THE PATTERN OF ACUTE RENAL FAILURE IN ILORIN, NIGERIA

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SUMMARY

Objectives: Acute renal failure is a common cause of morbidity and mortality in Nigeria. The early detection and prompt treatment of acute insults to the kidneys may prevent renal failure which is capital intensive in its management. Majority of Nigerians cannot afford the cost of renal substitution therapy which is scarce and expensive. There is no renal replacement therapy subsidy and the National Health Insurance Scheme is yet to be implemented. These underscore the need for some form of preventive nephrology in order to reduce and possibly avoid renal failure. In line with the foregoing, a 9-year (1990-1998) retrospective appraisal of causes, management and outcome of acute renal failure (ARF) was undertaken in our centre.

Methods: All the ARF patients that presented primarily to the nephrology unit or were referred to the unit from other departments of the University of Ilorin Teaching Hospital for intervention were studied.

Results: A total of 86 patients (40 males and 46 females) with age range between 3 and 65 years were reviewed. About 79% of the patients were less than 40 years of age and most were females. Sixty three (75%) patients were oliguric at presentation while 23 (26.7%) were non-oliguric. Altered sensorium, vomiting, and hiccups were present in 87%, 40%, and 23% respectively. Severe anaemia that necessitated blood transfusion was present in 41 (48%).

The major Aetiological factors were septicaemia (36%), severe gastroenteritis (22%), acute glomerulonephritis (9.3%); drug induced (8%) and obstructive uropathy (6%). Thirteen patients had haemodialysis with 31% mortality, 9 had peritoneal dialysis with a mortality of 67% while 58 were managed conservatively with 64% deaths.

The important poor prognostic factors identified were extremes of age, severe infections, late presentation, delayed intervention therapy and underlying/concurrent medical illness. The main factors that influenced the mode of therapy were severity of ARF and financial constraint. Haemodialysis appears to be the preferred method of substitution therapy in our environment for severe ARF. An urgent need for the formation of a National preventive nephrology policy is again reemphasized.

Conclusion: A significant number of the patients are under 40 years old. The major causes of renal failure in Ilorin are preventable and treatable conditions. Haemodialysis is the preferred mode of intervention.

Key Words: *Acute renal failure, causes, management and prognosis*

INTRODUCTION

Acute renal failure is a syndrome characterized by rapid deterioration in renal function resulting in accumulation of nitrogenous waste products sufficient to cause uraemia following a variety of insults to previously normal kidneys[1,2]. Unlike chronic renal failure, ARF is usually potentially preventable and reversible. It is often difficult to distinguish between reversible acute-on-chronic renal failure and ARF because majority of chronic renal failure (CRF) patients in the tropics present in acute setting[3]. In the developed world however, ARF can be reasonably differentiated from CRF by serum levels of

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parathyroid hormone, creatol and carbamylated haemoglobin which are remarkably raised in CRF[4,5]. A review of the literature in Nigeria reveals that very little information exists regarding the pattern of ARF[6,7]. Most of the available reports are collated cases of specific types of ARF[8,9,10,11].

The management and prognosis of ARF is capital intensive and carries a gloomy picture even though majority of the identifiable causes in our environment are preventable[6,7,9,10]. Despite the numerous advances in the diagnosis and treatment of ARF, the mortality rate ranges from 43 to 80% worldwide[6,8,10,12-15]. In view of the scarcity of renal substitution therapy in Nigeria, adequate knowledge o the pattern of ARF will help in fashioning out a rational preventive nephrology policy. The purpose of this study is to review the causes, management and prognosis of ARF in Ilorin, Nigeria. Ilorin is located in the Guinea Savanna area of Nigeria and the University of Ilorin Teaching Hospital serves as a referral centre for most of the Northern States and the South West zone.

PATIENTS AND METHODS

All patients that presented primarily to the nephrology unit or were referred from other departments of the University of Ilorin Teaching Hospital over a nine year (1990-1998) time period and satisfied the usual criteria for acute renal failure were included in the study. The criteria comprised some or all of the following features: short duration of illness, unusual weakness, vomiting, anorexia, malaise, hiccups, diarrhoea, oliguria, polyuria, loin pains, pruritus, bleeding tendency, body swellings and altered sensorium. The patients showed biochemical evidence of moderate to severe renal impairment i.e. raised blood urea, creatinine, uric acid and phosphate with low bicarbonate and calcium. All patients had diminished glomerular filtration rate (GFR) in the presence of normal sized kidneys. Attempt was made to determine the fractional excretion of sodium and specific gravity in urine of some of the patients in order to differentiate pre-renal azotaemia from established ARF. Excluded from the study were patients with previous history of renal diseases, more than six months duration of illness and ultrasonic evidence of shrunken kidneys. Also excluded from the study are patients who had clinical features suggestive of ARF but could not be investigated due to financial constraints.

Majority of the Aetiological factors were obtained from the clinical features. All patients in whom infections were suspected had septic work-up and full blood count and virtually all showed leucocytosis and toxic granulations with vacuolation of neutrophils on peripheral blood film. The diagnosis of acute glomerulonephritis was based on the presence of facial and/or ankle oedema, macroscopic haematuria, hypertension and mild proteinuria. None of the patients had renal biopsy. The modality of treatment offered to the patient was informed by the severity of azotaemia, presence of complications and financial constraints. Patients that benefited from conservative therapy were placed on 30-40 grams of protein, high carbohydrate diet providing 2500-3500 calories per day and fluids were restricted to between 500 – 1000ml per day plus measured losses over the previous 24 hours. Dialytic therapy was performed on severely uraemic patients who could afford the cost of the procedure. Most patients had 2 – 3 sessions of haemodialysis before they got clinically well. The patients that survived were followed up after discharge in the nephrology clinic till they achieved normal renal function based on clinical and laboratory data. Analyses of the studied parameters were by single percentage method.

RESULTS

A total of 86 acute renal failure patients (40 males, 46 females) with ages ranging between 3 and 65 years were

reviewed.. The age and sex distribution is shown in table 1.

Table 1
Age and Sex Distribution

Age (Years)	1-9	10-19	20-29	30-39	40-49	50-59	60-69	Total
Male	9	7	4	10	8	-	2	40
Female	7	5	12	14	5	-	3	46
Total	16	12	16	24	13	-	5	86

All the patients were Nigerians. About 79% of the patients were less than 40 years of age.

Table 2 depicts the clinical features of ARF. Sixty-three (73.4%) were oliguric at presentation while 23 (26.7%) were non-oliguric. Hiccups, vomiting and altered sensorium were present in 23%, 39.5% and 87% respectively. Severe anaemia that necessitated blood transfusions was observed in 41 (47.7%).

Table 2
Clinical Features of Acute Renal Failure

Feature	No of Patients	% of Total
Unusual Weakness	82	95.3
Altered Sensorium	75	87.2
Oliguria	63	73.4
Anaemia	41	47.7
Vomiting	34	39.5
Hiccups	20	23.2
Hypertension	15	17.4
Heart Failure	11	12.8
Haematuria	6	6.9

The Aetiological factors, treatment modalities and prognosis are shown in tables 3 and 4. Septicaemia (36%), severe gastroenteritis (22%), acute glomerulonephritis (9%), drug induced (8%) and obstructive uropathy (6%) were the main causes of ARF.

Table 3
Aetiological Factors in Acute Renal Failure

Causal Factor	No of Patients	% of Total
Septicaemia	31	36
Severe Gastroenteritis	19	22.1
Acute Glomerulonephritis	8	9.3
Dru Induced	7	8.1
Obstructive Uropathy	5	5.8
Ante Partum and Post Partum Haemorrhage	4	4.6
Acute Pyelonephritis	4	4.6
Intrvascular Haemolysis	3	3.4
Septic Abortion	2	2.3
Holy Green Water	1	1.2
Unknown	2	2.3

Table 4
Treatment Modalities and Outcome of Acute Renal Failure

Treatment Modality	No of Patients	No of Deaths	% Mortality
Conservative	58	37	63.7
Peritoneal Dialysis	9	6	66.6
Haemodialysis	13	4	30.7
Abandoned Treatment Against Medical Advice	6	-	-

Thirteen patients had haemodialysis with 31% mortality, 9 had peritoneal dialysis with a mortality of 67% while 58 were managed conservatively with 64% deaths. The overall mortality rate in this study was 59%. The important poor prognostic factors identified were extremes of age, late presentation, severe infections, delayed intervention therapy and underlying/ concurrent medical illness.

DISCUSSION

Majority of acute renal failure patients in this review presented in a setting of septicaemic illness in which the primary focus could not be identified and attempt at bacteriological proof was not possible. The possible contributory factors were abuse of antibiotics prior to presentation, unwillingness to carry out investigations because of poor finances, scarcity of proper laboratory support, and concealment of information and inadequate recall of the sequence of events. Febrile illness was also a prominent feature in many of the patients with severe gastroenteritis, acute glomerulonephritis and obstructive uropathy. Although there are reports in the literature strongly associating typhoid fever as a cause of ARF[9,16,17], it will be unwise to conclude that most of the patients reviewed in this study who had febrile illness actually had typhoid fever. The difficulty in obtaining bacteriological proof and the widespread abuse of Widal test have been alluded to by previous authors[6,18]. It was observed that none of the diseased patients in whom the cause of ARF could not be found had post-mortem examination. This could be attributed to emotional response to grief and unwillingness to accept autopsy. There is also an intense desire to bury deceased relations intact. This may be informed by a belief in life after death or some religious injunction that demands burial within 24hours of death. These explain the low post-mortem rates in our hospital[6,19].

The use of herbal remedies and unprescribed drugs were responsible for ARF in 8% of the cases studied. This figure is in accord with the 8.75% and 8% reported by Ojogwu[10] and Bamigboye et al[7] in Benin and Lagos respectively. It however contrasts with the 23% and 10.9% observed in the studies of Adelekun et al[11] and Otieno et al[20] at Ile Ife and Nairobi respectively. A major limitation in the review was lack of histologic diagnosis in cases with acute glomerulonephritis because none of the patients benefited from renal biopsy. Again, this had to do with the poor state of the patients at presentation, scarce laboratory facilities and financial constraints. The interesting but disappointing observation in this study was that the majority of the causative factors are preventable, yet ARF carried a high mortality rate. There is therefore a need to emphasis preventive aspects of renal disease rather than curative measures which are not only scarce in our environment but also capital intensive.

The overall high mortality rate of 59% observed in this review is similar to those reported by various authors[6,10,12,14,15]. The main contributory factors were extremes of age, late presentation, delayed intervention therapy, bleeding tendency, sever infections and underlying medical illness. Septicaemic illness and bleeding diathesis were present in most of the fatal cases. Also of importance in the study was the observation that haemodialysed sever ARF patients did better than those on peritoneal dialysis. This is not surprising as most of the severe ARF patients presented in a high catabolic state that needed a high clearance technique which haemodialysis offered. The higher mortality in the ARF patients that had peritoneal dialysis was probably due to uncontrollable high catabolic state because none of them had peritoneal infections. It may be difficult to comment on the outcome of those managed conservatively because a majority of them were moderately uraemic at presentation. However, it was observed that the majority

of the patients who died in this group terminally had overwhelming infection and severe azotaemia despite the use of safe potent antibiotics. This suggests that it may be difficult to control infections in the presence of severe uraemia or that the uncontrollable infection actually worsened the azotaemia. It is tempting to advocate haemodialysis for all severe ARF patients but for the financial constraints that limited the number of patients who benefited from renal replacement therapy in this review.

CONCLUSION

The causes, clinical features, management and prognosis of ARF seen at the University of Ilorin Teaching Hospital have been analyzed. Attention is drawn to the high number of patients under 40 years of age and the majority that presented in a setting of septicaemic illness. The major identifiable Aetiological factors are preventable and treatable conditions. Haemodialysis appears to be the preferred mode of intervention therapy in all cases of severe ARF. The present review re-emphasizes the need for detailed prospective nation-wide collaborative study of the pattern of ARF in order to formulate a rational and practicable preventive and management strategies.

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