Summery

Acute renal failure (ARF) is commonly present among sick neonates. ***(Hentschel R, et al.1996),*** While asphyxia, Respiratory distress syndrome (RDS) and urogenital anomalies are commonly reported causes of ARF in the West ***(Norman ME et al., 1979),*** sepsis is one of the leading cause of ARF ***(Pereira S, et al., 1988)***, but data on ARF in neonatal sepsis is scarce, and earlier studies have focused on Perinatal asphyxia as the cause of ARF. Criteria for ARF in neonates usually include a high Blood urea nitrogen (BUN) Concentration (>20 mg/dl) ***(Ellis EN et al., 1982)*** or serum creatinine equal or more than 1.5mg/dl ***(Csaicsich D, et al., 2008).*** Renal failure in neonates has been reported to be predominantly oliguric (***Pereira S, et al., 1988)***; however, occurrence of oliguria in ARF has not been evaluated in a cause specific manner. The present study was undertaken with the objective of evaluating occurrence of uremia and oliguria in neonatal sepsis, and the risk factors associated with it.

The study was conducted in the referral nursery of Benha university Hospital, Benha specialized hospital & Benha teaching hospital, 50 cases of neonatal sepsis admitted from May to September 2008 were included. The cases were divided into two major groups (according to affection by ARF) ***group "I"*** (septic neonates with ARF and included on [17] cases in number), ***group "II"*** (septic neonates without ARF and included on [33] cases in number) **group "I"** was further subdivided (according to urine out put) into two subgroups , ***subgroup "A" (non oliguric)*** included on (9)cases and ***subgroup "B"(oliguric)*** included on (8) cases, **group "I"** was followed up clinically along their staying in the NICUs for obtaining data about survival and so the group "I" was further subdivided

(according to survival) in to ***survived*** cases and included on (7)cases and ***non survived*** cases included on (10) cases**,**

Neonatal sepsis was diagnosed on the basis of a positive blood culture or a positive sepsis screen in addition to clinical evidence of sepsis. The screen was positive if 2 or more of the following were present: (CRP > 6 mg/dl, ESR > age in days+ 2mm or > 15mm in first hour, Total leukocyte count <5000/ mm^3 or >30000 mm^3, immature: total neutrophil ratio > 0.2) (***Pereira S, et al., 1988)***. ***Acute renal failure (ARF)*** was defined as blood urea nitrogen (BUN) >20mg/dl on 2 separate occasions at least 24 hours apart, and /or serum creatinine equal or more than 1.5mg/dl ***(Robert L , et al.,1984). Oliguria*** was defined as urine output < 1ml/Kg/hr ***(Jayashree G, et al., 1991)***. A thorough clinical examination to see for urethral, meatal abnormalities, palpable bladder and kidneys was done. None of the neonates included in the study had any gross congenital anomaly of the kidney, urinary tract or evidence of causes of ARF in neonates other than sepsis on clinical examination or history.

Risk factors evaluated for occurrence of ARF& oliguria included gestational age, weight, age at onset of sepsis, culture positivety, co morbid conditions (birth asphyxia, congestive heart failure [CHF], necrotizing enterocolitis [NEC]), disseminated intravascular coagulation [DIC] and shock.

Risk factors evaluated for survival in sepsis associated ARF included gestational age, weight, early onset sepsis, culture positivety, associated, asphyxia, shock, and administration of nephrotoxic drugs and presence of oliguria.

Out of the 50 neonates with sepsis, ***17*** had uremia ***(34%)*** The mean gestational age of the study population was ***35.6 ± 3.1*** weeks and ***(48%)*** were preterm, Mean weight at presentation was ***2481 ± 886.1*** Gms. Early onset sepsis constituted (***46%)*** of the cases, and (***70%)*** of the neonates survived. Renal failure was oliguric in only ***(47.1%)*** of the cases. Renal failure had a mean onset at ***(3.5)*** days after the diagnosis of sepsis, Mean of duration of ARF was **(*1.9)*** days Survived cases of ARF were ***(41.2%)***.

Cases of neonatal sepsis with and without ARF were compared for various risk factors. The septicemic neonates with ARF were significantly associated with shock, DIC& high mortality. Which confirmed by significant positive correlation between shock, DIC and occurance of ARF .and significant negative correlation between occurance of ARF & survival.

Septicemic Neonates with non oliguric and oliguric ARF were compared, the oliguric subgroup was significantly associated with low birth weight & shock. Which confirmed by significant negative correlation between weight and oliguria, and significant positive correlation between oliguria and shock.

Various factors were studied for survival in cases of septicemic neonatal with ARF. Only shock was significantly associated with non survived cases, which confirmed by significant negative correlation between survival and shock in septicemic neonates with ARF.