Original Article

Clinical Profile of Perinatal Asphyxia in Term Neonates

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Abstract:

Background: Perinatal asphyxia is one of the major causes of neonatal death and disability worldwide. Inspite of breakthrough advances in the field of perinatal medicine, perinatal asphyxia continues to be a top killer disease. Adequate knowledge about the key features of perinatal asphyxia is an essential ingredient to achieve meaningful reduction in neonatal mortality. **Objective:** The objective of the study was to determine clinical presentations of perinatal asphyxia in term neonates. **Methods:** This cross sectional observational study was conducted in Special care neonatal unit, Rangpur Medical College Hospital between May 2017 and October 2017. After ethical clearance, 200 term neonates fulfilling the selection criteria were enrolled into the study. History taking and physical examination were done meticulously for every patient. Data were analyzed through SPSS software (version 16.0). Minimum level of significance was predetermined as $p<0.05$. **Results:** Among 200 neonates, 130(65%) patients were in hypoxic ischemic encephalopathy stage-ll followed by 50(25%) and 20(10%) patients in stage-lll and stage-l respectively. Analysis revealed that among asphyxiated neonates, the clinical features were seizure (70/200, 35%) followed by lethargy (69/200, 34.5%), weak moro reflex (65/200, 32.5%) and hypotonia (60/200, 30%). **Conclusion:** This study concluded that seizure followed by lethargy, weak moro reflex and hypotonia were the predominant clinical features in perinatal asphyxia in term neonates.

Indexing words: Neonates**,** Perinatal asphyxia, Clinical features

Introduction:

Globally, infant mortality has declined significantly but neonatal mortality is staggeringly high as compared to other countries[1]. Perinatal asphyxia is a common neonatal problem contributing significantly to neonatal morbidity and mortality[1]. Approximately, 75% of newborn deaths occur in the first week of life, due to prematurity (35%), perinatal asphyxia (23%) and sepsis (23%)[2,3].

Perinatal asphyxia (PNA) may be defined as an insult to fetus or newborn due to lack of oxygen or lack of perfusion to the vital organs of the body[4]. According to WHO perinatal asphyxia is defined as the failure to initiate and sustain breathing at birth[4]. The symptomatology of perinatal asphyxia evolves into hypoxic ischemic encephalopathy (HIE) which is classified on the basis of distinct clinical and laboratory parameters. Traditionally, hypoxic ischemic encephalopathy (HIE) is graded by Sarnat and Sarnat as stage I, stage ll and stage lll (mild, moderate and severe respectively)[5]. Common clinical manifestations of PNA encountered in clinical practice are seizure, apnoea, not able to feed, cyanosis, lethergy, irritability and coma[6]. Clinical presentations of perinatal asphyxia often mimic other clinical entities particularly fluid and electrolyte imbalance. Therefore, it becomes imperative to be conversant with symptomatology of perinatal asphyxia to optimize management for improved neonatal survival.

Methodology:

This cross sectional observational study was conducted in Special care neonatal unit, Rangpur Medical College Hospital between May 2017 and October 2017. 200 term neonates fulfilling the selection criteria were enrolled into the study. Relevant detailed history and physical

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examination were performed. Neurological status was assessed by Sarnat and Sarnat staging to classify the grading of hypoxic ischemic encephalopathy. Inclusion criteria were **:** live born term 1-5 day old neonates with any of the followings (i) delay in establishing first breath within one minute of birth. (ii) history of resuscitative measures undertaken to sustain breathing. Exclusion criteria were (i) birth weight <2500 gram, (ii) gross congenital anomalies, (iii) septicemia, (iv) shock. SPSS version 16.0 for windows was used for the analysis of data. Chi-square test was done and $p<0.05$ was set as the minimal level of significance.

Results:

Table 1 Shows majority of neonates belonged to age group 24-48 hours of birth.

Table I: Distribution of asphyxiated neonates by age (n= 200)

Age	Number (n)	Percentage (%)	p value
24 - 48 hours	110	55	0.157 (NS)
48–120 hours	90	45	

Fig. 1 demonstrates that male neonates outnumbered females

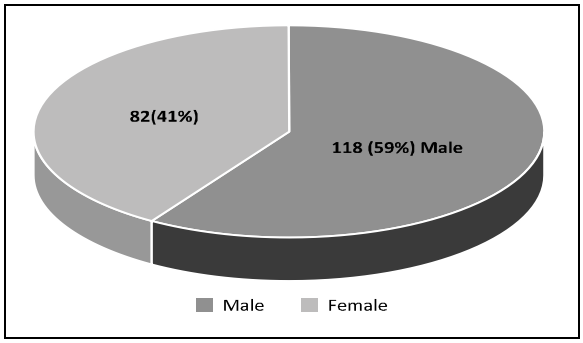


Fig. 1: Percentage of asphyxiated male and females neonates

Table II shows that weight of majority of asphyxiated neonates were between 2500gm - 3000g.

Table II: Distribution of asphyxiated neonates by weight (n=200)

Weight	Frequency (n)	Percentage (%)
2500 gm - 2999 gm	158	79.0
3000 gm - 4000 gm	42	21.0

Fig. 2 shows that majority of asphyxiated newborn were delivered by lower uterine caesarean section

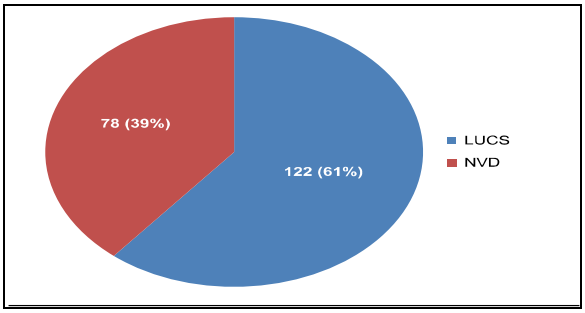


Fig. 2: Percentage of mode of delivery of asphyxiated newborn.

Fig. 3 illustrates that majority 130(65%) of asphyxiated neonates belonged to Sarnat and Sarnat HIE stage ll(moderate) followed by 50 (25%) in stage lll (severe).

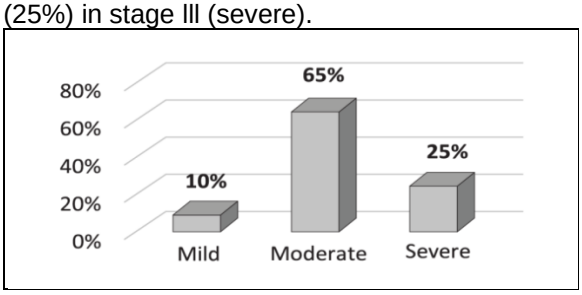


Fig. 3: Sarnat and Sarnat HIE stages of asphyxiated newborn.

Table III illustrates that among plethora of clinical manifestations the most frequent presentation was seizure followed by lethargy.

Table III: Distribution by clinical presentations of asphyxiated newborn (n=200)

Clinical feature	Frequency (n)	Percentage (%)
Hyperalert	10	05.0
Lethargy	69	34.5
Coma	12	06.0
Hypotonic	60	30.0
Flaccid	20	10.0
Flexion posture	45	22.5
Decrebrate posture	12	06.0
Myoclonus	3	1.5
Strong moro reflex	22	11.0
Weak moro reflex	65	32.5
Absent moro reflex	25	12.5
Mydriasis	12	06.0
Miosis	55	27.5
Unequal, poor light reflex	10	05.0
Seizure	70	35.0
Hyperactive tendon reflex	23	12.5
Absent tendon reflex	22	11.0

Discussion:

In this study, majority of neonates belonged to age group 24-48 hours of birth. There was no significance (p=0.157) of age between two age group (Table 1). Male preponderance was observed with a male to female ratio of 1.43:1(Fig 1). A study conducted by Prithviraj et al showed that among 80 babies 57.5% were male and 42.2% female with male to female ratio 1.35:1.24[7] Similar study conducted by Thakur et al reported that out of 88 enrolled cases 60 (68%) were male and 28 (32%) were female[8]. Study findings of these studies conform to the present study. In this study, male predominance may be explained by the male dominant neonatal admission pattern of this hospital[9].

Regarding birth weight of asphyxiated neonates, majority were between 2500-2999 grams (Table 2). Similar observation was documented by Serder et al[10]. In this study, most neonates (122/200, 61%) were delivered in hospital by caesarean section due to failed home trial or being referred by other health care facilities (Fig 2). This observation closely resembles with the study by Kiyani et al[11]. In the current study, majority of the cases were in HIE stage ll followed by HIE stage lll and HIE stage l (Fig 3). This finding is consistent with the study conducted by Shah et al who observed that out of 60 asphyxiated patients majority 27(45%) were in stage II, 20(33.3%) in stage III and 13(21.7%) in stage I[12]. Study conducted by Thakur et al found that among 88 asphyxiated newborn, 33 (37.5%) were in stage ll, 30(34.09%) in stage lll and 25(28.40%) were in stage I[8]. Findings of these previous studies are consistent with the present study.

Regarding clinical profile, most frequent presentations of asphyxiated newborns were seizure (70/200, 35%) followed by lethargy (69/200, 34.5%), weak moro reflex (65 /200, 32.5 %) and hypotonia (60/200, 30%).

Conclusion:

This study concluded that most frequent clinical presentations of perinatal asphyxia were seizure followed by lethargy, weak moro reflex and hypotonia.

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