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Rapid advances in technology and a better understanding of neonatal physiology has resulted in vast improvement in the quality of care of critically ill neonates. While there is no doubt that this has led to an improvement in the survival rate in high risk neonates but with the survival of these neonates a large no of complication has began to arise one of which is multi - system failure in these neonates and most common system to be involved in these neonates is renal system.

A large no of perinatal stress such as hypoxia, sepsis, hemorrhage can lead to under perfusion of kidney and proximal convoluted tubule which result in hypoxic injury to proximal convoluted tubule. The spectrum of renal damage resulting from these stress range from oliguric or non-oliguric renal failure to renal tubular dysfunction.

The incidence of renal dysfunction in neonates varies from study to study. According to Norman the incidence of renal dysfunction occur in about 11-23% of neonates admitted to NICU and about 1-8% of these develop acute renal failure. According to Karlowicz and Adelmen 1992 the over all incidence of acute renal failure in neonates in NICU is about 20%.
\( \beta_2 \) microglobulin is a low molecular weight protein which is a part of HLA complex. It is present in most of the biological fluids of body. Because of its low molecular weight it is freely filtered through glomerular basement membrane. Even immature kidney can absorb a large proportion of this protein so that the final concentration of \( \beta_2 \) microglobulin in normal urine is very low.

By 36 weeks of gestation tubular mechanism for the absorption of \( \beta_2 \) microglobulin are fully develop. The diaplacental exchange of \( \beta_2 \) microglobulin during fetal life is minimal in contrast to creatinine whose value in early neonatal period reflect value of mother because of placental exchange. The value of creatinine become normal only by 5-7\textsuperscript{th} days of life.

With these feature of \( \beta_2 \) microglobulin and the fact that most of the perinatal stress such as sepsis lead to hypoperfusion and hypoxic injury to kidney and proximal tubule being most active site of kidney is most vulnerable to these hypoxic damage. Any damage to proximal tubule lead to decrease in absorption of \( \beta_2 \) microglobulin and increase its concentration in urine which can serve as a index of renal tubular damage.

Keeping these views in mind, present study was planned to determine the value of \( \beta_2 \) microglobulin in various stress full
condition of neonates (indirect evidence of involvement of kidney) and try to find out whether β₂-microglobulin can serve as a marker for early prediction of acute renal failure.