Acute Renal Fail Ure In Rasheed Renal Unit

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Summary:

84 patients with acute renal failure (ARF) were evaluated retrospectively in Rasheed Renal Unit (RRU) over a period of 9-months. They were 82 males and 2 females and their ages ranged 5-80 years. Prerenal ARF was the commonest type seen in 45 patients (53.6%). Renal ARF was seen in 33 patients (39.3%) and acute obstructive uropathy in 6 patients (7.1%) .60 patients (71.4%) had ARF primarily.

Clinically, 74 patients presented with oligoanuria while 10 patients only presented with non oliguria . Of the oligoanuric group, 61 patients (82.4%) needed RRT and 50 patients (67.6%) had complete recovery , the mortality rate was (25.7%) ,while in the nonoliguric group non of them required RRT and complete recovery rate was 100% .The overall survival in both groups was (77.4%). Other details concerning etiology and outcome will be discussed.

Keywords: *Renal failure, Acute, Rasheed Unit.*

Introduction:

Acute renal failure (ARF) is a medical emergency characterised by an abrupt decline in renal function resulting in retention of nitrogenous wastes irrespective of urine output causing rapid rise in blood urea and serum crcatininc. ARF may be associated with anuria; oliguria or non oliguria (1.5).

It is customary to classify ARF in to three major groups, prc-rcnal, renal, and postrenal (1.7).

The incidence of ARF in the general hospital admission in the world is (5%). *UDTA* survey from 32 countries shows a mean of (28.9) patients per million population per year with ARF and requiring dialysis (7.9). For every patients requiring dialysis, there are 10-12 patients with milder renal insufficiency who are managed conservatively with out dialysis. Fees et. al. (3) from England reported an incidence of ARP of 140 patients per million population per year, 18 of whom required dialysis. In this study we evaluate retrospectively cases of ARF in Rasheed Rennl Unit (RRU) regarding aetiology and outcome.

Materials and Methods

A total of 84 patients with no previous history of renal impairment were evaluated for developing ARF in RRU during the period from June 1-998 through March 1999.

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There were 82 males and 2 females and their ages ranged between 5-80 years. All patients had complete history and physical examinations, laboratory investigations including urinalysis, biood urea, scrum crcalinine, serum electrolytes, urine creatinine, urine sodium, urine specific gravity and urine osmolality. Ultrasonography of the kidneys and bladder also had been done and CT-scan as indicated. The fractional excretion of sodium (FE_{Nn}) was estimated. Differentiation between prerenal and renal ARF was done according to (Table-I).

The aetiology of ARF and the clinical outcome were assessed and the results compared to that of others.

Renal ARF

A total of 33 patients (39.3%) were included in this group. Acute tubular necrosis (ATN) was the cause in 16 patients (48.5%) followed by acute glomerulonephritis (AON) in 14 cases (42.4%).

rATN was due to sepsis in 10 cases, G6PD in three cases, Rhabdomyolysis in two cases, Haemolytic uraemic syndrome in two cases and tumore lysis and acute cortical necrosis (ACN) in one each (Table-II).

PoSt-renal ARF

This group included six patiens (7.1%) with acute obstructive uropathy who were treated by renal replacement therapy (RRT) while those treated conservatively were excluded from the study. Stone was the commonest cause and seen in four patients while ureteric obstruction due to retropritoneal fibrosis was seen in one patient and long standing urethral stricture in the other one

(table –II). The clinical outcome of ARF in our patients is shown in table - III.

Results:

60 patients (71.4%) were admitted primarily with ARF while 24 patients (28.6%) acquired ARF during their hospital isation for other cause.

45 patients (53.6%) had prerenal azotemia while 33 patients (39.3%) had renal ARF and the remaining six patients (7.1%) had post-renal ARF (Table-H).

Oliguria was found in 45 patients and 29 patients had unuria while non-oliguric ARF was found only in ten patients (Table-Ill). All cases of postburn ARF were not included in this study, in addition to the cases of acute obstructive uropathy which were treated conservatively with out dialysis.

Pre-renal ARF:

There were several factors responsible for the aetiology of ARF in & group of patients. 45 patients (53.6%) were found to have prerenal ARF of which 34 patients (75.6%) had infection and GI-loss to be the prominent aetiology while renal hypoperfusion and volume depletion *due* to haemorrhage were found in six patients and heat stoke in three patients and congestive heart failure (CHF) in one patient. Finally hepalorenal syndrome (I IRS) was the cause in one patient (Table-II).

Our explanation for this difference is base probably on the special environment • and circumstances present in the army (e.g. hot weather, prolonged exposure to sun, low socioeconomic state, prolonged lines of medical evacuation and possibly delay in evacuation of the patients, delay in initiation of rehydration and specific treatment probably because of unavailability due to Sanctions since causes of ARF in different countries are usually determined by geographical, environmental and socioeconomic conditions (10).'

Conclusions:

l) Oligouria at presentation of ARF carries a high mortality and morbidity while n©n-oliguria carries no mortality.

2) Prerenal ARF is the most common causative group ofARFinour patients followed by renal and post-renal ARF.

3) Early referral of critically ill ARh patient to the nephrologist may significantly improve the outcome.

Index	Personal	ARF
Uosm	>500	<300
U sp. Gravity	>1.018	<1.015
U na	<10	>40
FE na	<1	>2

Type of ARF	Cause	Number of Patients	Percentage %
Prerenal		Total (45)	53.6%
	Infection / GI-loss	34	75.6%
	Haemorrhage	6	12.2%
	Heat stroke	3	6.1%
	CHF	1	2.04%
	HRS	1	2.04%
Renal		Total (33)	39.3%
	ATN	16	48.5%
	Sepsis	10	30.3%
	Rhabdomyolysis	2	6.06%
	G6PD	3	9.1%
	Tumore lysis	1	3.03%
	Acute glomerulonephritis (AGN)	14	42.4%
	Acute cortical necrosis (CAN)	1	3.03%
	HUS	2	6.1%
Post renal		Total (6)	7.1%
	Renal stone	4	66.7%
	Retroperitoneal fibrosis	1	16.7%
	Urethral stricture	1	16.7%

Table-II: Classification of 84 patients with ARF according to the cause of the disease.

Urinary out put	Patients number	HD+PD	Renaul Recovery	Complete Recovery	mortality
Oligounric	74	61(82.4)%	5(6.8)%	50(67.6)	19(25.7)
Non_oliguric	10	0	0	10(100%)	0

Discussion:

A total 84 patients were included in this study. 74 patients were found to he oligounurc while the remaining 10 patients were non-oliguric. Among the oliguric group 61 patients (82.4%) required RRT in form of haemodialysis (HD) and peritoneal dialysis (PD) (Table- III).

50 patients had complete recovery (67.6%) while partial recovery seen in only five patients (6.8%). The mortality rate in our patient was (25.7%), which is similar to that reported in Qatar (21.8%) (8), where 19 patients died, while the overall survival incidence was (77.4%) which is similar to survival rate (80.5%) in Jordanian study (9). Our mortality rate also coincides with that mentioned by Chertow (2).

Prerenal ARF was seen in majority of our patients (53.6%) while renal ARF comes next (39.3%) followed by post-renal ARF (7.1%). Infection and GI-loss (75.6%), haemorrhage (12.2%) and heat stroke (6.1%) were the most common causes of prerenal ARF in our study (Table-II). All above

mentioned conditions will lead to effective volume depletion and livpovolemia resulting in fading of renal autoregulation mechanism and functional derangement of the renal blood flow with afferent arlcriolar vasoconstriction leading to full in GFR and finally azotemia (2).

In (he renal ARF group of patients, acute tubular necrosis *duo* to sepsis was the commonest cause of ARF which is comparable to results elsewhere, while G6PD, rhabdomyolysis and tumor lysis syndrome were less common causes of renal ARF (Table - II).

Pathophysiologically, perrenal azotemia due to sepsis will be converted easily and rapidly to ATN due to shared pathogenic mechanisms (3). AGN is the second common cause of renal ARF.

Maemolytic uremic syndrome although it is rare but seen in two cases who fully recovered from ARF. Acute cortical necrosis confirmed by CT-scan was seen in one patient who died after 47 days of regular haemodialysis.

In postrenal ARF actually all cases of acute obstructive uropathy that need no RRT where excluded from the study because it had been treated in urology department. This may explain the low incidence of this group in the aetiological spectrum of ARF in this study (7.1%). Stone was the commonest cause of acute post-renal ARF while ureteric obstruction due to retropritoneal flbrosis and urethral stricture were the cause in 2 patients (Table II).

Our results are comparable to Sudanian study (10) where prerenal was the commonest type of ARF in Sudan followed by post renal and renal ART; However, if differs from mulficcntcr ctiropcnn study hv KDTA (1996) where renal ARF was the commonest followed by prerenal and post renal ARF (7.9). Jordanian study (9) showed renal ARF to be the commonest and the perrenal ARF to be the least common.

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