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Profile of Acute Renal Failure in Children in Kashmir

We report on the etiology and the short term outcome (3 month) of children with acute renal failure (ARF) at a tertiary care centre in north India. Acute tubular necrosis was the commonest cause of ARF (33%) especially in children <5 years of age; while in children >10 years, glomerulonephritis was the commonest cause. The overall mortality rate was 20%. The outcome at 3 months showed normal renal function in 72 patients and CKD in 5 patients. Three patients were lost to follow-up.

Key words: *Acute tubular necrosis, Glomerulonephritis, India.*

Acute kidney injury (AKI; previously called acute renal failure) is characterised by a usually reversible increase in the blood concentration of creatinine and nitrogenous waste products and by the inability of the kidneys to appropriately regulate fluid and electrolyte homeostasis [1].

We conducted a study in the department of Nephrology and Neonatology, SKIMS, Soura, Srinagar Kashmir over a period of two and half years from 2006 to 2008. Hundred (100) cases of children up to the age of 18 years with ARF admitted in SKIMS were studied. The minimum age was 1 day and the maximum age was 18 years. 36% patients were <2 years, 6% 2-5 years, 27% 5-10 years and 31% >10 years. The diagnosis of ARF was

based on rapidly progressive azotemia (rise of serum creatinine by at least 0.5/dL/day or BUN rise by 10 mg/dl/day or serum creatinine more than 2 mg/dl and usually but not always associated with oliguria [2,3]. After providing initial emergency care, detailed history, physical examination and investigations were carried out to determine the cause of ARF. Oliguria was the commonest clinical presentation present in 60% patients followed by edema (45%). Anuria was present in 13% of patients. 33% were dehydrated with 11% having severe dehydration. 20% patients had hypertension on presentation.

Table I shows the etiology of ARF and the associated mortality. ATN was the commonest (33%) cause of ARF in our patients especially in children <5 years of age. Sepsis was the commonest cause of ATN (45%) followed by birth asphyxia (18.18%) and acute gastroenteritis (AGE) (15.15%). Above 10 years, glomerulonephritis was the leading cause (16%) of ARF. Post-operative and post-renal causes of ARF comprise very low percentage (each 8%); same observations have been made by Srivastava, [4]. Drug induced renal failure comprise 5% of cases. Most cases were managed conservatively, while RRT in the form of peritoneal and hemodialysis was done in 20 cases. Mortality rate was 20%; same as observed by Ihab Sakr Shaheen, *et al.* [5]. ATN has the highest proportion of death (p.value 0.003) comparable with other study [6]. Survival was better in older children than in younger ones.

We conclude that even today, sepsis is the most common cause of ARF followed by AGE in this part of the world. If these conditions are treated early and

TABLE I ETIOLOGY OF ACUTE RENAL FAILURE IN KASHMIR

Etiology	Survived		Died	
	<i>n</i>	%	<i>n</i>	%
Acute tubular necrosis (ATN)	18	54.5	15	45.5
Prerenal azotemia	24	100.0	0	0.0
Acute glomerulonephritis (AGN; poststreptococcal)	12	100.0	0	0.0
Rapidly progressive glomerulonephritis (RPGN)	2	50.0	2	50.0
Interstitial nephritis	4	100.0	0	0.0
Infective endocarditis	3	100.0	0	0.0
Renal artery stenosis (RAS)	1	50.0	1	50.0
Obstructive nephropathy	7	87.5	1	12.5
Unknown cause	1	100.0	0	0.0
*Miscellaneous	8	88.9	1	11.1

*Miscellaneous group includes: Lupus Nephritis (3 cases), Nephrotic syndrome (3 cases), Hemolytic uremic syndrome (2 cases), Henochschlein purpura nephritis (1 case).

promptly, the occurrence of ARF can be prevented. If the patient develops ARF, an early referral to a specialised centre with dialysis facility can significantly improve the final outcome.

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