ORIGINAL ARTICLE

Fetal Outcome in Term of Apgar Score with Typical Variable Deceleration on Cardiotocography

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ABSTRACT

Background: By the earlier 19th century, it was recognized that fetal heart rate (FRH) altered in response to external and internal stresses. Cardiotocography (CTG) was introduced in 1968 and the aim was to better recognize fetus affected during delivery by hypoxia. In obstetrics cardiotocography, a technical term is "graphy' for recording 'cardio' means fetal heart beat and 'toco' for uterine contraction during child birth. Use of this machine during the third trimester to monitor wellbeing is called non stress test (NST), and use of this machine during labor is called stress test. As a rule, low risk women intermittent auscultation for assessment for fetal wellbeing in labor should be done with pinard stethoscope. Continuous monitoring with CTG, is reserved for high risk cases, though it is not diagnostic test, due high sensitivity and low specificity. Normal cardiotocography gives sound reassurance that fetus is well at the time of recording but abnormal cardiotocography may or may not represent fetal compromise as can happen with typical variable deceleration on cardiotocography. Typical variable deceleration on cardiotocography are commonly seen when there is any form of umbilical cord entanglement and if they are persistent (atypical), they can cause fetal hypoxia. Interobserver difference exists in explaining the abnormal CTG reading. So non reassuring CTG, must be supplemented by fetal scalp blood sampling to check fetal blood gas analysis, so operative intervention and caesarean section can be planned accordingly. This study will help to conclude, that CTG is a valuable method of monitoring and assessing fetal wellbeing in labor. Simple or typical variable deceleration was not consistently shown to be shown to be associated with poor neonatal outcome.
Aim: To determine fetal outcome in patient with typical variable deceleration on cardiotocography during labor.
Method: It was descriptive case series conducted at Obstetrics and Gynaecology Department, Social Security Hospital, Multan Chungi, Lahore. The calculated sample size is 145 cases with 4% margin of error, 95% confidence interval, taking expected percentage of APGAR score, >7 in typical variable deceleration.
Results: Total 145 cases were included in study. These patients have typical variable deceleration during labor. Out of these 109 cases, 75.2% were having good fetal outcome while 24.8% having poor fetal outcome.
Conclusion: Typical variable deceleration on cardiotocography is not always associated with poor fetal outcome. So it demands further diagnostic modalities before undertaking operative interventions.
Keywords: Cardiotocography, non stress test, typical variable deceleration.

INTRODUCTION

In modern obstetrics, due to increase patient awareness and rising litigation rates, pregnant patient are monitored with CTG during labor, with potential disadvantage of rising rate of operative intervention, due to interobserver variation and not supplemented by diagnostic modalities ,like fetal blood sampling. For low risk women, fetal monitoring should be done by intermittent auscultation with pinnard stethoscope and continuous electronic fetal monitoring (CTG) for high risk cases only. The Cochrane review support and recommend that constant electronic fetal checking must be limited to cases with elevated risk[1].

Grant stated that use of EFM with present knowledge should be restricted to high risk cases[2]. Indeed the most recent guidelines developed by RCOG (Royal College for Obstetricians and gynaecologist) and also NICE (National Institute for Clinical Excellence) support the result of these earlier studies[3,4].

When interpreting CTG, four features should be considered Baseline FHR, Baseline variability, Presence or absence of acceleration, Deceleration.

CTG, trace can be classified as simple, suspicious and pathological which is very simple to interpret, flawlessly normal or overtly abnormal CTG. Difficulty encountered when explaining a doubtful cardiotocography trace or pathological cardiotocography, with 1 or 2 abnormal characteristics. In deceleration, there is episode of slowing of FHR less than baseline, above 15 beats per minutes while lasting for over 15 second. Variable deceleration as the name indicates is different in form, shape and their relationship with uterine contraction. Simple (typical) variable deceleration are caused by compression of umbilical cord, not shown to be related to poor fetal outcome. Complex (Atypical) variable deceleration is associated with fetal hypoxia and poor fetal outcome.

In this study it has been observed that suspicious CTG alone with variable deceleration is not diagnostic tool to detect poor fetal outcomes, but if it is associated with meconium staining of liquor, there are increase chances of poor fetal outcome in term of APGAR score due to fetal hypoxia.

MATERIAL AND METHODS

Total 145 patients in labor were included. Study was conducted for six month duration from 01-04 -2016 to 30-09-2016 at Social Security Hospital, Multan Chungi, Lahore.

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Inclusion Criteria

- Patient in labor (latent or active phase) confirmed on examination.
- Gestation age at term on ultrasonography/dating scan.
- Cephalic presentation on USG.
- Typical variable decelerations on cardiotocography during labor in 20 minutes recording.

Exclusion Criteria

- Multiple gestations on USG.
- Babies with congenital malformations on ultrasonography.
- Type II deceleration on CTG.
- Aminotic fluid index <7 on ultrasonography.
- Intrauterine growth restriction (IUGR) on ultrasonography.
- Informed consent was taken from patients to include their data for study. CTG was done in both patient came latent or active phase of labor, fetal outcome in the form of Apgar score at one and five minutes noted.

RESULTS

Table-1 asserts distribution of cases by age that maximum no of patient 110 (75.9%) were between 26-30 year of age and minimum patient 1 (0.7%) belong to age group of < 20 year. Their mean age was found to be 27.6+2.8 years.

Table-2 shows distribution of cases by interval between deceleration and delivery. 20 patients (13.8%) were having <1 hour. 116 patients (80.0%) were between 1-5 hours and 9 patient (6.2%) were between 6-10 hours.

Table-3 exhibits that among 145 cases, 26 (17.9%) had meconium aspiration while 119 (82.1%) were without meconium aspiration syndrome.

Table-4 depicts distribution of cases by Apgar score at 5 minutes. 109 cases (75.2%), were having Apgar score >7 with good fetal outcome while 36 cases (24.8%) were having Apgar score < 7 with poor fetal outcome.

Figure-1: Age of patients

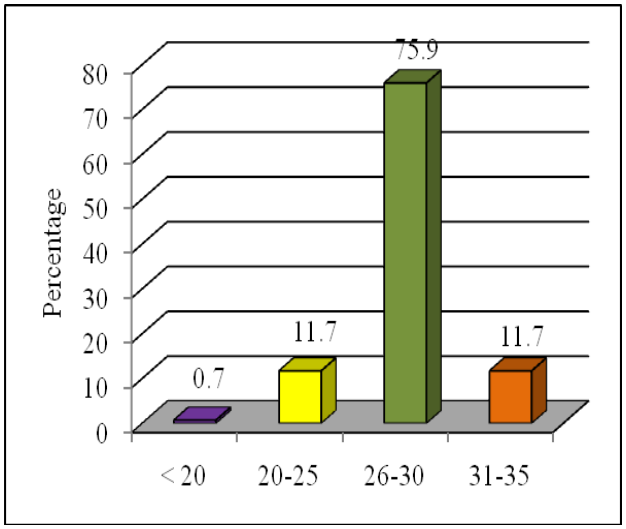

Table-1: Distribution of age

Age (years)	Number	Percentage
< 20	1	0.7
20-25	17	11.7
26-30	110	75.9
31-35	17	11.7
Total	145	100

Table-2: Distribution of cases by interval between deceleration and delivery

Interval (hrs)	Number	Percentage
< 1	20	13.8
1-5	116	80.0
6-10	09	06.2
Total	145	100

Table-3: Distribution of cases by meconium aspiration

Meconium aspiration	Number	Percentage
Yes	26	17.9
No	119	82.1
Total	145	100

Table-4: Apgar score and fetal outcome in 5 minutes

Apgar sore	Number	Percentage	Fetal outcome
< 7	36	24.8	Poor
>7	109	75.2	Good
Total	145	100	100

DISCUSSION

Current study was conducted during six month period from 1st April to 30th September 2016. Total 145 patients were selected with diagnosis of typical variable deceleration on cardiotocography and fetal outcome in term of apgar score was noted. Cardiotocography is most frequently utilized method regarding fetal monitoring that helps in assessing fetus wellbeing during pregnancy and delivery. The fetus monitoring depends upon characteristic analysis such as uterine contraction and FHR[5]. Normal CTG is much prognostic regarding normal outcomes than an abnormal CTG about abnormal outcomes[6].

All 145 patient selected in the current study were with typical variable deceleration on Cardiotocography and fetal outcome were good (Apgar score >7) in 75.2% of cases and fetal outcome was poor (Apgar score <7) was 24.8% which is comparable with the study conducted. In 2003 in Singapore which shows fetal Apgar score >7 in 93.75% cases and fetal Apgar score <7 in 6.25% cases with typical variable deceleration on cardiotocography[7]. It means 93.75% cases having good fetal outcome, and 6.25% cases having poor fetal outcome. In current study majority of patients were delivered by caesarean sections which is also consistent with the study conducted[8]. Similar with the study carried out in 2006, which shows that abnormal cardiotocography is associated with increase number of caesarean section rates and no evidence of neonatal benefits in term of Apgar score at five minutes after delivery was noted[9].

During current study, it was observed that poor fetal outcome (Apgar score <7) was usually associated with meconium staining of liquor in most of the cases. It was also observed that increasing time interval between typical

variable deceleration on cardiotocography and delivery of fetus will result in more poor fetal outcome than short interval. It is also clear from current study that suspicious tracing of cardiotocography has low predictive value with regard to fetal outcomes at birth and requires complement with numerous other investigative modalities prior to undertaking any operative intervention and these findings are comparable with as study conducted by Tasnim and colleagues[10].

It is clear from our study that typical variable deceleration on cardiotocography need to be complemented with clinical presence of meconium staining of liquor and other diagnostic modalities like computerized FHR checking and blood sampling of fetal scalp as per facilities available in the setup before any operative intervention. Decision alone on cardiotocography should not be taken. So that justified operative intervention will be beneficial both to the patient and doctor and also not a burden on hospital resources.

CONCLUSION

Typical variable deceleration on CTG is always not related to poor fetal outcome and in current 75.2% of cases were with good fetal outcome and 24.8% cases were with poor outcome. So it demand further diagnostic modalities before undertaking operative intervention

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