

Early Neonatal Outcome of Clinically Diagnosed Fetal Distress in Low Resource Areas

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Abstract

Introduction: Fetal distress is a high risk obstetric situation associated with increased perinatal morbidity and mortality. It is also a major contributor to operative interventions in the majority hospitals of developing countries. The objective of this study was to observe clinically diagnosed fetal distress and early neonatal outcome after delivery. **Materials and Methods:** This hospital based cross-sectional study was carried out in Department of Obstetrics and Gynecology at Bashundhara Addin Medical College Hospital, Keraniganj during the period of January to December 2019. 212 women in active phase of labor at term pregnancy who met the inclusion and exclusion criteria were enrolled. Fetal distress was diagnosed by abnormal FHR and /or presence of meconium in amniotic fluid after rupture of membrane. Neonatal outcome was assessed by 1st & 5th mins Apgar Scores after delivery, babies requiring immediate resuscitation and admission to neonatal care unit & recorded. **Result:** Among fetal distress 11.32% babies had Apgar score <7 as compared to babies without fetal distress that had 5.66% apgar score <7 at 5th minutes ($p < 0.05$). 28.3% fetal distressed born babies required NICU admission rather than only 9.44% of without fetal distress. **Conclusion:** This study shows relative adverse neonatal outcome for fetal distressed babies than without distress.

Keywords: Fetal distress, Apgar scores.

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Introduction:

Fetal distress is a widely used but poorly defined term¹. Alternative terms- Nonreassuring fetal status (NRFS) which indicate that the fetus is compromised. It can be identified by suboptimal values in fetal heart rate, oxygenation of fetal blood & other parameters². Signs and symptoms of fetal distress include-decreased movement felt by mother (count to ten or Cardiff count to 10), meconium in the amniotic fluid, abnormal fetal heart rate (tachycardia > 180 bpm; bradycardia < 110 bpm, cardiotocography (persistent severe variable deceleration) and acid-base of capillary blood PH<7.15^{3,4}. Some of these signs are more reliable predictors of fetal distress than others. For example; cardiotocography can give high false positive rates, even when interpreted by highly experienced medical personal. Acidosis is a highly reliable predictor, but is not always available. A highly effective method of assessment of distress would be to use fetal heart rate as a first indicator of distress². In resource rich countries, the incidence of fetal distress is about 1/1000 live births⁵. In resource-poor countries it is much more common i.e. 5-10/1000 live births⁶. The etiology of fetal distress may be present before the onset of labor (especially maternal disorder & placental pathology) or occur during labor. About 23-40% of fetal distress occurred in pregnancies with no clinical risk factors⁷. Male fetuses are at increased risk for fetal distress during labor which is evidenced by low Apgar scores or perinatal death⁸. The outcome of baby with fetal distress is quite variable. Severity can be ascertained by two clinical methods- (i) Apgar scores (ii) Measurement of degree of acidosis or hypoxia of fetal blood. Low Apgar scores were observed in neonates with moderate or severe fetal distress at delivery⁹. Severe fetal

distress may results in cerebral oedema, seizures, necrotizing enterocolitis, epilepsy, mental retardation & abnormal physical growth, perinatal death, or still birth but the majority will be normal¹⁰. To prevent severity of fetal distress, early diagnosis is to be made by close monitoring during labor and must be treated with intrauterine resuscitation technique including correction of maternal hypotension and /or the use of tocolytic agents¹¹. Proper timing of delivery is also necessary. Fetal distress also affects the mode of delivery. Both instrumental as well as caesarean delivery has been found to be increased¹². The main objective of this study was to observe early neonatal outcome of clinically diagnosed intrapartum fetal distress in terms of Apgar scores.

Materials and Methods:

This cross-sectional descriptive study was carried out from January 2019 to December 2019 in Obstetrics and Gynaec Department at Bashundhara Addin Medical College Hospital, Keranigaaj. 212 women in active labor were enrolled for the study. Out of them 106 parturient with fetal distress were included in trial group (group-I) and 106 parturient having no fetal distress in comparison group(group-II). Inclusion criteria were women with ages between 18-35 years, singleton term pregnancy (37-40 weeks) with Cephalic presentation in active phase of labor. Multiple Pregnancy, pre-term labor, malpresentation, H/O lower segment caesarean section, cephalo-pelvic disproportion, pregnancy with medical disorders were excluded from this study. Informed consent was taken & proper ethical clearance was obtained before study. Fetal distress was diagnosed by abnormal FHR and/or presence of meconium in amniotic fluid after rupture of membrane. Assessment of neonatal outcome was observed by, 1st & 5th minutes Apgar scores after delivery. Apgar score <7, babies requiring immediate resuscitation and admission to neonatal care unit were considered as adverse outcome of baby. The data was recorded in a predesigned questionnaires and analyzed by SPSS 22.0 software (SPSS, Inc. USA); for analysis chi-square test, Students T test were done where needed. P value <0.05 was assumed as significant.

Results:

Total 216 parturient were included in the study. During study period 16.4% parturient developed fetal distress. Table –I shows the mode of delivery among the participants. Mode of delivery is significantly influenced by the fetal distress. There was raise of caesarean deliveries (81.13%) in trial group.

Table-I: Mode of delivery among trial and comparison group

Mode of delivery	Case Group	%	Comparison group	%
NVD	20	18.87	88	83.02
LUCS	86	81.13	18	16.98
Total	106	100	106	100
P value	<0.0001			

Comparison between case and comparison group was significant. (P<0.0001). Only tachycardia & thin meconium showed no association with low Apgar scores(Table-II).

Table-II: Clinical profile of fetal distress compared with Apgar score.

Fetal distress	N	%	A/S<7 at 5 min		A/S<7 at 1 min	
			Number	Percentage	Number	Percentage
Tachycardia	11	10.37	0	0	11	9.43
Bradycardia	14	13.21	3	3.77	11	10.38
Thick meconium	40	37.73	2	1.89	38	35.84
Thin meconium	32	30.19	0	0	32	30.19
Abnormal FHR+meconium	9	8.5	6	5.66	03	2.84
Total	106	100	12	11.32	94	88.68

The distribution of early neonatal outcomes of two groups have shown in Table-III & IV. In the present study 45.28% of trial group babies had low apgar score (<7) at 1st minute and 11.32% at 5th minutes as compared to control group where 30.19% and 5.66% had Apgar scores(<7) at 1st minute 5th minutes. A statistically significant difference (p<0.05) was observed in 1st & 5th min Apgar scores & NICU admission. But there was no significant difference for perinatal mortality(p>0.05).

Table-III: Comparison of Apgar score between case & comparison groups.

Apgar Score	1 Minute		5 Minutes		P value
	Case Group	Comparison Group	Case Group	Comparison Group	
0-3	12	5	3	1	0.03
4-6	36	25	10	2	
7-10	58	76	93	103	
Total	106	106	106	106	
P value	0.02		0.03		

Table-IV: Distribution of early neonatal outcome between two groups.

Variable outcomes	Case Group (%)	Comparison Group (%)	P value
1st min apgarscore<7	48 (45.28%)	30(30.19%)	0.02
5thminapgarscore<7	12(11.32%)	3(5.66%)	0.03
Admission in NICU	30(28.30%)	10(9.43%)	0.02
Perinatal mortality	2(1.89%)	1(0.94%)	0.2

Discussion:

The incidence of fetal distress is found to be different in different studies ranging from 6.02% to 22%. In the present study, the proportion is 16.5%. S.S. Bhide, Ramachandra & Gupta et al found the incidence is 6.02%, 9.6% & 14.3% respectively^{13,14,15}. Obstetricians feel unsafe about the state of the fetus, if there is abnormal FHR and the amniotic fluid is meconium stained during labor even in places where other facilities of intrapartum monitoring like, fetal blood sampling and cardiotocography are available. This has influenced the mode of delivery. In present study, 81.13% of group I had caesarean delivery as compared to 16.98% in group II. Findings of this study is comparable to the studies done by Clifford et al who found caesarean section rate was 38% in study group and 26% in control group¹⁶. In this study caesarean rate is too high as compared to other study, because instrumental delivery was not allowed by our patient. Ramachandra, Sashikala, Krzysztof et al also found increase rate of instrumental and caesarean delivery in fetal distress as compared to control group^{14,17,18}. But Rossi et al did not find increased operative delivery¹⁹. Apgar scores have low predictive value for birth asphyxia as it is also affected by other factors. But in this study, we rely on the findings of apgar scores. In the present study 45.28% of distress born babies had low apgar score (<7) at 1st minute and 11.32% at 5th minutes as compared to control group where 30.19% and 5.66% had Apgar scores(<7) at 1st & 5th minutes respectively. These findings are comparable with different other studies. In the study of Ramachandra et al 13% of meconium stained amniotic fluid (MSAF) babies were having low apgar score as compared to only 3.6% in clear liquor group at one minute. At 5 minutes this was 6% in MSAF born babies and 1.8% in clear liquor born babies¹⁴. Gupta et al showed 24.5% of distress babies had low apgar score at one minute compared to 4.1% in without distress born babies¹⁵. Ikechebelu JI found 36.5% babies had Apgar scores of 7 and above, while 63.5% had Apgar scores < 7 in fetal distress group²⁰. In present study 28.3% babies were admitted to neonatal care unit among the babies born with distress group compared to only 9.44% of without distress babies, two babies (1.89%) in study group had neonatal death (NND) both were born with thick meconium. Ikechebelu JI found 3.9% perinatal mortality²⁰.

Conclusion:

Clinically diagnosed Fetal Distress is accurate about one half

of cases evidenced by low apgar scores which suggests a significant association with early neonatal outcome after delivery. So, immediate delivery is expedient in such cases. Future multicenter study is needed to support or refute the findings of the study.

Conflict of Interest: None.

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