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The present study entitled "Renal dysfunction detected by $\beta_2$ microglobulinurea in sick neonates" was carried out in the Department of Paediatrics with assistance from Department of Microbiology and Department of Biochemistry of M.L.B. Medical College. The study period extended over 1 year.

In our study, a total of 60 babies were selected of which 15 were normal neonates, as control and 45 sick neonates which included neonates with birth anoxia, septicemia and meconium aspiration were taken as study group. Well defined criteria were laid down to select the study group. Birth anoxia was diagnosed of the basis of apgar score of less than 4 at 5 min. Septicemia was diagnosed on basis of a scoring system which included various scores for - meconium stain liquor, foul smelling liquor, birth weight $<$2Kg, leaking membrane more than 24hr. A score of 5 or above was considered significant. Meconium aspiration syndrome was diagnosed on the basis of thick meconium stained liquor with depressed child and an apgar score $<$ 3 at 1 minute.

The assessment of gestational age of the neonates was done on the basis of last menstrual period and by physical and neurological development score (Ballard scoring). All the
neonates were full term with mean gestational age of 38.13 ± 0.61 weeks and 38.04 ± 0.04 weeks in the study and control group respectively (table -3). The mean birth weight of neonates in study and control groups was 2731 ± 243gm and 2733 ± 369gm respectively (table-2). Thus the study group neonates were well matched with control group neonates in term of gestational age and birth weight.

Urine was collected in all neonates on day 1,3 and 7 by using aseptic precaution β₂ microglobulin value were determined urine by using ELISA test. Blood urea and serum creatinine level were also determined in all neonates.

- The value of β₂ microglobulin in urine in study group were 8.8 ± 5.8mg/L, 7.0 ± 3.16mg/L and 5.8 ± 2.5mg/L respectively on day 1,3 and 7. The corresponding value in control group were 1.43 ± 1.03mg/L, 1.49 ± 1.08mg/L and 1.55 ± 1.02mg/L. The level of urinary β₂ microglobulin was significantly higher in the study group in comparison to control group (table -4).

- Urinary β₂ microglobulin values in birth anoxia group were 10.33 ± 6.023mg/L, 7.85 ± 3.78mg/L, and 6.5±2.88mg/L (table-5) on day 1,3 and 7 respectively.
The corresponding values in meconium aspiration group were $8.23 \pm 3.88 \text{mg/L}$, $6.6 \pm 2.64 \text{mg/L}$ and $5.6 \pm 2.23 \text{mg/L}$, in septicemic neonates the corresponding values were $6.2 \pm 3.55 \text{mg/L}$, $5.4 \pm 1.86 \text{mg/L}$ and $4.4 \pm 1.89 \text{mg/L}$ (table-7). These values were significantly elevated in comparison to control group.

- Highest values of $\beta_2$ microglobulin in urine were observed in Birth anoxia group.

- Out of 45 sick neonates, 35 neonates (77%) showed significant elevation of $\beta_2$ microglobulin in urine where as standard renal function tests were deranged in only 24% of the cases.

- Study group was further divided in two groups group-A neonates with impaired renal function and group-B neonates with normal renal function. The $\beta_2$ microglobulin value in these two group were $8.86 \pm 2.36 \text{mg/L}$ and $6.87 \pm 1.36 \text{mg/L}$ respectively groups had significantly higher value of $\beta_2$ microglobulin in comparison to control group.