ORIGINAL ARTICLE

A STUDY ON BIRTH ASPHYXIA AT TERTIARY HEALTH CENTRE

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ABSTRACT

Background: Birth asphyxia is an important cause of morbidity and mortality in neonatal period.

Methodology: This was the cross sectional study conducted in the tertiary care centre of Ahmedabad on the full term babies with birth asphyxia. The maternal, fetal and newborn correlates were recorded according to predesigned proforma.

Results: There were total 401 (6.6%) babies born with apgar score of less than 7 at one minute and among them, 320 (79.8%) were full term babies and 81 (20.2%) were preterm babies. Among the babies 52.5% were male, 56.9% were primigravida, and only 41.9% had antenatal care present, 42.2% had MSL and 47.2% were small for date babies.

Conclusion: Birth asphyxia is common the babies of the mother who had not received proper antenatal care. Maternal anaemia, primipara, meconium stained liquor babies have more chances of getting birth asphyxia.

Keywords: Birth Asphyxia, apgar score, antenatal care

INTRODUCTION

Birth asphyxia is an important cause of morbidity and mortality in neonatal period.[1] In our country, with the establishment of neonatal care unit in many centres the major causes of morbidity like infection and low birth weight are coming under control.

The art of neonatal resuscitation of asphyxiated babies has now become an important part of neonatal care. The slogan "give a breath and save a life" conveys the essence of the art.

The consequences of asphyxia are multi-systemic. However the newborn can have different clinical course due to variable involvement of various organ systems. The variation in clinical signs is due in part to the ability of fetus to redistribute blood flow to protect vital organs. It had been documented that newborn with low apgar scores had problems with their pulmonary, cardiovascular, central nervous system, gastrointestinal and renal system.[2]

The study aims at reviewing the current incidence of birth asphyxia, its correlates, in an attempt towards better understanding of the disease process and contributing towards improved survival and a better quality of life.

METHODOLOGY

The present study was the descriptive longitudinal study conducted in the tertiary care centre of Ahmedabad which is also a major referral centre during the year July 2007 to June 2008. All the babies who are born in this institute during the study period, gestational age of 37 weeks and apgar score of less than 7 at 1 minute are included in the study.

All the babies who were preterm were excluded because the apgar scores of non asphyxiated preterm babies are normally low due to poor neurological maturity, the babies who had known to cause of low apgar score like maternal sedation, maternal anesthesia and babies with some major or lethal congenital malformations like anencephaly, congenital diaphragmatic hernia were also excluded.

All the asphyxiated babies were attended by a pediatric resident trained in neonatal resuscitation protocol designed by American Academy of Pediatrics and American Heart Institute. After initial resuscitation apgar scores at 1, 5 and 10 minutes were determined. This was the criteria used to define birth asphyxia. The modes and duration of resuscitation were recorded. The maternal, fetal and newborn correlates were recorded according to predesigned proforma. All babies with

birth asphyxia were studied until discharge from the hospital and mortality was recorded if any.

The proportion of birth asphyxia and hypoxic ischemic encephalopathy was calculated.

RESULTS

There were total 401 (6.6%) of the babies born with apgar score of less than 7 at one minute. Among them, 320 (79.8%) were full term babies and 81 (20.2%) were preterm babies. There were 104 (32.5%) cases of HIE among BA cases. The mortality was observed in 91 (28.4%) of BA cases. (Table 1)

The table 2 shows the antenatal, natal and postnatal profile of the cases and the proportion of cases having HIE. Around 57% of the mothers were primigravida and 57% of the babies of primigravida suffered from HIE. It was serious concern that antenatal care was absent in around 58% of the cases. Good antenatal care and health education may decrease the incidence of birth asphyxia. Around 58% cases have duration of labour of around 12-24 hrs and among them 60.6% cases had HIE.

Table 1: Proportion of birth asphyxia

Variable	Frequencies
Deliveries during study period	6447
Live births	6074
Full term live births	5285 (87.0%)
Preterm live births	789 (13.0%)
Babies with apgar < 7 at 1 minute	401 (6.6%)
Fullterm babies with apgar < 7 at 1 minute (Study population)	320 (79.8%)
Preterm babies with apgar < 7 at 1 minute	81 (20.2)
HIE in full term babies with birth asphyxia	104 (32.5)
Expiries in full term babies with birth asphyxia	91 (28.4)

Table 2: Antenatal, natal and postnatal profile of the mother and baby

Variables	FTBA (n=320)	HIE (n=104)
Gender of baby		
Male	168 (52.5%)	56 (53.8%)
Female	152 (47.5%)	48 (46.2%)
Parity		
Primigravida	182 (56.9%)	59 (56.7%)
Multigravida	138 (43.1%)	45 (43.3%)
Antenatal care		
Present	134 (41.9)	-
Absent	186 (58.1)	-
Duration of labour		
< 12 hours	121(37.8)	36 (34.6)
12 – 24 hours	185 (57.8)	63 (60.6)
>24 hours	14 (4.4)	5 (4.8)
Fetal distress		
No distress	86 (26.9%)	10 (9.6%)
Tachycardia	137 (42.8%)	39 (37.5%)
Bradycardia	97 (30.3%)	55 (52.9%)
Meconium stained liquor		
Present	135 (42.2)	40 (38.5)
Absent	185 (57.8)	64 (61.5)
Weight		
Small for date	151 (47.2)	48 (46.1)
Appropriate for death	169 (52.8)	56 (53.9)
Duration of resuscitation		
30 sec	64 (20)	7 (6.7)
30 sec – 2 min	166 (51.9)	19 (18.3)
>2 min	90 (28.1)	78 (75.0)

The table 3 shows the maternal illness during antenatal period. A single case can have more than one illness during the antenatal period. It was observed that 52.2% of the mothers have anemia. PIH was observed in 26 (8.1%) cases while antepartum hemorrhage was observed in 7.5% cases.

Table 3: Maternal illnesses (multiple responses)

Maternal illness	Frequency
Anemia	167 (52.2)
Pregnancy induced hypertension (PIH)	26 (8.1)
Antepartum hemorrhage	24 (7.5)
Malpresentation	18 (5.6)
Obstructed labour	16 (5.0)
Eclampsia	12 (3.7)
UTI (Urinary Tract Infections)	12 (3.7)
Malaria	10 (3.1)
Cord prolapse	8 (2.5)
Multiple pregnancy	6 (1.9)

DISCUSSION

Incidence of birth asphyxia in this study is 6.6% among which FT babies with apgar score less than 7 at 1 minute were 79.8% and preterm babies were 20.2%. Incidence of birth asphyxia in full term live births is 6.6%.

The incidence of HIE in the present study is 1.9%. Palsdottir K[3] observed HIE in 1.4 per 1000 live births. Thus varied incidence observed in various studies could be due to various definitions of BA. Second factor may

be that this study was conducted in a tertiary care centre where many of the high risk pregnancies are referred and managed which would justify the higher incidence of BA and HIE in this study.

A higher male to female ratio was observed in this study. This could be attributed to the higher birth rate of males. In this study almost 60% of the mothers had not taken minimum required antenatal care. This would mean late diagnosis of high risk pregnancies which would lead to poor outcome and perinatal asphyxia. Rehana Majeed[4] observed non attendance of ANC in 24% of mothers of asphyxiated babies against 5% in control group. So, non attendance of ANC is a risk factor for prenatal asphyxia.

Oswyn G[5] observed fetal distress in 82% of babies with HIE, 50% had bradycardia. Rashmi et al[6] observed fetal distress in 34% of BA and 71.4% of HIE patients. Thus intrapartum fetal distress has a significant association with HIE & BA. Presence of bradycardia is an indicator of poor outcome. This emphasizes the importance of intrapartum fetal monitoring which would detect early fetal compromise and timely intervention can improve outcome. In the presence study meconium staining of liquor was observed in 40% of patients with BA & HIE. S. Chandra et al[7] observed MSL in 56% of babies with BA. Palsodottir K[3] observed MSL in 50% of asphyxiated babies. Thus MSL in an indicator of fetal distress and its detection warrants expedite delivery by available means.

CONCLUSION

Birth asphyxia is common the babies of the mother who had not received proper antenatal care. Maternal anaemia, primipara, meconium stained liquor babies have more chances of getting birth asphyxia.

ACRONYMS

FTBA- Full Term Birth Asphyxia,
MSL- Meconium Stained Liquor,
HIE-Hypoxic Ischaemic Encephalopathy,
ATN- Acute Tubular Necrosis,
ICH- Intra-cerebral Hemorrhage,
DIC- Disseminated Intravascular Coagulation,
NEC- Necrotising Enterocolitis,
PPHN-Persistent Pulmonary Hypertension of Newborn

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