

Increasing rate of Caesarean Section Due to Non-Reassuring Cardiotocography

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Abstract

Objective: To evaluate increasing rate of caesarean section due to non-reassuring cardiotocography. **Methods:** This study is carried out in obs/gyn department of Liaquat university hospital from 2012 to 2013. After permission from ERC, patients enrolled for study meeting inclusion criteria with non-reactive cardiotocography undergo caesarean section, and results are analysis through SSPS version 17. **Results:** There was wide variation of maternal age ranging from a minimum of 20 years to 30 years. The mean age was 26 ± 2.1 years. In our study mostly patients were primigravida 58 (58%) between 2 - 4 were 22 (22%) more than para 5 were 20 (20%) patients. In our study mostly patients undergone caesarean section 81 (81%) 19 delivered vaginally (19%). In our study the gestational age was >37 weeks, ranging from a minimum of 37 weeks to 42 weeks. The mean age was $37 + 2.4$ week. Mostly patients observed 37 - 38 wks in (52.67%), 39 - 40 wks in (32.14%) and 41 - 42 wks in (15.17%). In our study mostly Apgar score were more than 7 was 63 (63%) cases and less than 7 Apgar score in 37 (37%). **Conclusion:** Cardiotocography is a useful and indispensable adjunct to monitor the condition of endangered fetus. However, there is a need to develop a standardized and unambiguous definition of FHR tracing to reduce the incidence of false positive findings that may result in increased incidence of unnecessary intervention particularly caesarean section.

Keywords

Non-Reassuring Cardiotocography, Caesarean Section, Apgar Score

1. Introduction

Cardiotocography is the graphic presentation of fetal heart activity and the uterine contraction to detect the fetal hypoxia [1] [2] [3]. It is the most commonly used test for antepartum and intrapartum fetal surveillance in the majority hos-

pitals of developed countries [4]. This technology was first developed in 1950 and became commercially available in 1960 [1]. The goal of antepartum fetal surveillance is to predict, diagnose and timely decision of the pregnancies those are complicated with fetal asphyxia and might lead to fetal and newborn morbidity and death [5].

IUGR (Intrauterine growth restriction) fetus is at risk of fetal distress and this can be detected by using Cardiotocography. Cardiotocography examination consists of tocogram and ultrasound transducer, tocogram monitor uterine contraction while ultrasound transducer record fetal heart rate [6]. Fetal academia metabolic (95.5%) mixed (95%) and respiratory (100%) can be significantly detected by fetal heart rate monitoring. The pathologic finding of Cardiotocography during labor may increase the caesarean rate [7]. The rate varies between low-income and affluent countries, with global estimates of 15% worldwide, ranging from a low of 3.5% in Africa, to 33% in the United States, to a high of 43.9% in Brazil [9]. The rate of caesarean section due to fetal distress monitored by cardiotocography from 9.6% to 19% as given in different studies [8] [10].

2. Data Collection Procedure

This study was carried out in “Department of Gynecology& Obstetrics” at Liaquat University of Medical &Health Sciences Hyderabad, from October 2012 to March 2013. This study consisted of 100 patients with gestational age >37 weeks, admitted through the outpatient department, as well as from casualty department of University Hospital Hyderabad. All data was entered in a specified proforma designed for this purpose. Detailed Clinical examination of the patient was done. Systemic review was also done to see any co-morbidity. All patients underwent for base line like CBC and specific investigations especially ultrasound pelvis.

Inclusion criteria were that all patients with gestational age more than 37 weeks with non-reassuring Cardiotocography were included in this study, regardless of their age and parity carrying singleton pregnancy. Exclusion criteria were history of previous caesarean section operation, less than 37 weeks pregnancy, any other obstetrical indication for caesarean section (except non-reactive Cardiotocography), and fetus with congenital anomaly. Data collection procedure. The study was performed after the permission of ethical review committee of Liaquat university Hospital Jamshoro. Patients fulfilling the inclusion criteria admitted in labor ward of Liaquat University Hospital Hyderabad. After taken obstetrical history and obstetrical examination, Cardiotocography were performed as admission test and patient with non-reassuring Cardiotocography were gone for cesarean section and outcome were measured by Apgar score if >7 in one minute categorized as good Apgar score and <7 in one minute poor Apgar score. After collection of data, the data was analyzed for quantitative variables like age of mother and parity. Frequency and percentages were computed for qualitative variables like Cardiotocography and caesarean section. Effect modifier was concluded through stratification of age and gestational age to see

the effect of these on outcomes. Through chi square test p value <0.05 will be taken as significance.

3. Results

There was wide variation of maternal age ranging from a minimum of 20 years to 30 years. The mean age was 26 + 2.1 years (Table 1).

In our study mostly patients were primigravidas 58 (58%) between para2 - 4 were 22 (22%) more than para 5 were 20 (20%) patients (Table 2).

In our study mostly patients undergone caesarean section 81 (81%) 19 delivered vaginally (19%) (Figure 1).

In our study the gestational age was >37 weeks, ranging from a minimum of 37 weeks to 42 weeks. The mean age was 37 + 2.4 weeks (Figure 2). Mostly patients observed 37 - 38 wks in (52.67%), 39 - 40 wks in (32.14%) and 41 - 42 wks in (15.17%).

In our study mostly Apgar score were more than 7 was 63 (63%) cases and less than 7 Apgar score in 37 (37%) (Figure 3).

Table 1. Maternal age distribution.

Age of patients years	No. of patients (n = 112)	Percentage (%)
20 - 25 years	42	42.85%
26 - 30 years	58	57.14%

Table 2. Parity of patients.

Parity	No. of patients (n = 112)	Percentage (%)
Primigravida	58	58%
P1 - P4	22	22%
>P5	20	20%

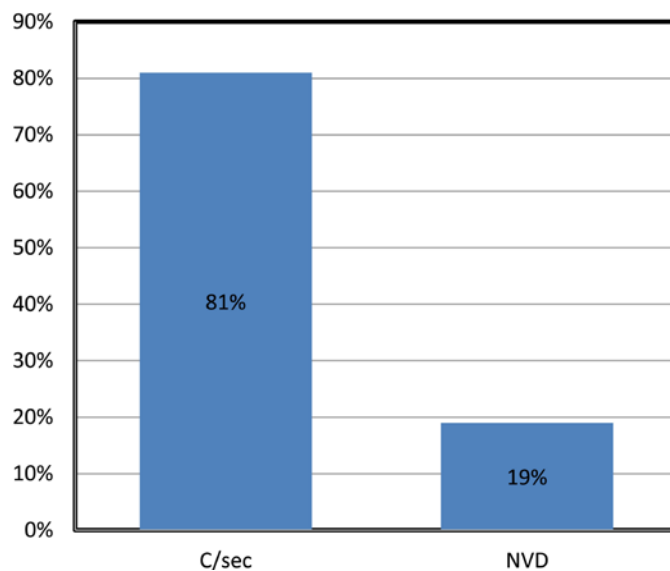


Figure 1. Mode of Delivery.

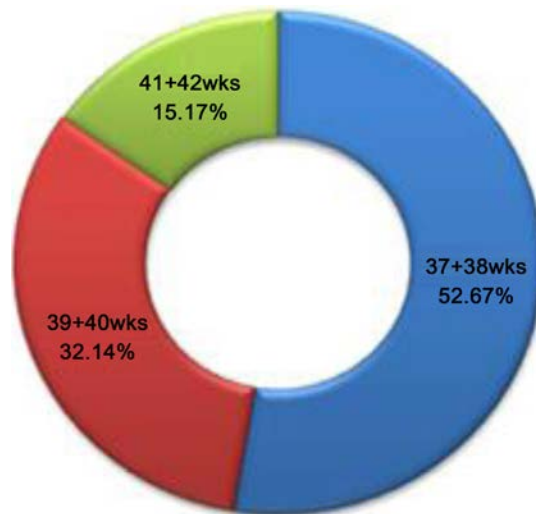


Figure 2. Gestational age distribution.

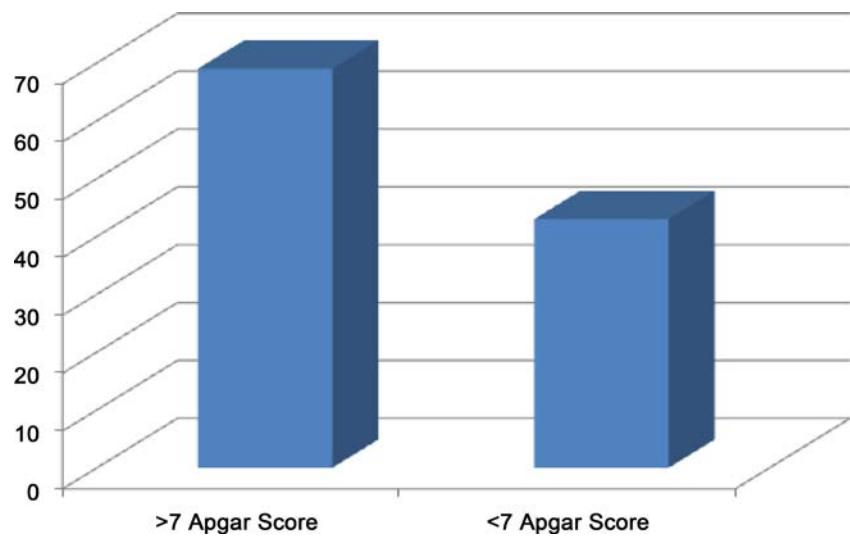


Figure 3. Apgar score.

4. Discussion

The Cardiotocography was introduced as a means of attempting to identify those fetuses at greatest risk of intrapartum hypoxia, which might benefit from more intensive monitoring by continuous electronic fetal monitoring and/or fetal scalp blood gas analysis or from immediate intervention e.g. expedited birth.

Cardiotocography as a predictor of fetal distress in low and high risk pregnancies. It is true fact that for management of “high risk woman” there are many available methods but to detect “fetal distress” in “low risk woman” more efficient method required [11]. Many clinics still use Cardiotocography for intrapartum assessment and the management of labor, despite its shortcomings. We combine Cardiotocography with the amniotic fluid index (AFI). The reported 1-week perinatal mortality rate following a reactive Cardiotocography is 3-5/1000 [11]. Fetal outcome can be better with reactive Cardiotocography but not necessary with nonreactive Cardiotocography. Normal labor is associated

with abnormalities of fetal heart rate but it is not necessary that fetus is compromised.

In our study, there was wide variation of maternal age ranging from a minimum of 20 years to 30 years. The mean age was 26 + 2.1 years. However the study of Birgitta Essen reported the maternal age was maximum number of patients 96% of them were between 19 and 40 years old [12].

In our study mostly patients were belongs to poor class in 82 (73.21%) cases followed by middle class in 21 (18.75%) cases and upper class in 7 (6.25%). In our study mostly patients were uneducated in 84 (75%) cases and educated in 28 (25%).

Reliability of cardiotocography is usually at or after 28 weeks. The exact age for commencing cardiotocography is different in different countries because it depends upon availability of neonatal survival facilities [13]. In our study the gestational age was >37 weeks, ranging from a minimum of 37 weeks to 42 weeks. The mean age was 37 + 2.4 weeks. Mostly patients observed 37 - 38 wks in 59 (52.67%), 39 - 40 wks in 36 (32.14%) and 41 - 42 wks in 17 (15.17%).

The wide spread application of cardiotocography has resulted in an increase in the number of obstetric interventions, particularly the incidence of Cesarean Section. The fact that, delivery by Cesarean Section is usual when cardiotocography becomes abnormal was pattern. Observation was made by Oladrian *et al.* in a study which showed 72% Cesarean Section rate [14]. A study by Kulkarni and Shrotri also showed a progressive rise in operative deliveries for fetal distress from 5.17% in the reactive group to 28.5% in the ominous group [15]. Other studies also established the association between a high Cesarean Section rate and an abnormal cardiotocography [16] [17]. It was noticed that rate of Cesarean Section increased when cardiotocography were performed for low risk pregnancies. National Institute of Clinical Excellence (NICE), in its guidelines for cardiotocography monitoring, recommends intermittent monitoring for low risk labor and continuous cardiotocography monitoring for high risk labor [18].

Babies born with low Apgar, required resuscitation and some of them required ICU admission. In our study mostly Apgar score were more than 7 was 69 (61.60%) cases and less than 7 Apgar score in 43 (38.39%) in women undergoing cesarean section due to non-reassuring cardiotocography. However in the study of Leung TY, reported 19 (10.9%) required emergency intrapartum Cesarean delivery for non-reassuring fetal status and 15 (8.6%) for poor progress. [19]

5. Conclusion

Cardiotocography is a useful and indispensable adjunct to monitor the condition of endangered fetus. However, there is a need to develop a standardized and unambiguous definition of FHR tracing to reduce the incidence of false positive findings that may result in increased incidence of unnecessary intervention particularly caesarean section.

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