001$), and swollen joint count ($r = 0.4$, $p = 0.004$). Formal educational level, marital status, employment, and presentation of RA had no impact on the outcome (disability) of the disease (table 2). There were no significant differences in the independent comparison between clinical factors regarding the presence of RF but, after adjusting for clinical cofactors (age, duration of disease, physician's assessment of RA, swollen joint count, ESR, and EAM), an association between seropositive RF and HAQ ≥ 1.37 was observed (odds ratio 12.3, 95% confidence interval 1.1 to 135, $p = 0.04$). In 34 patients methotrexate (MTX) was administered (dose: 11.3 (4) mg/week, mean duration 23.4 months). Four patients discontinued MTX because of side effects; increasing age was the main factor associated with toxicity and permanent discontinuation. After adjustments for age, the cumulative probability of continuing to take MTX at one and five years was 89% and 84%, respectively.

Table 1 Demographic and clinical characteristics of black American patients with rheumatoid arthritis

Sex (M/F)	3/44
Age (yr)	54.7 (2.1)
Disease duration (yr)	11 (8)
Rheumatoid factor (+) (%)	64
Mean concn (U/ml)	805
Extra-articular features	38
Family history of RA	34
Comorbidity	83
Patient's assessment of pain	6.1 (2.7)
Physician's assessment of RA	4.8 (2.2)
HAQ	1.3 (0.7)
Swollen joint count	3.7 (4.6)
ESR (mm/h)	49 (30)

Values are mean (SD) where relevant.

Table 2 Relation between formal educational level, marital status, employment, and presentation of RA with physician's assessment of the disease, as a measure of outcome of RA in black Americans

Formal educational level	<8 grade (n = 8) 4.4 (0.8)	9-12 grade (n = 31) 5.3 (0.4)	College (n = 8) 3.5 (0.6)
Marital status	Single (n = 33) 4.7 (0.4)	Married (n = 14) 5.1 (0.5)	
Employment	Yes (n = 8) 4.7 (1.1)	No (n = 39) 4.8 (0.3)	
Presentation	Mono/oligoarticular (n = 19) 4.2 (0.4)	Polyarticular (n = 28) 5 (0.4)	

No statistical differences were observed (Wilcoxon test).

Because more than 95% of the population attending The Charity Hospital are black Americans, we were unable to study a control group. Despite the study size, our results suggest that, in our black American population, RA is less severe, in terms of disability and presence of EAM, than in white patients and a previous series reported in black Americans.²⁻⁸ These results are in agreement with other published studies in black African RA patients, but contrast with studies in the urban South African Bantu people.¹⁻⁹ We found that the presence of RF was a modifying factor of outcome, while those demographic variables analysed were not. MTX treatment was well tolerated.

Predictors of worsening clinical variables and outcomes in RA have been reviewed by Pincus and Callahan¹⁰ and Furst.¹¹ They include genetic factors, female gender, number of swollen joints, subcutaneous nodules, RF positivity, early erosions, low formal education level, single marital status, and unemployment.¹⁰⁻¹¹ Factors which could explain the differences observed in the present study include genetic, ethnic, geographic, and environmental factors.¹⁻¹²⁻¹³ It should be taken into consideration also that our population was seen, on average, once every two months; this may be associated with a greater likelihood of improvement in disability.¹⁴ Lastly, the potential role of MTX treatment in altering the natural course of the disease deserves some consideration; 72% of our patients were treated with MTX. Our results also extend the observations in previous studies showing that black Americans and younger patients seem to have a better probability of continuing MTX treatment.¹⁵⁻¹⁶ The complex ways in which race and socioeconomic status create differences in health must be more fully investigated. Multicentre and comparative surveys may help to elucidate the factors incriminated in the expression RA and their causes.

J-M ANAYA
D ROSLER
L R ESPINOZA

Department of Medicine, Section of Rheumatology
Louisiana State University Medical Center
New Orleans, LA, USA

Correspondence to: Dr J-M Anaya, University of Texas Health Science Center, Department of Medicine, Division of Clinical Immunology, San Antonio, TX 78284-7874, USA.

- MacGregor A J, Riste L K, Hazes J M W, Silman A J. Low prevalence of rheumatoid arthritis in Black-Caribbeans compared with Whites in inner city Manchester. *Ann Rheum Dis* 1994; 53: 293-7.
- López-Méndez A, Paul W A, Alarcón G S. Rheumatoid arthritis in American Blacks: a clinical and radiological study. *J Rheumatol* 1989; 16: 1197-200.
- Arnet F C, Edworthy S M, Bloch D A, et al. The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. *Arthritis Rheum* 1988; 31: 315-24.

- Felson D T, Anderson J J, Boers M, et al. The American College of Rheumatology preliminary core set of disease activity measures for rheumatoid arthritis clinical trials. *Arthritis Rheum* 1993; 36: 729-40.
- Fries J F, Spitz P, Kraines R G, Holman H R. Measurement of patient outcome in arthritis. *Arthritis Rheum* 1980; 23: 137-45.
- Dixon W J. *BMDP Statistical Software* 1984. Berkeley: University of California Press, 1984.
- SAS Institute Inc. *SAS Procedures Guide*, Release 6.03. Cary, North Carolina: SAS Institute Inc., 1988.
- Anderson R J. Rheumatoid arthritis. B. Clinical features and laboratory. In: Schumacher H R, ed. *Primer on the rheumatic diseases*. Atlanta: Arthritis Foundation, 1993; 90-6.
- Mijiyawa M, Ekouevi K, Adetchesi T, Amedegnato D M, Weil B. Causes of chronic polyarthritis in Lomé (Togo). *Rev Rheum [English Edn]* 1994; 61: 26-32.
- Pincus T, Callahan L F. Quantitative measures to assess, monitor and predict morbidity and mortality in rheumatoid arthritis. *Baillière's Clin Rheumatol* 1992; 6: 161-91.
- Furst D E. Predictors of worsening clinical variables and outcomes in rheumatoid arthritis. *Rheum Dis Clin North Am* 1994; 20: 309-19.
- Alarcón G S, Acton R T, Koopman W J, Barger B O. CREG antigens differentially influence expression of extraarticular manifestations in Whites and Blacks with rheumatoid arthritis. *Semin Arthritis Rheum* 1983; 13: 169-73.
- Drosos A A, Lanchbury J S, Panayi G S, Moutsopoulos H M. Rheumatoid arthritis in Greek and British patients. A comparative clinical, radiologic, and serologic study. *Arthritis Rheum* 1992; 35: 745-8.
- Ward M M, Leigh J P, Fries J F. Progression of functional disability in patients with rheumatoid arthritis. Associations with rheumatology subspecialty care. *Arch Intern Med* 1993; 153: 2229-37.
- Alarcón G S, Tracy I C, Blackburn W D Jr. Methotrexate in rheumatoid arthritis. Toxic effects as the major factor in limiting long-term treatment. *Arthritis Rheum* 1989; 32: 671-6.
- McKendry R J R, Dale P. Adverse effects of low dose methotrexate therapy in rheumatoid arthritis. *J Rheumatol* 1993; 20: 1850-6.

LETTER TO THE EDITOR

Dactylitis also involving the synovial sheaths in the palm of the hand

Dactylitis, 'sausage digit' (finger or toe), is a typical manifestation of seronegative spondyloarthritis (SpA).¹⁻⁶ The sausage-like appearance is caused by concomitant flexor tenosynovitis and synovitis of the interphalangeal and metacarpophalangeal (MCP) (or metatarsophalangeal) joints.¹

We describe here the case of a woman suffering from psoriatic SpA and showing dactylitis of the middle finger also involving an uncommon anatomical feature of synovial sheaths communicating with the ulnar palmocarpal sheaths. To our knowledge there are no previous report of this situation.

A 37 year old woman was referred to our Rheumatic Disease Unit in May 1993 for evaluation of a two year history of pain and swelling in the middle finger extending into the palm of the left hand. Her medical history disclosed that she had been affected by psoriasis for 31 years and had suffered from numerous episodes of buttock pain and inflammatory low back pain and stiffness during the previous 21 years. In the past few years, the pain had extended to the cervical