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Research Article

ROLE OF ADMISSION TEST IN DECIDING MODE OF DELIVERY INPRELABOUR RUPTURE OF MEMBRANES

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ABSTRACT

Back ground: Labour is a very short period in the life of a foetus but poses maximum threat. Improvements in medical technology have made it possible to monitor fetal well-being during labour. Premature rupture of membranes (PROM) refers to a patient who is beyond 37 weeks gestation and has presented with rupture of membranes (ROM) prior to the onset of labour. It is an important cause of maternal and fetal morbidity and increased rate of caesarean delivery. The aim of the study is to evaluate the admission cardiotocography in prelabour rupture of membranes and correlate with mode of delivery. **Methods:** This prospective study was done on 200 patients above 37 weeks of gestation in cephalic presentation. All women were subjected to an admission cardiotocography, which included a 20 minute recording of fetal heart rate and uterine contraction. **Results:** Out of 200 patients the majority of women were primigravida belonging to the age group of 18-24 years. The mean age group is 24.7 year. The admission CTG were 'reactive' in 132 cases, 'suspicious' in 48 cases, and 'omnious' in 20 women. **Conclusion:** The admission CTG is simple, convenient, non invasive and economical for screening purpose. PROM is important cause of maternal morbidity and increased rate of caesarean delivery.

Keywords :-Cardiotocography, Admission test, Rupture of membranes, Perinatal outcome.

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INTRODUCTION

Pregnancy is one of the life's most exciting and fulfilling adventures. The universal aim of maternity care provision is birth of a healthy baby to healthy mother. Premature rupture of membranes is defined as rupture of membranes before onset of labour. Prolonged premature rupture of membranes that persists for more than 24 hours prior to onset of labour. PROM can occur lat any gestation age and is classified as preterm PROM, if the event occurs before 37 weeks of gestation or "TERM PROM" if the event occurs after 37 weeks of gestation^(2,3). The vast majority of fetus cope well during labour, the journey through the birth canal is stressful and the fetus may mount a 'stress response' Obstetricians are concerned with the early recognition of fetal distress during labour in order to avoid an adverse outcome'4'. Our surveillance system must detect compromised foetuses and ensure their safe delivery. Another adverse outcome of premature rupture of membranes is the increased use of obstetric procedures which can increase the likelihood of caesarean section.

MATERIALS AND METHODS

This is a prospective study conducted in the labour ward in Department of Obstetrics and Gynaecology in Rajah Muthiah Medical College, and Hospital, Annamalai University, Chidambaram for a period of 2015-2017. The protocol for the study was approved and prior permission was also taken from the

ethics institutional human committee of Rajah Muthiah Medical College and Hospital,Chidambaram. A total of 200 patients were enrolled in this study as per the inclusion criteria. Written informed consent obtained from the patients before participation into the study. All antenatal women at term gestation, in early labour with rupture of membranes attending RMMC&H labour room.

Inclusion Criteria: 1. All antenatal women at term gestation in early labour with rupture of membranes, 2. Vertex presentation, 3 Singleton pregnancy.

Exclusion Criteria: 1. Multi-parity, 2. Twin gestation, 3. Presentation other than vertex. 4. Preterm or post term, 5. Pregnancy induced hypertension, 6. Diabetes mellitus, 7. Antepartum haemorhage, 8. Antenatal mother with medical illness, 9. Foetal anomaly, 10. Fetal demise and 11. Patients in second stage of labour. On admission, A detailed history including age, parity, antenatal care, menstrual. obstetric and medical history were documented. General physical examination was done. Per abdominal and perspeculum, per vaginal examination done to determine the stages of labour and colour of liquor, following which mothers were subjected to admission test. Patient was placed in left lateral position. Fetal heart rate can be recorded using an external transducer. A tracing was taken for 20 minutes by CTG machine. The patients were followed up according to the admission test results. FHR tracings were classified as reactive, suspicious, omnious. Patient with reactive pattern were monitored with fetoscope and electronic monitoring done once in 4 to 5 hours. In cases of fetal

distress emergency interventions were made according to the stage of labour. Patients with non reactive pattern were to be kept on continuous electronic fetal monitoring with intermittent auscultation. The findings of admission test correlated with outcome of fetus. To evaluate the outcome of pregnancy, omnious FHR changes are indicative of fetal distress and newborn with APGAR score <7 at 5 minutes follow spontaneous delivery were considered.

RESULTS AND ANALYSIS

The demographic data and admission test tracings were analysed using Pearson's chi-square test. A total of 200 pregnant women were studied. Majority belong to 18-24 with mean age of 24.7 years in primigravida (76%) compared to that of multi gravida. Out of 200 cases, percentage of PROM with gestational age group between 38-39 weeks is 60.5%. Among 200 cases delivery occurred within 6 hours was 51.5%. Normal FHR tracings were observed in 66% women whereas suspicious tracing in 24% and 10% had abnormal results. The incidence of low APGAR, NICU admission, MSL, fetal distress was significantly higher in suspicious and omnious group. 94.8% of neonates had fetal distress in suspicious and pathological tracing. Where as only 5.3% of neonates had fetal distress in reactive group. It is evident from Table 8, that the incidence of fetal distress increased with worsening of admission CTG (p 0.001). In our study 164 cases have clear liquor and 36 cases have meconium stained liquor. In our study 2.5% had early onset sepsis and vigorous baby, 19% of the baby had low birth weight 3% of the baby had TTN and RD. 2% of the baby had IUGR.

Table 1 Age distribution

Age	No. of Cases	Percentage
18 – 24 yrs	115	57.5
25 – 29 yrs	68	34.0
30 – 34 yrs	16	8.0
35 – 39 yrs	1	0.5
Total	200	100.0

Table 2Obstetric index

Obstetric index	No. of Cases	Percentage
Primi	152	76.0
Multiparous	48	24
Total	200	100.0

Table 3 Time interval from rupture of membrane and delivery

Time Interval	No. of Cases	Percentage
<6 hrs	103	51.5
6 – 12 hrs	79	39.5
12-24 hrs	16	8.0

et al. / ActaBiomedicaScientia. 2018;5(2):65-70

>24 hrs	2	1.0
Total	200	100.0

Table 4Mode of delivery

Mode of Delivery	No. of Cases	Percentage
Labour Normal	65	32.5
Forceps	9	4.5
Caesarean	126	63.0
Total	200	100.0

Table 5Admission test

Time Interval	No. of Cases	Percentage
Reactive	132	66.0
Suspicious	48	24.0
Omnious	20	10.0
Total	200	100.0

Table 6Correlation of foetal outcome with Admission test

	APGAR						Total	
Admission test		7-10	6-4		6-4 <4		1 otal	
	Ν	%	Ν	%	Ν	%	Ν	%
Reactive	51	85.0	81	60.4	9	0	132	66.0
Suspicious	9	15.0	38	28.4	1	16.7	48	24.0
Omnious	0	0	15	11.2	5	83.3	20	10.0
Total	60	100.0	134	100.0	6	100.0	200	100.0

Table 7Correlation of foetal distress with Admission test

		Fetal	Totol			
Admission test	Fet	Fetal distress Normal		Iotai		
	Ν	%	N %		Ν	%
Reactive	1	5.3	131	72.4	132	66.0
Suspicious	1	5.3	47	26.0	48	24.0
Omnious	17	89.5	3	1.7	20	10.0
Total	19	100.0	181	100.0	200	100.0

Chi-Square Test

	Value	Df	P value
Pearson Chi-Square	49.545	4	< 0.001

Table 8Incidence of NICU with Admission test

			N	ICU			-	[ata]
Admission test	Ac	lmission	Obs	ervation	AD Not Needed		Total	
	Ν	%	Ν	%	Ν	%	Ν	%
Reactive	21	46.7	110	71.4	1	100.0	132	66.0
Suspicious	7	15.6	41	26.6	0	0	48	24.0
Omnious	17	37.8	3	1.9	0	0	20	100.0
Total	45	100.0	154	100.0	1	100.0	200	100.0
Chi-Square Test								

	Value	Df	P value
Pearson Chi-Square	50.237	4	< 0.001

67



DISCUSSION

Electronic FHR monitoring at the time of admission in labour has been employed by some centres to identify foetuses that are at an increased risk of hypoxia. Prelabour ROM is defined as spontaneous rupture of the membranes before the onsetoflabour. The etiology of PROM is multi-factorial and in some cases is yet unclear. Management of Pregnancies with PROM varies depending gestational on gestational age and obstetric status. Out of200 patients studied 57.5% were in the age group of 18-24 years. 34% were in the age group for 25-29 years which is comparable to Abed G Nagure*et*

al. (2013).^[5] In the present study group primi was 76% multipara 24% which is correlating with Mohd R et a/.,^[6]. In our study 91% of patients delivered within 12hrs,and 8% were delivered in 13 -24 hrs and 1% in 24hrs.this is comparable to Sharma SKet al.^[7] where <12 hours were delivered by 54.2%, delivered by 13-24 hours were 37.5%. In our study 66% of patient had reactive group and suspicious falls under 24% omnious falls under 20%. Simialr observation demonstrated by Abed G Nagureet al. ^[5]In our study 32.5% cases had normal vaginal deliveries 4.5% cases delivered by forceps application and 63% cases had caesarean delivery. In our study 5.3% of reactive and suspicious tracing were associated with fetal distress, 89.5% of pathological tracing were associated with fetal distress. The results are similar to the study conducted by Sandhu et al.,^[8]Libiranet al,^[9] and Ingemarsonet al.^[10] In our study 37.8% of babies born to patients with omnious AT had NICU admissions compared to 15.6% and 46.7% of those babies born to patients with suspicious and reactive AT. This was correlated with Sandhu *et al.*,^[8] Use of EFM is controversial for example Impeyet al.,^[11] believe that neonatal outcome is not significantly improved by the use of admission CTG as compared to intermittent FHR auscultation during labour. Thacker et al., [12] also reported that the use of EFM is of limited effectiveness and carries an increased risk of interventions. According

to them increased information at admission wilt not necessarily lead to better clinical outcomes.

CONCLUSION

The admission cardiotocograph is a simple non invasive test that can serve as a screening tool to detect foetal distress already present or likely to develop and prevent unnecessary delay in intervention. Prelabour rupture of membranes is responsible for increased perinatal morbidity and mortality. ANC cases should be educated regarding regular and timely ANC checkup. Continuous EFM can help to decide an optimum timing of LSCS terminating a trial of vaginal delivery. Admission test is good, economical non-invasive. The obstetrician and neonatologist should work as a team to ensure optimal care for mother and fetus.

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et al. / ActaBiomedicaScientia. 2018;5(2):65-70

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