

## Chronic Renal Failure in Khartoum, Sudan

E. M. Osman,<sup>1</sup> O. I. Abboud<sup>1</sup> and B. G. Danielson<sup>2</sup>

<sup>1</sup>University of Khartoum, Khartoum, Sudan and <sup>2</sup>Department of Internal Medicine, University Hospital, Uppsala, Sweden

### ABSTRACT

A study of the clinical presentation and conceivable causes of chronic renal failure (CRF) in 61 Sudanese patients in Khartoum is presented. The clinical features involved almost all the systems, however, gastrointestinal and cardiovascular signs and symptoms predominated. The causes of chronic renal failure in Sudan and Sweden are also studied for comparison.

The causes of CRF in Sudan are chronic glomerulonephritis, obstructive nephropathy (stone disease), hypertension and diabetes mellitus in that order (1). The main causes of CRF in Sweden are chronic glomerulonephritis, diabetes mellitus and chronic pyelonephritis.

Of the 61 Sudanese patients 16 have kidney transplants, only one in Sudan, three patients are on regular hemodialysis, nine patients are on intermittent peritoneal dialysis, 16 are on conservative treatment and 17 died during the course of treatment.

### INTRODUCTION

Renal failure in its mild and chronic forms has varying facets in its clinical presentation. With a blood urea of 100 mg% one may be in reasonably good health and can usually lead a normal life (8). But as a result of a supervening illness, renal function can rapidly deteriorate; and this has to be recognised early on. Patients with renal failure can be asymptomatic or may have symptoms from any organ or organ system.

The present paper is a review of the clinical presentation of 61 Sudanese patients who were treated in the Medical Department of Soba University Hospital Khartoum.

A comparison of the causes of CRF in Sudan and Sweden is also presented.

## MATERIALS AND METHODS

Over a period of two years, Jan 1984 - Feb 1986, 61 Sudanese patients of Afro-Arab origin, aged between 15 and 75 years (mean 40.1 years) were studied. There were 38 men and 23 women. The majority of the patients were in-patients.

Most of these patients were referred from other hospitals in the country as our hospital is one of the main reference centres in the country, which has one million square miles surface area and a population of 22 million people.

The hospital has no casualty ward so most patients came to the out-patient clinics or received in the main casualty ward in Khartoum Hospital in the city centre. The criteria for inclusion in this study was the finding of a persistently raised blood urea and creatinine, supported by the finding of small kidneys on X-rays or ultrasonography.

The creatinine clearance was inferred from the serum creatinine concentration (4).

Hypertension is defined as a blood pressure (BP) of  $>160/90$  mm Hg. Malignant hypertension is diagnosed when the diastolic BP is  $>130$  mm Hg or the patient had papilloedema.

The data concerning causes of CRF in Sweden was obtained from yearly statistics, from the Swedish Nephrological Society, 1984.

## RESULTS

Figure 1 shows the sex distribution and age incidence. Males outnumbered females and the peak of incidence of age occurred between 30 and 40 years.

Tables 1 and 2 give a summary of the observations. The commonest modes of presentation (see Table 1) were: fatigue, anorexia, nausea and vomiting; ankle swelling, breathlessness, puffiness of the face, cough and insomnia in that order.

In this series 17 died out of the 61 patients during the course of treatment. No post mortem was done for reasons out of hand. The mortality was 28%, far less than in series studied before (3).

During follow-up (some patients were not offered immediate dialysis because of lack of vacancies) gastrointestinal symptoms predominate (Table 2).

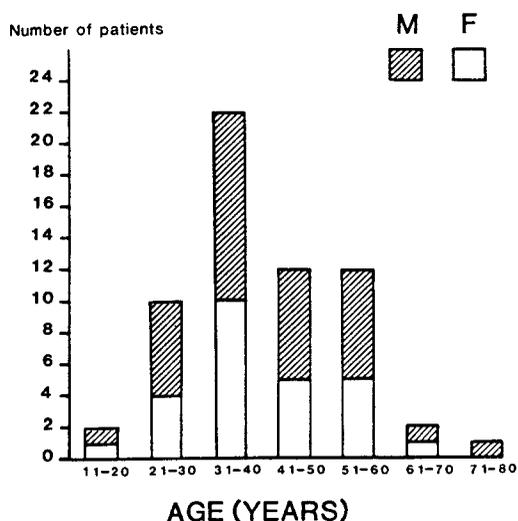


Fig. 1. Sex distribution and age incidence in 61 patients with CRF.

Table 1. Main complaints at the time of presentation in order of frequency.

Complaints	No of patients	Percentage
1 Fatigue	51	82
2 Anorexia, nausea, vomiting	46	75
3 Ankle swelling	33	52
4 Breathlessness	30	49
5 Puffiness of the face	23	36
6 Cough	20	32
7 Insomnia	19	31
8 Itching	18	29
9 Chest pain	13	21
10 Diarrhoea	9	15
11 Parasthesia, hot sensations in feet and hands	9	15
12 Epistaxis	5	8
13 Bad vision	5	8
14 Pain in the joints	3	5
15 Headache	3	5

Epistaxis was the presenting feature in 14 patients, and some of these patients were referred from ear, nose and throat (ENT) departments: one patient discovered later to be suffering from Alport's syndrome, after studying his renal biopsy and audiometry, was under the care of an ENT specialist for deafness. Pericarditis occurred in 11 patients, and all were dialyzed.

Table 2. Observed clinical features during the course of illness

Clinical features involving	No of patients	Percentage
I Gastrointestinal tract		
1 Anorexia, nausea, vomiting	55	90
2 Diarrhoea	10	16
3 Hiccough	5	8
4 Haematemesis	1 terminal	1
II Neuromuscular system		
1 Fatigue	55	90
2 Insomnia	25	41
3 Convulsions	2	3
4 Myoclonus	2	3
5 Tremors - Flapping	6	10
6 Peripheral neuropathy	11	19
III Cardiorespiratory system		
1 Hypertension malignant	7	19
" non-malignant	29	81
2 Pericarditis	11	19
3 Epistaxis	14	22
IV Involving skin		
1 Purpura	2	3
2 Uraemic frost	25	41
3 Itching	22	36
4 Pigmentation	9	15
V Miscellaneous clinical features		
Anaemia; normochronic normocytic	42	69

Peripheral neuropathy occurred in 11 patients and was so troublesome that all our patients applied HENA (a local dye from plants with a soothing effect) to their hands and feet. It gives a red-black colour and is very characteristic observation in the patients.

One patient had severe neuropathy with paralysis of the lower limbs, ameliorated by peritoneal dialysis.

Itching was observed in 22 patients and it did not disappear after dialysis. However, 3 patients were symptom free after transplantation. Nine of our patients became more dark, this is not a well recognized feature in

blacks; our patients are of Afro-Arab origin and some have very fair colour.

Normochromic normolytic anaemia occurred in 42 patients (Table 2). Other causes had been excluded.

Figure 2 depicts the blood pressure level at admission, most of the hypertensive patients responded to drugs and dialysis.

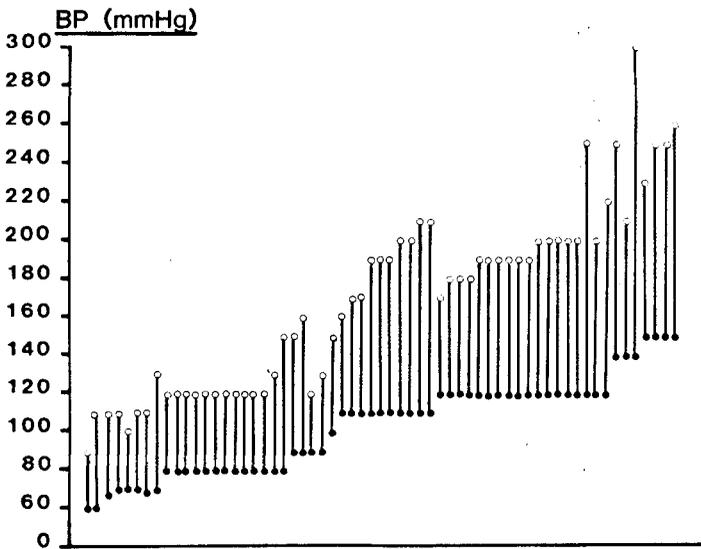


Fig. 2. Blood pressure in 61 patients at presentation.

Figures 3 and 4 show the blood urea and creatinine at the time of seeing the patients. Four patients showed very high levels and one male 28-years-old with a blood urea of 600 mg% and creatinine of 40 mg% died during dialysis due to hypertensive encephalopathy.

Fifty-nine percent of the patients had hypertension and of these 19% had malignant hypertension. The incidence of hypertension in our patients is lower than others (3). Three of our patients had adult polycystic disease as the primary cause of CRF and two patients had salt losing nephropathy.



Table 3. Causes of chronic renal failure (CRF) in Sudan and Sweden in percentage (%)

Cause	Sudan (n = 61) (%)	Sweden* (n = 524) (%)
Chronic glomerulonephritis	33	27
Obstructive nephropathy	18	-
Hypertensive nephrosclerosis	13	11
Diabetes mellitus	12	22
Chronic pyelonephritis	3	13
Polycystic disease of the kidney	5	7
Systemic diseases	-	9
Other causes and unknown	16	11

\*According to statistics from the Swedish Nephrological Society, 1984.

## DISCUSSION

Fatigue was the presenting symptom in 82% of our patients with end stage renal failure. This was volunteered by the patients and many of them had been under medical care and were supplied with vitamins until the blood urea was done and they were referred to us.

Although many people complain of fatigue in the hot weather of Sudan due to excessive sweating etc, clinicians should be alert and look for other features of CRF, especially now where tests like blood urea are available in big cities.

Fatigue in CRF is attributed to anaemia, dehydration, protein-calorie malnutrition and accumulation of uraemic toxins (2).

Gastrointestinal symptoms occurred in 75% as the presenting feature, however, they predominate during follow-up. These gastrointestinal features have deleterious effect on renal function and should be looked for and treated promptly because in a place like ours it is always cheaper to reverse treatable causes and keep patients with ESRD stable on conservative treatment (7).

Nine patients had peripheral neuropathy, six with objective signs mainly in the lower limbs, one patient was crippled, however, he improved after peritoneal dialysis and is now walking with a stick. The peripheral neuropathy seems to be related to the GFR and duration of CRF (9, 10).

All the 61 patients were anaemic, however, 69% had the typical normo-chromic normocytic anaemia of CRF (6).

Gastrointestinal bleeding was seen in only one patient who was very ill and died before instituting therapy.

The incidence of hypertension in our patients is lower than other observers' (3). In a study done by Makene in Dar-es-Salaam where all his 42 patients were pure Africans 91% had hypertension and 24% of those patients got malignant hypertension. In our series as mentioned earlier the patients are of Afro-Arab origin and three had polycystic kidneys and two had salt loosing nephropathy.

The last two decades had seen improvement in dialysis and transplant (2, 5). However, in a place like Sudan, where priority goes to malnutrition and endemic diseases like malaria, tuberculosis and schistosomiasis, our duty as nephrologists is to prevent and find remediable causes before our patients succumb to ESRD.

The comparison of the causes of CRF in Sudan and Sweden shows that chronic glomerulonephritis is the commonest cause of CRF in both countries. Obstructive nephropathy (stone disease) is a common cause of CRF in Sudan. This is attributed to: 1. lack of facilities, e.g. X-rays and ultrasound, 2. late presentation of patients.

Three of our patients presented with CRF without been seen before and had no X-rays examination in their life. Availability of such facilities and early referral of patients will detect patients before they develop CRF. This prevents CRF, postpones dialysis and its costs (7) and makes life easier for the patient and the people in charge of health care.

Diabetes mellitus is not a common cause of CRF in Sudan as in Sweden. Probably our diabetic patients in Sudan succumb to other complications and do not live long enough to develop CRF.

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Address for reprints:

Dr El Fadil M. Osman  
University Hospital  
Department of Internal Medicine  
S-751 85 Uppsala  
Sweden