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NEONATAL OUTCOME;
IN PATIENTS UNDERGOING CAESAREAN SECTION DUE TO NON REASSURING CTG.

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ABSTRACT… Objective: The objective of this study was to determine the neonatal outcome in women undergoing cesarean section due to non-reassuring cardiotocography (CTG). Cross sectional study. **Setting:** Department of Gynecology & Obstetrics at Liaquat University of Medical & Health Sciences Hyderabad. **Period:** October 2012 to August 2013. **Methodology:** 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 all patients with gestational age ≥ 37 weeks and maternal age 20 -30 years with non-reassuring CTG. Exclusion criteria were history of previous caesarean section operation, less than 37 weeks pregnancy, any other obstetrical indication for caesarean section (except non reactive CTG) like cephalo pelvic disproportion, previous caesarean section and severe intrapartum hemorrhage. Results were prepared with help of tables and graphs. Data was analyzed through SPSS software. **Results:** This study was conducted on 112 patients. Wide variation of maternal age ranging from a minimum of 20 years to 30 years with mean age was 26±2.1 years. Gestational age was > 37weeks, ranging from a minimum of 37 weeks to 42weeks. The mean age was 37±2.4 weeks. Mostly patients were observed 37-38wks in 52.67%, 39-40wks in 32.14% and 41-42wks in 15.17%. Apgar score was more than 7 in 61.60% cases and less than 7 apgar score in 38.39% cases which is statistically not significant. **Conclusion:** It is concluded that apgar score was >7 in 61.60% cases and <7 apgar score in 38.39% cases which is statistically not significant. CTG is a useful and indispensable adjunct to monitor the condition of endangered fetus. Reduce the incidence of false positive findings that may result in increased incidence of unnecessary intervention particularly caesarean section CTG should not be used as sole test CTG finding should be correlated with colour of liquor ,if facility is present scalp PH should be done.

Key words: Cardiotocography, Cesarean, Gynecology, Apgar score.

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INTRODUCTION

Cardiotocography (CTG) 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 intra-partum fetal surveillance in the majority hospitals 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 intervene the pregnancies those are complicated with fetal asphyxia and might lead to fetal and newborn morbidity and death.[5]

The cardiotocography (CTG) is the most widely used technique for evaluating fetal distress, including IUGR (Intrauterine Growth Restriction) pathology, in the clinical routine.[6] A CTG exam consists of the simultaneous recording and analysis of fetal heart rate (FHR) and tocogram (uterine contraction). In addition FHR monitoring is significantly better in detecting all types of acidemia, metabolic (95.5%), mixed (95%) and respiratory (100%).[7] Abnormalities in cardiotocography represent the main evidence of fetal distress during labor and this might lead to a significant increase of the caesarian section rate.[8] According to WHO recommendations the Caesarian section rate is 15%.[9] The rate of caesarean section due to fetal

distress monitored by CTG from 9.6 % to 19% as given in different studies.[8,10] The purpose of this study is to determine the neonatal outcome in women undergoing cesarean section due to non-reassuring CTG.

MATERIAL AND METHODS

This cross sectional study was carried out in Department of Gynecology & Obstetrics at Liaquat University of Medical & Health Sciences Hyderabad, from October 2012 to August 2013. An ethical approval was sought from the ethical review committee of University and written consent form was obtained from the patients. All patients with gestational age > 37 weeks and maternal age 20 -30 years with non-reassuring CTG were included in this study. The patients with history of previous caesarean section operation, less than 32 weeks pregnancy, any other obstetrical indication for caesarean section (except non-reactive CTG) like cephalo pelvic disproportion, previous caesarean section and severe intrapartum hemorrhage were excluded from study.

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. Patients fulfilling the inclusion criteria admitted in labour ward of Liaquat University Hospital Hyderabad. After taking obstetrical history and obstetrical examination, body mass index (BMI) were measured if BMI > 30 were categorized as obese and < 30 non obese. CTG was performed as admission test and patient with non reassuring CTG went for cesarean section which were performed by experienced and technical person 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. All data was entered in a specified proforma designed for this purpose.

Data was analyzed through Statistical Package for Social Sciences (SPSS) software version 16. Mean and standard deviation were calculated for quantitative variable like age of mother , gestational age, BMI. Frequency and percentages were computed for qualitative variables like apgar score and obesity. Chi square test was applied between age groups of patients and apgar score to see the statistical difference. P-value < 0.05 was be taken as a significant at 95% confidence interval.

RESULTS

This study was conducted on 112 patients in Liaquat University of Medical Health Science Hospital Hyderabad.

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-I).

In our study the gestational age was > 37weeks, ranging from a minimum of 37 weeks to 42weeks. The mean age was 37+2.4 weeks. Mostly patients observed 37-38wks in 59(52.67%), 39-40wks in 36(32.14%) and 41-42wks in 17(15.17%) (Figure No:1).

In our study mostly apgar score was more than 7 in 61.60% cases and less than 7 apgar score in 38.39% which is statistically not significant (Figure No:2).

Age of patients Years	No. of patients (n=112)	Percentage (%)
20-25 years	48	42.85%
26-30 years	64	57.14%

Table-I. Maternal age distribution

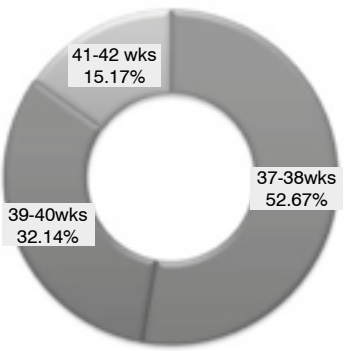

Figure-1. Gestational age distribution

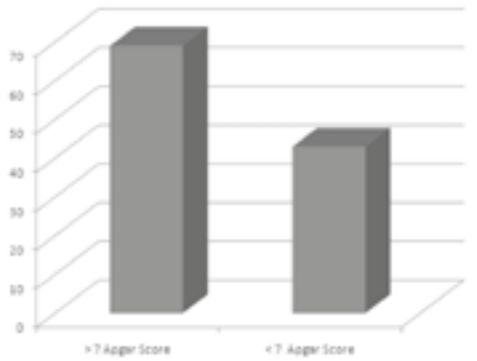

Figure-2. APGAR Score

DISCUSSION

The cardiotocograph (CTG) 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.[7,8]

In this 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 with 96% of patients between 19 and 40.[11] Antenatal CTG is most commonly performed in the third trimester of pregnancy (after 28 weeks). The gestational age at which CTG commences varies in practice, and at least in part depends on the minimum age of survival in the local neonatal unit and therefore in some institutions may be used even before 26 weeks' gestation.[12] In our study the gestational age was > 37weeks, ranging from a minimum of 37 weeks to 42weeks. The mean age was 37+2.4 weeks. Mostly patients were observed as 37-38wks in 52.67%, 39-40wks in 32.14% and 41-42wks in 15.17%

Age of patients		Apgar score		Total	P-Value
		>7	<7		
	20-25 years	36	12	48	0.011
		52.2%	27.9%	42.9%	
	26-30 years	33	31	64	
		47.8%	72.1%	57.1%	
Total		69	43	112	
		100.0%	100.0%	100.0%	

Table-II. Cross tabulation between age groups and Apgar score

The wide spread application of CTG has resulted in increase in the number of obstetric interventions, particularly the incidence of Cesarean Section. The fact that, delivery by Cesarean Section is usual when CTG becomes abnormal pattern Observation was made by Oladrian et al in a study which showed 72% Cesarean Section rate.[13] A study by Kulkarni and Shroti 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.[14] Other studies also established the association between a high Cesarean Section rate and an abnormal CTG.[15,16] It was noticed that rate of Cesarean Section increased when CTGs were performed for low risk pregnancies. National Institute of Clinical Excellence (NICE), in its guidelines for CTG monitoring, recommends intermittent monitoring for low risk labor and continuous CTG monitoring for high risk labor.[17]

Babies born with low Apgar, required resuscitation and some of them required ICU admission. In this study apgar score was more than in 69(61.60%) cases and less than 7 apgar score in 43(38.39%) in women undergoing cesarean section due to non-reassuring CTG which is statistically non-significant. However in the study of Leung TY, reported 11% required emergency intra-partum Cesarean delivery for non-reassuring fetal status and 9% for poor progress.[18]

CONCLUSION

It is concluded that apgar score was >7 in 61.60% cases and >7 apgar score in 38.39% cases which is statistically not significant. CTG 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. CTG should not be used as sole test to take decision for caesarean section color of liquor, clinical finding and if scalp ph facilities, should be done.

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“There are no facts, only interpretations.”

Friedrich Nietzsche (1844-1900)

AUTHORSHIP AND CONTRIBUTION DECLARATION

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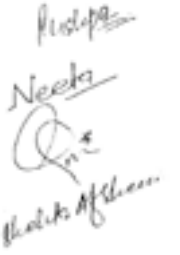
1	Dr. Pushpa Chetandas	Literature search, Professional formation, Data collection, Analysis	
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