

## **INTRODUCTION**

Perinatal asphyxia is an insult to the fetus or newborn due to lack of Oxygen (hypoxia) and/or lack of perfusion (Ischemia) to various organs. The effects of hypoxia and ischemia may not be identical but they are difficult to separate clinically (Noetzal L., et al., 1987).

The incidence of perinatal asphyxia is about 1 to 1.5 percent in most centers and is usually related to gestational age and birth weight (Tew, B, et al., 1985).

Target organs of perinatal asphyxia are brain, heart, lung kidney, liver and bone marrow. In a recent study of asphyxiated newborn 34 percent had no evidence of organ injury, but the most frequent abnormalities involved kidney (50%), followed by the central nerves system (28%), cardiovascular (25%) and pulmonary (23%) system (Winston, K.R.j., 1978).

Kidney is very sensitive to oxygen deprivation, which 24 hours of an ischemic episode, renal insufficiency will occur (Alejandro G. et al., 1992).

The condition is reversible but prolonged renal insufficiency will cause increased damage. Anoxia causes renal ischemia by two mechanism directly via hypoxemia and indirectly by causing shock which decreases renal blood flow owing to pooling of blood and diversion of blood flow (Arant, B.S. Clin. Perinatal., 8:225-240, 1981). The clinical presentation of renal failure in neonates is often subtle.

The degree of asphyxia required to cause permanent neurologic impairment is just below that which is lethal from multisystem failure (Kaplan, L.C., 1989). Several studies have documented significant increase  $> 5\text{IU}$  in the serum creatine kinase brain fraction (CK-BB) at 4 and 10 hours of life in asphyxiated infants who developed neurologic