Summary and Conclusion

Perinatal asphyxia is an insult to the fetus or newborn due to lack of oxygen (hypoxia) and / or a lack of perfusion (ischemia) to various organs. Hypoxic ischemic brain injury is the most important consequence of perinatal asphyxia.

Perinatal asphyxia is a major cause of neonatal mortality and irreversible damage to the brain. Severe asphyxia may induce major deficit shortly after birth, while mild to moderate asphyxia episodes may result in congnitive / attentional disorders later on in development a primary aim for clinical research is to identify as early as possible reliable index of brain injury in the asphyxiated newborns to apply potential therapeutic interventions at the optimal time and to identify those infants at high risk for developmental delays and disabilities.

Isoprostane is prostaglandin like compounds formed in vivo in humans from the free radical. Catalyzed peroxidation of arachidonic acid independent of the cyclo-oxygenase. Evidence indicates that Isoprostanes can be successfully used to study the mechanisms involved in free radical-induced brain damage following ischemia-reperfusion.

Our study was carried on fourty neonates, ten of them healthy neonates served as control group and thirty of them with criteria suggesting perinatal asphyxia as study group which subdivided into two groups, full term and preterm hypoxic groups, each group is fifteen cases.

The aim of this work is to evaluate serum level of F2-Isoprostane in neonatal hypoxic ischemic encephalopathy and correlate the levels with the severity of insult and thus predict possible role of F2-Isoprostane in identification of infants at high risk and the possible early therapeutic intervention.

Our study showed that there was highly significant increase in the level of Isoprostane in diseased hypoxic ischemic group collectively in comparison to Isoprostane level of the healthy control group.

Our study showed that there was significant increase in the level of Isoprostane in full term and preterm hypoxic groups in comparison to Isoprostane level of the healthy control group, but there was no significant difference between the full term and preterm hypoxic groups regarding the level of Isoprostane.

Our study showed that there was significant difference between the level of Isoprostane and different stages of HIE in diseased groups collectively as the level of Isoprostane was higher in stage II and III compared to stage I, and higher in stage III compared to stage II. Also there was significant difference between the level of Isoprostane and stages of HIE in both full term and preterm hypoxic groups as the level of Isoprostane was higher in stage II and III compared to stage I, and higher in stage III compared to stage II.

Our study showed that there was no significant difference between the level of Isoprostane and patients with different outcome in full term and preterm hypoxic groups.

Our study showed that there was no significant difference between control group and diseased groups regarding sex and age, but there was significant difference between control group and diseased groups regarding the Wt, Apgar score at 1 and 5 min., pH and HCO3 level.

Our study showed that there was no significant correlation between the Isoprostane level and gestational age, Wt, Apgar score at 1 and 5 min., pH or HCO3 level among the control group.

Our study showed that no significant correlation between level of Isoprostane and gestational age, birth weight, sex, Apgar score at 1&5 minutes, pH or HCO3 level in both full term and preterm hypoxic groups.