IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 5 Ser.14 (May. 2020), PP 32-33
www.iosrjournals.org

A study of USG cranium, a predictor of Transition from HIE grade 1 to HIE grade 2

Dr. Prakash Kumar Ram[1], Dr. (Prof) Anil Kumar Chaudhary[2],
Dr. Antony Kisku [3]

[1] *(Junior resident, Department of paediatrics, Rajendra Institute of Medical Sciences)*
[2] *(Professor, Department of paediatrics, Rajendra Institute of Medical Sciences)*
[3] *(Senior resident, Department of paediatrics, Rajendra Institute of Medical Sciences)*

Abstract: *Birth asphyxia/ Hypoxic ischaemic encephalopathy is a significant cause of mortality and morbidity in our NICU. Many newborns presenting with features of HIE I gets transitioned into HIE II and even the concerned neonatologists are unaware of it. So, the following study has been done to see whether USG cranium can be of any help in predicting transition from HIE I to HIE II.*

Keywords*: Birth asphyxia, Hypoxic ischaemic encephalopathy, USG cranium, transition.*

Date of Submission: 13-05-2020 Date of Acceptance: 26-05-2020

I. Introduction

Birth asphyxia/ Hypoxic ischaemic encephalopathy (HIE) is among the most common cause of our NICU admission in today's scenario. The studies have shown that such cases have a very high rate of mortality and morbidity. To make our treatment protocol easy many researchers have classified birth asphyxia/HIE into 3 groups:

Grade I- Baby is irritable/ crying excessively
Grade II- I + baby having seizures
Grade III- I + baby becomes lethargic/comatose

Many a times in our day to day practice a lot of newborns having features of HIE I gets admitted. While some of them develop features of HIE II during the NICU stay while many gets discharged without having any complications. Now, the dilemma arise how can we alert ourselves in NICU as which newborn of HIE _ can land into HIE II is still not clear. So, the following study has been done to see whether USG cranium in such newborns with HIE I can be of any help in predicting their transition into HIE II. USG cranium suggestive of birth asphyxia changes are: cerebral edema, periventricular edema or bleed.

II. Aims and Objective

To study the authenticity of USG cranium as a predictor of transition from HIE I to HIE II.

III. Materials and Methods

The present study is a hospital based cross-sectional study conducted in the department of Pediatrics and Neonatology, Rajendra Institute of Medical Sciences, Ranchi; during mid-April 2019 to mid-March 2020. In this study 60 cases (newborns) with history of delayed cry after birth – birth asphyxia – HIE I who were admitted in RIMS, NICU were included in the study. USG cranium was done in all of them and it was analysed how many such newborns has some changes in USG cranium has lastly landed into HIE II.

Inclusion criteria:
All newborns admitted in RIMS NICU with history of cry after birth but no history of any seizures.

Exclusion criteria:
1. All newborns presenting in RIMS NICU with features suggestive of HIE II or HIE III
2. Newborn already given prophylactic phenobarbitone.

Detailed history, clinical examination, USG cranium was done in all newborns with HIE I. the USG cranium was done in the Department of Radiology, RIMS, Ranchi.
Parametrs: USG cranium – showing any features of birth asphyxia changes.

IV. Results

Total 60 cases (Newborns) having history of delayed cry after birth – HIE I – with no history of seizures admitted in RIMS NICU were taken for study.
Tables I to V

Table: 1 Number of newborns of HIE-I getting transitioned into HIE-II during NICU stay

Total no of HIE-I	60
No of HIE-I getting transitioned into HIE-II	30

Table-2: Number of newborns with HIE-I showing features of birth asphyxia in USG cranium

Number of HIE-I showing changes in USG cranium	12
Number of HIE-I newborns having normal USG cranium	48

Table-3: Total no of HIE-I newborns having features of birth asphyxia in USG cranium who ultimately got transitioned into HIE-II during NICU stay

Total no of HIE-I newborns having features of birth asphyxia in usg cranium who got transitioned into HIE-II	08
Total no of HIE-I newborns having features of birth asphyxia in USG cranium who doesn't got transitioned into HIE-II	04

Table 4: Total no of HIE-I newborns having normal USG cranium who got transitioned into HIE-II

Total no of HIE-I newborns having normal USG cranium who got transitioned into HIE-II	15

Table-5: Comparison between newborn who got transitioned into HIE-II having abnormal vs normal USG cranium

HIE-II newborns who got transitioned from HIE-I who had			
1.	Normal USG cranium	18	
2.	Abnormal USG cranium	08	

V. Conclusion

As can be seen from our study the number of HIE I newborns who got transitioned into HIE II, only 26.6 % of them had abnormal USG cranium reports. Hence, we conclude that USG cranium is not of much help in predicting transition from HIE I inti HIE II.

Limitations of the study:
1.Sample size were not adequate.
2.Delay in the reporting of USG cranium.

References

[1]. Nelson textbook of paediatrics 21st edition
[2]. Iap textbook of paediatrics, 5th edition
[3]. Cloherty and starks manual of neonatal care, 8th edition
[4]. Aiims nicu protocol , 2nd Edition, 2019
[5]. Meherban Singh Care of the New Born , 8th edition
[6]. Neonatal HIE-radiological Review , Journal of paediatric Neurosciences 2018
[7]. Early prediction of HIE ,Clinics in Perinatology[pubmed]

Dr. Prakash Kumar Ram, et. al. "A study of USG cranium, a predictor of Transition from HIE grade 1 to HIE grade 2." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(5), 2020, pp. 32-33.