

**“SPECTRUM OF NEONATAL SEIZURES (ETIOLOGY, ONSET,
CLINICAL FEATURES) WITH SPECIAL CORRELATION TO
BIOCHEMICAL ABNORMALITIES NOTED DURING THE
SEIZURE EPISODE”**



BY

DR. CHANNAKESHVALA SRIKANTH, MBBS

Dissertation Submitted to the

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore

In partial fulfillment

of the requirements for the degree of

DOCTOR OF MEDICINE

IN

PEDIATRICS

Under the guidance of

DR. VIJAY K. KULKARNI, MD

PROFESSOR OF PEDIATRICS



Truth Liberates

**DEPARTMENT OF PEDIATRICS
SDM COLLEGE OF MEDICAL SCIENCES AND HOSPITAL, DHARWAD
2014-2017**

ABSTRACT

Background: Neonatal seizures are clinically significant because very few are idiopathic. Further investigation leading to prompt diagnosis of the underlying condition is important because many of the etiologies have specific treatment. Time of onset of seizures has correlation with etiology. Biochemical abnormalities associated with neonatal seizures and its effective management.

Objectives: The objective of the present study is to know the etiology of neonatal seizures, to know the time of onset of neonatal seizures and its relationship to etiology, to know the various types of presentations of seizures in neonates and biochemical abnormalities noted during the seizure episode.

Methodology: The present study included 100 neonates presenting with seizures admitted in the NICU of SDM Medical College, Dharwad during the period of one year from October 1 2014 to October 1 2015. Detailed antenatal, natal and post natal history were taken and examination of baby done and HIE staged according to Modified Sarnat's staging. Then relevant investigations were done and etiology of neonatal seizures were diagnosed. Biochemical abnormalities noted during the seizure episode.

Results: In the present study, out of 100 neonates studied, 92 were full-term, among these 80 (80%) were AGA and 12 (12%) were SGA. 8 babies (8%) were preterm. Male:Female ratio in our study was 2.7:1.

In our study onset of seizures within first three days of life were seen in 67 neonates (67%). After 3 days of life 33 neonates developed seizures (33%). Onset of seizures within first 3 days of life of had statistically significant correlation with birth asphyxia as

the etiology with $p < 0.001$.

Subtle seizures were the commonest type of seizures in our study (49 cases – 49%), followed by GTS (30 cases – 30%), multifocal clonic (11 cases – 11%), focal clonic seizures (4 cases - 4%) and mixed 6 cases- 6%.

Birth asphyxia was the commonest cause of neonatal seizures in our study (51 cases – 51%) followed by hypoglycemia (8 cases – 8%) and meningitis (8 cases – 8%). Out of 51 cases of birth asphyxia 30 (52.8%) mothers had prolonged second stage of labour and 21 (33.3%) had MSAF. Hypoglycemic seizures were more common in LBW babies with statistically significant $p < 0.001$.

Biochemical disturbances occur frequently in neonatal seizures either as an underlying cause or as an associated abnormality. In their presence it is difficult to control seizure and there is a risk of further brain damage. Early recognition and treatment of biochemical disturbances are essential for optimal management and satisfactory long term outcome.

Conclusion: The recognition of etiology of neonatal seizures is often helpful with respect to prognosis and treatment. The most common etiology for neonatal seizure is HIE and is frequently associated with perinatal risk factors. Onset of seizures during first 3 days of life has significant correlation with HIE as etiology. Hypoglycemic seizures are more common in LBW babies.

Subtle seizures are commonest type of clinical seizures, which is difficult to identify, therefore careful observation of at risk newborns is necessary.

Hyponatremia is the most common biochemical abnormality associated with birth asphyxia, multiple biochemical abnormalities is found to be associated with birth asphyxia like Hyponatremia/Hypomagnesemia, Hyponatremia/Hypokalemia and isolated hyperphosphatemia , Which may trigger seizures or potentiate further brain damage in asphyxiated newborns, hence it would be essential to treat the biochemical abnormality and underlying cause for effective management and to prevent long term neurological sequelae

Keywords: Neonatal seizures; Birth asphyxia; HIE; Subtle seizures;
Biochemical abnormalities.