BIRTH ASPHYXIA

Pages with reference to book, From 217 To 219

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Abstract

Apgar scores recorded at 5 minutes after birth for 807 newborns delivered during 1985, revealed that 3.3% had Apgar scores of 0-3 (severe asphyxia). Asphyxiated infants were more commonly of low birth weight (less than 2500 G) belonging to the poor income groups and those delivered by Caesarian Section (JPMA 38:217, 1988).

INTRODUCTION

Birth asphyxia is probably the commonest cause of perinatal brain injury associated with high mortality and morbidity. In the evaluation of the newborn for evidence of asphyxia, the Apgar scoring system is utilized.[1,2] A five-minute Apgar score of 7-10 is considered “normal”. Scores of 4,5 and 6 are not markers of high levels of risk of later neurologic dysfunction. An Apgar score of 0—3 at 5 minutes is associated with a 3-fold increased risk of cerebral palsy and indicates the possibffity of hypoxia[3,4]. Factors that may influence the Apgar score include prematurity, maternal sedation or analgesia, muscle disease, cerebral malformations and cardiorespiratory conditions, and therefore the validity of the Apgar score has been questioned in the diagnosis of asphyxia in the premature infants[5-8].
Utilizing the Apgar scoring system evaluation of the frequency of asphyxia was carried out in this study.

METHODOLOGY

An independent observer, well-versed in the criteria used for the Apgar scoring systera and familiar with neonatal resuscitative techniques, was stationed in the delivery room of King Edward Medical College, hospital during 1985. Apgar score was carried out with special emphasis on the 5 minute score using stopwatch and pre-printed Apgar score cards (Table 1).

TABLE- I. Apgar Score.

Sign	0	1	2
Heart rate	Absent	Slow (below 100)	Over 100
Respiratory effort	Absent	Slow, irregular	Good, Crying
Muscle tone	Flaccid	Some flexion of extremities	Active motion
Reflex irritability	No response	Grimace	Vigorous cry
Color	Blue, pale	Body pink, extremities blue	Completely pink

This was supplemented with historical information about the mother (age, socioeconomic status, parity, level of antepartum care). Information was also gathered on the newborn (height, weight, head circumference gestational age and congenital maiforalong with mations).

RESULTS

Of the 1000 consecutive deliveries monitored, complete information was available in 807 cases. Of these, a total of 27 (33%) had Apgar scores of 3 or less at 5 minutes and were thus termed severely asphyxiated.

Comparison of 27 asphyxiated newborns with the rest is given in Table- II.

TABLE-II. Comparison of Asphyxiated and Healthy New Borns.

		Asphyxiated Newborns (27)	Healthy Newborns (780)
Parity	Multipara	21 (78%)	685 (88%)
	Primigravida	6 (22%)	95 (12%)
Delivery			
	S.V.D.	10 (37%)	550 (71%)*
	C. Section	14 (51 %)	195 (25%)*
	Forceps	2 (7%)	35 (4%)
	Vacum	1	0
Soc. Economic			
	Poor (<Rs 500/ month)	15 (56%)	558 (72%)
	Intermediate (Rs 500–1000/ month)	12 (44%)	205 (26%)*
	Middle (>Rs 1000/ month)	0	17 (2%)
Gestation	F.T.	19 (70%)	744 (95%)*
	L.B.W. <2500G	8 (30%)	36 (5%)*
	PREM	5 (19%)	20 (3%)*

* (Significant, P= 0.05).

Of the asphyxiated group, 51% were delivered by Caesarian Section, as compared to 25% of the healthy group. Similarly, 95% of the healthy newborns were born at full term, compared to 70% in the asphyxiated group, and 30% of the infants in the asphyxiated group were of low birth weight in contrast to only in the healthy group. The difference in the two groups was statistically significant.

The possible etiological factors are given Table III.

TABLE – III. Etiological Factors.

	FACTORS	No	(%)
1.	Prolonged rupture of membranes	9	33.3
2.	C.P.D.	5	18.5
3.	Antepartum hemorrhage	4	14.8
4.	Placenta previa	2	7.4
5.	Ecclampsia	2	7.4
6.	Cord prolapse	2	7.4
7.	Hypertension	1	3.7
8.	Undetermined	2	7.4
	Total Number	27	

Prolonged rupture of membranes (more than 24 hours) was the cause in 33% cases followed by cephalopelvic disproportion and antepartum hemorrhage.
Of 27 asphyxiated newborns 19 could be followed to a maximum of 1 month age. Of these 47% cases died, 26% had neurological deficit and only 26% were apparently normal.

DISCUSSION

The present study utilized the Apgar scoring system to delineate cases of asphyxia.
This was not correlated with fetal scalp lactate level monitoring or cord blood pH because of lack of availability of these facilities[9,10]. The frequency of birth asphyxia in the present study was 3.3% which is much higher than in developed countries. In the USA[11] it varies between 1.5-6/ 1000 live births while in Finland[12] it was 2.2/ Multipara 21(78%) 685 (88%) 1000 live births in 1968-72, dropping to 0.3/1000
Primigravida[6] (22%) 95 (12%) live births in 1978 — 1982. Birth asphyxia is one 10 (37%) 550 (71%) of the commonest cause of perinatal brain injury[14] (51 %) 195 (25%)* associated with high mortality, and in survivors, 2 (7%) 35 (4%) long-term neurological handicap[6]. It has been 10 shown that with persistently low Apgars (i.e. less than 3 at 20 mins) the mortality rises to 87% and the rate of cerebral palsy is as high as 57%[3]. 15 (56%) 558 (72%) Although postnatal causes are included in the etiology of asphyxia, it has been found that in most instances, oxygen deprivation of the fetus 12 (44%) 205 (26%)* occurs before delivery4. Of the 19 cases that could be followed to one month of age 9 (47%) died, and 5 (26%) showed some degree of neuro (Rs 1000/ month) Gestation F.T. L.B.W. <2500G

PREM logical deficit.
It would seem appropriate, therefore, that _maximal attention be focussed on provision of a network of centers for antenatal care, with early and efficient utilization of referral of high risk pregnancies to designated tertiary care centers. These centers, with appropriate monitoring and intervention facilities can then help in lowering the high frequency of asphyxia and therefore the ensuing morbidity and mortality.

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