SUMMERY

Neonatal acute renal failure (ARF) is defined as the sudden, severe derangement of glomerular filtration and tubular function, and is diagnosed when serum creatinine is greater than 1.5 mg/dl regardless of the rate of urine output ***(Friedlich et al .,2005, Gouyon and Guignard.,2000),*** or a blood urea nitrogen (BUN) level higher than 20 mg/dL on 2 separate occasions at least 12 hours apart, while maternal kidney function was normal ***(Mathuret al.,2006).***

This is a retrospective study including all neonates admitted in (NICUs) of Benha children specialized hospital (BENCH) , whatever the gestational age or cause of admission in the last two years, from January 2008 to December 2009, Medical records of admitted neonates diagnosed with ARF in the last two years from January 2008 to December 2009 were studied.

Of 2265 admitted neonates during the studied 2 years, 109 patients were diagnosed with ARF (4.8%).15 neonates were excluded based on the criteria determined for the study, and data of 109 patients, including 72 boys (66.1%) and 37 girls (33.9%) were collected and analysed.

Of 2265 admitted neonates during the studied 2 years, 1740 patients were admitted in NICU department and 84 of them were diagnosed with ARF (77%), 526 patients were admitted in neonatal surgery ICU department and 25 of them were diagnosed with ARF (23%).

Of the 109 neonates diagnosed with ARF , 72 (66.1%) were full-term, 34 (31.2%) were preterm, and 3 (2.7%) were postterm.Oliguria was observed in 71 patients (65.2%), 38 patients (34.8%) show non oliguric ARF.The mean urine out put in 109 diagnosed cases with ARF is 1.58 mL ± 1.12 mL/kg/hour.The

cause of ARF was prerenal failure in 36 patients (33%), intrinsic kidney failure in 69 (63.3%), and postrenal failure in 4 (3.7%).

The frequency of Predisposing factors for ARF was, Perinatal asphyxia 22 patients (20%), Sepsis 83 patients (76.1%), RDS 22 patients (20%), Dehydration 21 patients (19.2%), Nephrotoxic drugs 62 patients (56.9%), Urinary anomalies 12 patients (11%), Mechanical ventilation 48 patients (44%), Surgical operation 21 patients (19.2%).

88 patients (80.7%) had more than 1 associated contributing condition, 16 patients (14.7%) had single associated contributing condition, 5 patients (4.6%) had no associated contributing condition, 45 patients (41.2%) developed ARF after admission to the hospital, 21 of whom (19.2%) developed ARF following a surgical operation.

The most common cause of surgery was gastrointestinal anomalies (90.4%), including intestinal obstruction in 6 patients, tracheo-oesophageal fistula in 4, imperforated anus in 3, hirsch sprung disease in 2, duodenal atresia in 2 intestinal perforation in 1, chronic hypertrophic pyloric stenosis in 1 patient.

Urinary anomalies were diagnosed in 12 patients (11%), including ,ureteropelvic junction obstruction in 1 patient, vesicoureteric reflux in 3, posterior urethral valve in 3, polycystic kidney in 3, multicystic kidney in 1, horse shoe kidney in 1. 51 neonates (30 boys and 21 girls; 46.8%) died during their hospital stay in the NICU, 49 (45%) were discharged with normal kidney function, and 9 (8.2%) with urinary anomalies were discharged with diminished kidney function.

CONCLUSIONS

From our results we concluded that

- Sepsis was the main risk factor for developing ARF in neonates.
- Nephrotoxic drugs and Mechanical ventilation were more frequent than perinatal asphyxia and RDS as risk factors for developing ARF.
- intrinsic kidney failure was the most common form of ARF in our patients.
- Initial admission to NICU, female sex, septicemia, and the need for mechanical ventilation were associated with higher rate of mortality.
- In our hospital, most neonates with ARF had been referred from other surrounding cities and 19.2% of the patients developed ARF after a surgical operation.
- Oliguric ARF was more frequent than non oliguric ARF in our patients.
- ARF was more frequent in boys than girls.
- Sepsis was not significantly more frequent in the patients who died than in those who survived.
- Early recognition of risk factors such as sepsis, perinatal asphyxia or, perioperative problems and rapid effective treatment of contributing conditions will reduce ARF in neonatal period.