Original Research Article

Clinical study on maternal and perinatal outcomes in low risk and high women with respect to labour admission test

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Abstract

Background: Evaluation of fetal well-being during labour and detect fetal distress at the earliest. To correlate Labour Admission Test findings with maternal and perinatal outcome. **Materials and methods:** A prospective, Analytical study and Comparative study done in 500 pregnant women above 36 weeks of gestation in labour and admitted in labour ward. Maternal and perinatal outcome in terms of presence or the absence of meconium at delivery, mode of delivery, APGAR score at 5 min and NICU admission, respiratory distress, perinatal deaths are documented and analyzed. **Results:** In low risk women, 1% of suspicious CTG group have perinatal mortality. In high-risk women, 1% of normal CTG group, 2.6% of suspicious CTG group and 20% of pathological CTG group have perinatal mortality. P value for LAT with perinatal mortality is statistically insignificant in low risk group (0.156) and significant in high-risk group (0.0013). Sensitivity is 73.6% and specificity is 41.1% for LAT with NICU admissions in low-risk group whereas sensitivity is 75.2% and specificity is 38.4% for LAT with NICU admissions in high risk group. According to the study LAT is more efficient in showing up true positives in both high risk and low risk groups.
Keywords: maternal and perinatal outcomes.

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INTRODUCTION

The development of specific and accurate diagnostic tests for identification of the fetus at risk in uterus have been major challenge for obstetricians and pediatricians. The methods available for fetal heart monitoring until the second half of 20th century, were limited to method such as growth of the uterus and its contents (fundal height), movements of the fetus perceived by the mother and the mother and the listening of the fetal heart beat with a mono or bi-auricular stethoscope. Later, fetal heartbeat could be rather easily detected by means of ultrasound (USG) or through the application of direct electrocardiography, after which cardiotocography (CTG) became popular method to monitor the condition of the fetus· Cardiotocography is a test that graphically records the fetal cardiac activity and uterine contraction simultaneously and continuously along with fetal movements. It is a biophysical method of fetal heart monitoring and it has become an established diagnostic tool for fetal surveillance for women in labour. Labour is a physiological street to all fetuses. Thus, every fetus deserves intra-partum fetal monitoring. Fetal heart rate monitoring was started for the detection of fetal hypoxia, which can cause multi-organ dysfunction in the newborn. The extreme consequences which can cause multi-organ dysfunction in the newborn. The extreme consequences of this damage can be perinatal death. The

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less severe hypoxia may result in transient or permanent morbidity, thus screening for fetal distress is very important for obstetricians. Labour admission Test (LAT) by cardiotocography is one of the screening methods, which can be used to differentiate between mothers who require continuous fetal monitoring from those who can be managed by intermittent auscultation. Labour admission test is a graphical recording of fetal heart rate and uterine activity using the cardiotocography for about 20 minutes after admission to the labour ward. Admission test is used to ensure fetal well-being non-invasively. Thus, it helps us to determine the ability of the fetus to withstand the stress of labour. It is a dynamic screening test to detect the state of oxygenation of the fetus on admission of the mother into labour room. It checks the fetal reserve by graphically recording fetal heart rate during the phase of temporary occlusion of the uteroplacental blood flow under physiological stress of uterine contractions. The Labour Admission Test, therefore, has two potential uses as screening test, to identify compromised fetus at admission and to differentiate the women who need continuous fetal electronic monitoring or intermittent auscultation during labour. The goal of the intrapartum monitoring is to detect fetal hypoxia at the earliest in order to prevent fetal asphyxia. Fetal asphyxia is a condition of disturbed gas exchange, leading to progressive hypoxemia and hypercapnia with significant metabolic acidosis. Asphyxia baby can die, recover, manifest hypoxic-ischemic encephalopathy (HIE), and later have neurodevelopmental disorders. Intrapartum fetal asphyxia is one of the important causes of simultaneously records Fetal Heart Rate (FHR) and its changes, fetal movements and uterine contraction to investigate hypoxia. Electronic fetal heart rate monitoring has gained popularity because it is non-invasive, easy application, accuracy of picking up the fetal heart rate signals and additional information obtained about fetal heart rate changes, which is not possible to get by intermittent auscultation. It is also documentary evidence used as proof for medico legal cases and fetal audit.[1,2] In busy labor wards with limited monitors, selection of the patients based on risk for continuous monitoring is necessary. Unfortunately, risk assessment profile is not often sufficient tool for selection of compromised fetus. Intrapartum fetal morbidity and mortality are not uncommon in low risk populations, and FHR changes and fetal acidosis might occur abruptly with same frequency as in high-risk group.[3] Cardiotocography output is influenced by metabolic blood alterations manifesting as fetal as fetal bradycardia or tachycardia suggestive of hypoxic injury. Alterations like lack of variability, flat/smooth baseline fetal heart rate, accelerations and decelerations can be recorded in the above-mentioned conditions. Surveillance of the fetus during labor is important for delivery of healthy baby with minimum intervention. This approach is introduced to prevent neurological injury like cerebral palsy. For this purpose, electronic fetal monitoring has widely been adopted. Although with intermittent auscultation, the base line fetal heart rate can be measured, but other features like base line variability, accelerations and decelerations cannot be quantified. According to some authors, the decrease in peri-natal mortality over last 15 years is attributed to CTG and is considered as first line investigation for antepartum and intra-partum fetal assessment. An abnormal tracing due to uteroplacental insufficiency indicates fetal compromise at early stage, which requires prompt intervention. Although most of the studies have proved diagnostic value of CTG, there has been wide variation in composition of study population monitored, gestational age of outcomes, testing conditions and interval to delivery. [4,5]In this study, we have used LAT as primary approach for the intrapartum electronic fetal heart rate monitoring of pregnancy. An attempt has been made to correlate results of LAT with
various variables of normal and adverse perinatal outcome.

MATERIALS AND METHODS

A prospective, Analytical and Comparative study done in Government maternity hospital affiliated to Osmania medical College. All 500 pregnant women above 36 weeks of gestation in labor and admitted in labor ward. From period of 2018-2020

Sample size $n = \frac{Design\ Effect\ x\ N\ x\ P(1-P)}{\frac{L^2}{Z^2}(N-1)+P_x(1-P)}$

Where Design effect=1, N=Population size, P=Proportion (0.5), L=Allowable error (0.05 at 5%),Z=Table value (5%=1.96)

Sample size n =382

Rajalekshmi M, Chithra J, Nithya R, Vijay N studied Admission Cardiotocography as a screening Test to predict fetal outcome and mode of delivery 400 pregnant women.[6] In our hospital there are 7 to 10 labour room admissions per day. Following inclusion and exclusion criteria I could study 500 cases.

Inclusion Criteria: Pregnant women >36 weeks of gestation, irrespective of the parity.

Exclusion Criteria: Pregnant women < 36 weeks of gestation, pregnancies with known congenital anomalies, multiple pregnancies, malpresentations, use of sedative in mother before testing, patients with false labour pains, patients with an admission to delivery interval more than 24 hours and patients undergoing elective caesarean section and Intrauterine death.

Criteria for Low-Risk Antenatal Cases

Pregnant women or more than 36 weeks without any maternal and fetal complications were considered as normal-or low-risk antenatal cases.

Criteria for High-Risk Cases

Antenatal women beyond 36 weeks with any of the following maternal or fetal complications were considered as high-risk **antenatal cases:**

History of diminished fetal movement, pregnancy-induced hypertension, oligohydramnios, Rh-negative pregnancy, postdated pregnancy.

Procedure: At the time of admission, cardiotocography was performed in semi-Fowler's position (30°) by using the external ultrasound fetal heart rate transducers for the fetal heart rate, external abdominal transducers were used to note uterine contractions. The one for the former was positioned at the site where the FHS was best heard and the latter over the fundus of the uterus, after applying aquasonic gel on the transducer. Every time she feels fetal movements, patient is instructed to push calibration button which records an arrow on the graph. CTG machine records continuous and simultaneous FHR tracings and uterine pressure on a moving strip of paper with paper speed 1 cm/min. This test was carried out for a period of 20 min.The test was labeled as Normal, Suspicious, and Pathological CTG. Monitoring during labor was depending on the results of LAT. Those women in whom LAT indicated fetal distress were subjected to continuous monitoring: obstetric intervention was done if needed as per the stage of labor. Those in whom LAT showed no fetal distress were allowed to progress in labor with usual monitoring i.e intermittent auscultation for one minute every 30 minutes in first stage and every 5 minutes in the second stage. All women were followed until delivery.

Maternal and perinatal outcome in terms of presence or the absence of meconium at delivery, mode of delivery, Apgar score at 5 min and NICU admission, respiratory distress, perinatal deaths are documented and analyzed.

Statistical Methods: Statistical processing of data was done by application software statistical package for social sciences for windows (SPSS). Variables are shown in frequencies and percentage. Testing of difference in distribution of crossed variables was done by chi square test. Results are shown in the form of tables and graphs. If p value of <0.05 then it is considered statistical significant.

RESULTS

Table 1: Demographic details in study

Age Group	Frequency	Percent
19-21	138	27.6
22-24	316	63.2
25-27	44	8.8
28-29	2	4
Total	500	100.0
Gravida		
Primi	164	32.8
G2	218	43.6
G3	87	17.4
G4	26	5.2
G5	2	0.4
G6	3	0.6
Gestational age distribution		
36	1	.2
37.0	27	5.4
38.0	82	16.4
39.0	220	44.0
40.0	88	17.6
41.0	76	15.2
42.0	6	1.2
Risk Status (History and Symptoms)		
Low risk	189	37.8
High risk	311	62.2
Distribution in high risk		
PIH	73	14.60%
Postdated pregnancy	72	14.20%
RH negative pregnancy	29	5.80%
Decreased fetal movements	44	8.80%
Oligohydramnios	116	23.20%

In our study around 63.2% are between 22-24 age group, 27.6% are between 19-21 age group, 8.8% are between 25-27 age group and 0.4% are above 28 age group. 32.8% women are primi gravid, 67.2% are multi gravid. In this study more women are multi gravidas. In our study 83.4% are full term pregnancy, 16.4**%** are post-dated pregnancy. 37.8% are low risk and 62.2% are high risk according to symptoms and examination. In our study, 37.8% were in low risk (without having any risk factors). 14.6% are having PIH, 14.2% are postdated, 5.8% are Rh negative pregnancy, 8.8% are having decreased fetal movements and 23.2% are having oligohydramnios.

Table 2: CTG Distribution

CTG	Frequency	Percent
Normal	183	36.6
Suspicious	302	60.4
Pathological	15	3.0
Total	**500**	**100.0**

In our study 36.6% are showing normal CTG, 60.4% are showing suspicious CTG and 3% are showing pathological CTG.

Table 3: Correlation of Labour Admission test with Risk Status

Risk Status	Normal CTG	Suspicious CTG	Pathological CTG
Low risk group (189)	75 (39%)	109(57.6%)	5(2.6%)
High risk group(311)	108(24.7%)	139(62%)	10(3.2%)

In low risk group, 39% of the women have normal CTG, 57.6% of the women have suspicious CTG and 2.6% of the women have pathological CTG. In high-risk group, 34.7% of the women have normal CTG, 62% of the women have suspicious CTG and 3.2% of the women have pathological CTG. Majority had suspicious CTG in both high and low risk groups.

Table 4: Correlation of Labour Admission test with Mode of Delivery

	MODE OF DELIVERY	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK WOMEN (189)	NVD	53(70.7%)	20(18.3%)	0	0.001
	EMLSCS	20(26.7%)	88(80.7%)	5(100%)	
	OUTLET FORCEPS	2(2.6%)	1(0.9%)	0	
HIGH RISK WOMEN (311)	NVD	56(51.9%)	33(17.1%)	0	0.002
	EMLSCS	47(43.5%)	14(73.6%)	10(100%)	
	OUTLET FORCEPS	5(4.6%)	18(9.3%)	0	

Normal CTG group has 70.7% NVD, 26.7% LSCS and 2.6% outlet forceps delivery. Suspicious CTG group has 18.3%, NVD, 80.7% LSCS and 0.9% outlet forceps delivery. 100% in pathological CTG group las LSCS. In high risk women. Normal CTG group has 51.9% NVD, 43.5% LSCS and 4.6% outlet forceps delivery. Suspicious group has 17.1% NVD, 73.6% LSCS and 9.3% outlet forceps delivery. 100% in pathological CTG group has LSCS. P value is statistically significant for mode of delivery and LAT in both low risk (0.001) and high risk groups (0.0002).

Table 5: Correlation of LAT with MSL in low Risk and High Risk Groups

	LIQUOR	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK WOMEN (189)	NO MSL	72(96%)	102(93.5%)	2(40%)	0.001
	MSL	3(4%)	7(6.4%)	3(60%)	
HIGH RISK WOMEN (311)	NO MSL	90(83.3%)	137(71%)	1(10%)	0.012
	MSL	18(16.7%)	56(29%)	9(90%)	

In low risk women, 4% of normal CTG group, 6.4% of suspicious CTG group, 60% of pathological CTG group, have MSL. In high risk women, 16.7% of normal CTG group, 29% of suspicious CTG group, 90% of pathological CTG group, have MSL. P value for LAT and MSL is statistically significant in both low risk (0.001) and high-risk group (0.012)

Table 6: Correlation of LAT with APGAR in low Risk and High Risk Groups

	APGAR	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK (189)	7-10	69(92%)	96(88%)	4(80%)	0.312
	4-6	6(8%)	8(7.3%)	1(20%)	
	<4	0	5(4.5%)	0	
HIGH RISK (311)	7-10	71(65.7%)	140(72.5%)	7(70%)	0.498
	4-6	26(24%)	34(17.6%)	3(30%)	
	<4	11(10%)	19(9.8%)	0	

In low risk women, Normal CTG group has 92% newborns with 7 to 10 APGAR and 8% newborns with 4 to 6 APGAR. Suspicious CTG group has 88% newborns with 7 to 10 APGAR, 7.3% newborns with 4 to 6 APGAR and 4.5% of newborn with <4APGAR. Pathological CTG group has 80% newborn with 7 to 10 APGAR and 20% newborns with 4 to 6 APGAR. In high risk women, Normal CTG group has 65.7% newborns with 7 to 10 APGAR, 24% newborns with 4 to 6 APGAR and 10% of newborn with <4 APGAR. Suspicious CTG group has 72.5% newborns with 7 to 10 APGAR, 17.6% newborn with 4 to 6 APGAR and 9.8% newborns with <4 APGAR. Pathological CTG group has 70% newborns with 7 to 10 APGAR and 30% newborns with 4 to 6 APGAR

P value is statistically insignificant for APGAR and LAT in both low risk (0.312) and high risk groups (0.498).

Table 7: Correlation of LAT with NICU Admission

	NICU ADMISSION	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK WOMEN (189)	ABSENT	70(93%)	97(89%)	3(60%)	0.049
	PRESENT	5(7%)	12(11%)	2(40%)	
HIGH RISK WOMEN (311)	ABSENT	87(80.5%)	134(69.4%)	5(50%)	0.03
	PRESENT	21(19.5%)	59(30.5%)	5(50%)	

In low risk women, 7% of normal CTG group, 11% of suspicious CTG group and 40% of pathological CTG group delivered newborn who needed NICU admission.

In high-risk women, 19.5% of normal CTG group, 30.5% of suspicious CTG group and 50% of pathological CTG group delivered newborn who needed NICU admission.

P value is statistically significant for LAT and NICU admission in both low risk (0.049) and high-risk groups (0.03).

Table 8: Correlation of LAT with Respiratory Distress in Neonates

	RESPIRATORY DISTRESS	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK GROUP	ABSENT	70(93%)	99(90.8%)	3(60%)	0.041
	PRESENT	5(7%)	10(9.2%)	2(40%)	
HIGH RISK GROUP	ABSENT	93(86.1%)	135(69.9%)	5(50%)	0.001
	PRESENT	15(13.8%)	58(30%)	5(50%)	

In low risk women, 7% of normal CTG group, 9.1% of suspicious CTG group and 40% of pathological CTG group delivered newborns with respiratory distress. In high risk women, 13.8% of normal CTG group, 30% of suspicious CTG group and 50% with pathological CTG group delivered newborns with respiratory distress.

P value is statically significant for LAT with neonatal respiratory distress in both low risk (0.041) and high risk groups (0.001).

Table 9: Correlation of LAT with Perinatal Mortality

	PERINATAL MORTALITY	NORMAL CTG	SUSPICIOUS CTG	PATHOLOGICAL CTG	P VALUE
LOW RISK GROUP	ABSENT	75(100%)	108(99%)	5(100%)	0.159
	PRESENT	0	1(1%)	0	
HIGH RISK	ABSENT	107(99%)	188(97.4%)	8(80%)	0.0013
GROUP	PRESENT	1(1%)	5(2.6%)	2(20%)	

In low risk women, 1% of suspicious CTG group has perinatal mortality.

In high-risk women, 1% of normal CTG group, 2.6% of suspicious CTG group and 20% of pathological CTG group have perinatal mortality. P value for LAT with perinatal mortality is statistically insignificant in low risk group (0.156) and significant in high-risk group (0.0013).

Table- 10: Sensitivity and Specificity of LAT to NICU admission in Low Risk Group

	NICU admission present	NICU admission absent
Suspicious and pathological CTG	14(true positives)	100(false positives)
Normal CTG	5(false negatives)	70(true negatives)

Sensitivity = True positives x 100 = 14x100 = 73.6%. True positives + false negatives = 19

Specificity = True negatives x 100 = 70 x 100 = 41.1% True negatives + false positives =170

Sensitivity is 73.6% and specificity is 41.1% of LAT with NICU admissions in low risk group

Table 11: Sensitivity and Specificity of LAT to NICU admission in High Risk Group

	NICU admission present	NICU admission absent
Suspicious and pathological CTG	64(true positives)	139(false positives)
Normal CTG	21(false negatives)	87(true negatives)

Sensitivity = True positives x 100 = 64 x 100 = 75.2%. True positives + false negatives 85
Specificity = True negatives x 100 = 87 x 100 = 38.4%. True negatives + false positives 226
Sensitivity is 75.2% and specificity is 38.4% of LAT with NICU admission in high-risk group

DISCUSSION

Intrapartum fetal surveillance using electronic fetal monitoring has gained popularity in recent years in order to reduce perinatal mortality and morbidity. According to the Schifrin *et al.*, it is presumed to be superior method for identification fetal hypoxia as it detects the minor changes in fetal heart rate and its characteristics which can be missed on intermittent auscultation by stethoscope.[7] The Labour admission test is mainly useful to screen the compromised fetus at admission and to differentiate the women requiring continuous monitoring or 'intermittent auscultation. The goal of the intrapartum monitoring is to detect fetal hypoxia at the earliest in order to prevent fetal asphyxia. In our study, the various fetal heart rate patterns (normal, suspicious and pathological) in low and high-risk antenatal women were found. Chi-square test of significance was used in statistical analysis. Chaudhari *et al.*[8] reported 74% reactive, 10% ominous and 16% equivocal. Whereas according to Rajalekshmi M, *et al.*[6]. out of 400,267 (66.75%) women had reactive tracings, 114 (28.5%) had suspicious and 19 (4.75%) had ominous tracings66. In our study, in low risk group, 39% of the women have normal CTG, 57.6% of the women have suspicious CTG and 2.6% of the women have pathological CTG. In high-risk group, 34.7% of the women have normal CTG, 62% of the women have suspicious CTG and 3.2% of the women have pathological CTG. Suspicious CTG are more common in both high risk and low risk women as low risk women are referred to our hospital at very late stages (MSL, non-progress of labour). Chaudhari *et al.* reported majority of cases in high risk group belonged to PIH 12%, whereas in our study majority cases in high risk group are oligohydramnios 23%. In our study, in low risk women, 4% of normal CTG group, 6.4% of suspicious CTG group and 60% of pathological CTG group have MSL where as in high risk group, 16.7% of normal CTG group, 29% of suspicious CTG group and 90% of pathological CTG group have MSL. MSL is more common in pathological group in both high risk and low risk women. The fetal heart rate pattern is greatly affected by MSL and is a poor prognostic factor for perinatal outcome. In our study, the p value for MSL and LAT is statistically significant for both low risk (0.001) and high-risk groups (0.012). Bhangdiya *et al.*[9] interpreted 200 tracings of labour admission test and found that 115 (57.5%) had NVD, in 15.5% ventouse was applied, and 54 (27%) cases had LSCS. In the reactive group, 89(70.60%) cases had NVD, 14(11.10%) had ventouse application, and 23 (18.30%) underwent LSCS. In the equivocal group, 25 (38.50%) had NVD, 16(24.60%) had ventouse application, and 24 (36.90%) had LSCS. IN the ominous group, 1 (11.10%) had NVD , in 1 (11.10%) case ventouse application was done, and remaining 7(77.80%) cases underwent LSCS. This was statistically significant. In our study, in low risk women with normal CTG, 70.7% of women have NVD, 26.7% of women have LSCS and 2.6% of women have out let forceps delivery. With Suspicious CTG, 18.3% of the women have NVD, 80.7% of the women have LSCS and 0.9% of the women have out let forceps delivery. In high risk women with normal CTG, 51.9% of the women have NVD 43.5% of the women have LSCS and 4.6% of the women have out let forceps delivery. With Suspicious CTG, 17.1% of women have NVD, 73.6% of women have LSCS and 9.3% of women have outlet forceps delivery. All women with pathological CTG have LSCS in both high risk and low risk groups. P value is statistically significant for mode of delivery and LAT in both low risk(0.001) and high risk groups(0.002). In our study, LSCS in more in both high risk and low risk group as of a greater number of women have suspicious CTGs and also due to the absence of fetal blood sampling to make a definitive diagnosis of fetal hypoxia to confirm diagnosis and to avoid unnecessary interventions. In suspicious CTG group LSCS percentage more in low risk women than that in high risk women, as low risk women are referred to our District Hospital at late stages (with meconium stained liquor, delayed progress of labour, non-progress of labour, deep transverse arrest and obstructed labour) from nearby PHC, CHC and area hospitals. Kansal *et al.*[10] conducted a study on 276 women and reported that, when the admission test changes from normal to pathological, the number of neonates with Apgar score of <7 increased and the inference was that, the suspicious and pathological labour admission test is significantly associated with low Apgar score ($p<0.001$). In our study, in low risk women with normal CTG, 92% of the newborns have 7 to 10 APGAR and 8% of the newborns have 4 to 6 APGAR. In women with suspicious CTG, 88% of newborns have 7 to 10

APGAR, 7.3% of newborns have 4 to 6 APGAR and 4.5% of newborn have <4 APGAR. With Pathological CTG 80%, newborns have 7 to 10 APGAR and 20% newborns have 4 to 6 APGAR. In high risk women with normal CTG, 65.7% of the newborns have 7 to 10 APGAR, 24% of the newborns have 4 to 6 APGAR and 10% of the newborns have <4 APGAR. In women with suspicious CTG, 72.5% of the newborns have 7 to 10 APGAR, 17.6% of the newborns have 4 to 6 APGAR and 9.8% of the newborns have <4 APGAR. Pathological CTG group has 70% newborns with 7 to 10 APGAR and 30% newborns with 4 to 6 APGAR. No newborns has <4 APGAR in pathological CTG group as early intervention was done in both risk and risk women. P value is statistically in significant for APGAR and LAT in both low risk (0.312) and high risk groups (0.498). This is similar to Vishnu Bhartiya *et al.*[9]. study in which p value is in significant in both high risk and low risk groups. Rajalakshmi *et al.*[6] reported that out of 400, 267(66.75%) had ominous tracings. In reassuring group,179(44.75%) had vaginal deliveries. In suspicious trace, 2(0.5%) were delivered by LSCS. All women with ominous trace was delivered by LSCS. There was significant correlation between admission test tracing and APGAR, p value <0.0001. Out of 66.75% in reassuring trace, none had APGAR less than 4 and 63.5% and 3.25% had Apgar greater than 7 and between 4 to 6, respectively. 28.5% belonged to suspicious trace, out of which 0.5% had APGAR less than 4 and 2.5% and 25.5% had APGAR>7.4.75% had ominous trace, whereas 1.75% had APGAR less than 4 and 1.5% in each APGAR greater than 7 and between 4 to 6 groups. Out of 26 NICU admissions, 1.1% were in reassuring group, 12.3% in suspicious trace and 47.4% in ominous trace. In our study, in low risk women, 7% of normal CTG group, 11% of suspicious CTG group and 40% of pathological CTG group have delivered newborns who needed NICU admission. In high risk women, 19.5% of normal CTG group, 30.5% of suspicious CTG group and 50% pathological CTG group have delivered newborns who needed NICU admission. P value is statistically for LAT and NICU admission in both low risk (0.049) and high-risk group (0.03). In low risk women, 7% of normal CTG group, 9.1% of suspicious CTG group and 40% of pathological CTG group delivered newborns with respiratory distress where as in high risk women, 13.8% of normal CTG group, 30% of suspicious CTG group and 50% with pathological CTG group delivered newborns with respiratory distress. P value is statistically significant for LAT with neonatal respiratory distress in both low risk (0.041) and high-risk group (0.001). Majority of NICU admissions are due to respiratory distress. Suspicious CTG and pathological CTG groups delivered newborns with increased NICU admissions mainly due to respiratory distress in both risk and low risk groups. In our study, in low risk women,1% of suspicious CTG group have perinatal mortality where as in high-risk women, 1% of normal CTG group,2.6% of suspicious CTG group and 20% of pathological CTG group have perinatal mortality. P value for LAT with perinatal mortality is statistically insignificant in low risk group (0.156) and significant in high-risk group (0.0013). There were nine neonatal deaths because of hypoxia which was due to unavoidable conditions (Patient admitted very late to labour room with MSL, some were suffering from severe anemia, severe PIH so we could not take up for emergency LSCS). In this 8 are from high risk group out of which 5 are having suspicious CTG and 2 are having pathological CTG. Despite significant number of neonatal admissions with suspicious and pathological CTG pattern, there was significant decrease in perinatal mortality in high-risk group because of immediate obstetric intervention.

CONCLUSIONS

A Prospective study on Labour Admission Test and Perinatal Outcome in 500 pregnant women in active labour was carried out in Government district hospital, Nandyal. In which, Suspicious CTG is more common in both low risk and high-risk women. Pathological CTG group has a greater number of women with MSL than in suspicious CTG group and normal CTG group in both low risk and high-risk women. All women belonging to pathological CTG group have LSCS. Suspicious CTG group has a greater number of LSCS in both high risk and low risk women. This shows LAT increases LSCS percentage due to more false positive results. Pathological CTG group delivered a greater number of newborns with4 to 6 APGAR in both low risk and high risk women. None of pathological CTG group had less than 4 APGAR as LAT could detect fetal distress early and immediate obstetric interventions was taken. Pathological group has a greater number of newborns with NICU admission than in suspicious CTG group in both high risk and low risk women. Majority of NICU admission are due to respiratory distress. Perinatal mortality is less due to LAT i.e., 9 out of 500 women (1.8%) and this mainly in high-risk women. This shows LAT has detected fetal distress early and decreased perinatal mortality (it detects a greater number of true positives), allowing prompt obstetric intervention. Sensitivity of LAT is more in both high risk and low risk women indicating that the test is more efficient in showing true positives. From this study it can be concluded that, Labour Admission Test is equally useful in both low risk and high-risk pregnant women in early detection of fetal distress allowing prompt obstetric intervention thereby decreasing NICU admission and neonatal respiratory distress, and also reducing perinatal mortality.

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