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RESEARCH ARTICLE

COMPARISON OF OUTCOME OF LABOUR IN PREMATURE RUPTURE OF MEMBRANES IN MATURE VERTEX PREGNANCY BETWEEN PRIMIGRAVIDA AND MULTIGRAVIDA

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ABSTRACT

AIM: Objective of the study is to evaluate the outcome of labor of premature rupture of membranes in mature vertex pregnancy regarding mode of delivery, latent period following PROM, maternal morbidity, infant morbidity and mortality, and influence of latent period on maternal morbidity, infant morbidity and mortality and to compare the outcome of primigravida with multigravida.

MATERIALS AND METHODS: This study was conducted in the department of obstetrics and gynecology, in labour room of GOVT GENERAL HOSPITAL, KAKINADA, affiliated to Rangaraya medical college from nov 2011 to oct 2013. This study was done on 150 cases of premature rupture of membranes, with vertex presentation on mature pregnancy i.e., 37 weeks onwards.

RESULTS: Among 150 cases, 110 cases (73.3%) delivered vaginally. The incidence of cesarean section is 21.3% in primigravida with PROM and 17.3% in multigravida with PROM. Latent period, elapsed period, and PROM delivery interval are shorter in multigravida compared to primigravida. The incidence of maternal morbidity, and infant morbidity and mortality is more with a longer latent period.

CONCLUSION: Though mode of delivery is vaginal in majority of the cases, incidence of caesarean section is slightly higher in primigravidae compared to multigravidae. However, PROM is not the indication per se in most of the cases. The outcome of labor in PROM in mature vertex pregnancy is favourable to multigravida compared to primigravida. Thus, primigravida with PROM needs more attention. With active management of premature rupture of membranes in mature vertex pregnancy, latent period, elapsed period and PROM delivery interval can be shortened, thus reducing the maternal morbidity, infant morbidity and mortality.

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INTRODUCTION

Spontaneous rupture of the fetal membranes occurs relatively frequently and is one of the commonest events in the field of obstetrics. The definition of PROM is rupture of membranes before the onset of labor. Membrane rupture before labor and before 37 weeks of gestation is referred to as preterm PROM. Premature rupture of membranes at near term is followed within a period of hours by spontaneous onset of labour. The incidence of PROM is about 10% of all pregnancies and 70% of them occur at term. Most of Indian studies document an incidence of 7 to 12% for PROM of which 60-70% occur at term (Bradley, 2002). Associated complications are relatively uncommon, but frequently its potential as maternal and fetal hazard tends to be over looked especially in busy and over crowded centers. Neonatal complications include higher incidence on reassuring CTG patterns due to leakage and higher incidence of sepsis (Merowits, 2001). 80% of the term PROM cases enter labour spontaneously within 24 hours and

95% within 72 hours if managed expectantly which includes continuous observations of maternal and fetal condition, administration of antibiotics (Ozden, 2002) and amniofusion. For effacement and dilatation, various prostaglandins are recommended (Duffe Huff, 1984; Hidar, 2000; Wagner, 1989). Latent period is the interval between the rupture of membranes and the onset of labor. Elapsed period is the interval between the onset of labour pains and the delivery of the baby. The present study was conducted to evaluate the outcome of labour with premature rupture of membranes in mature vertex pregnancy and also to compare the outcome of labour between primigravida and multigravida.

MATERIALS AND METHODS

This study was conducted in department of obstetrics and gynecology, in labour room of GOVT GENERAL HOSPITAL, KAKINADA, affiliated to Rangaraya medical college from nov 2011 to oct 2013. This study was carried out on 150 cases of premature rupture of membranes with vertex presentation in mature pregnancy i.e., 37 weeks onwards.

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Inclusion criteria are women with term gestation, vertex presentation, definite history or evidence of draining with no onset of labour pains. Women with presentation other than vertex, preterm PROM, multiple pregnancy, hydramnios, who were already in labour were excluded from the study. On admission, a detailed history was taken, and clinical examination was performed after taking informed written consent.

Speculum Examination

Before performing a vaginal examination visualization of the cervix was accomplished by inserting a sterile speculum into vagina avoiding contact with the cervix. This procedure allowed visualisation of the flow of amniotic fluid from the cervical os and or its pooling in the posterior fornix following fundal pressure. If the women were in labour, no attempts were made. If the women were not in labour, inj. oxytocin drip or tab misoprostol sublingually were used to accelerate the labour and progress was watched carefully to deliver the baby within 24 hours. Mother and baby were followed in the postnatal period.

RESULTS

In the present study, the outcome of labour in premature rupture of membranes in mature vertex pregnancy in 75 primigravidas and 75 multigravidas were studied. All the cases in the study were actively managed with parenteral antibiotics and acceleration of the labor. Majority of the women in the present study had associated anemia and vitamin deficiency as they belong to low socioeconomic group. 61(40.6%) cases were in the age group 18- 20 yrs, 72 (48%) were in the age group 21-25 yrs, 14(9.3%) are in the age group 26 -30 yrs, and 3(2%) are above 30 yrs. Out of the 150 cases, 75(50%) are primigravida , 58(38.6%) are gravida 2 , 12(8%) are gravida 3, 3(2%) are gravida 4 and 2(1.3%) are gravida 5.

Table 1. Distribution of Cases in Different Gravida

Gravida	Number	Percentage (100%)
1	75	50%
2	58	38.6%
3	12	8%
4	3	2%
5	2	1.3%

Out of the 150 cases of PROM, latent period could be calculated in 129 cases. In rest of the cases, latent period could not be calculated because caesarean section was done immediately due to associated complicating factors like foetal distress, toxemia of pregnancy etc.

Table 2. Duration of Latent Period in Primi Gravida and Multigravida

Latent period in hrs	primigravida	%	multigravida	%
< 6	35	46.6	39	52
7-12	17	22.6	21	28
12 -24	8	10.6	4	5.3
> 24	2	2.6	3	4
Could not be calculated	13	17.3	8	10.6

Duration of latent period is <6hrs in majority of the multigravida. Latent period following PROM is shorter in multigravida when compared to primigravida.

Elapsed period following PROM is shorter in multigravida when compared to primigravida which is statistically significant (p-value 0.00009). PROM - Delivery interval is shorter in multigravida when compared to primigravida which is statistically significant (p-value 0.002).

Table 3. Elapsed Period in Primi Gravida and in Multigravida

Elapsed Period	primigravida	%	multigravida	%
<6hrs	19	25.3	45	60
7-12hrs	24	32	15	20
13-24hrs	11	14.6	2	2.6
>24hrs	5	6.6	--	--
Could not be calculated	16	21.3	13	72.3

Table 4. Prom delivery interval

Duration of labor in hrs	Primigravidae	%	Multigravidae	%
< 6	2	2.6	10	13.3
7-12	23	30.6	32	42.6
13 -24	28	37.3	16	21.3
>24	6	8	4	5.3
Could not be calculated	16	291.3	13	17.3

Liquor is clear in 72% of the cases. It is thin meconium stained in 22% and thick meconium stained in 6% of the cases. Neonatal prognosis was poor in the thick meconium stained liquor cases with 33% mortality. Neonatal morbidity is 4% with skin, umbilical, respiratory infections. No cases of sepsis were observed. Infant mortality is 6.6%. Infant mortality increased with increase in latent period.

Table 5. Colour of the liquor

Color of liquor	primigravidae	%	multigravidae	%
Clear	53	70.6	55	73.3
Thin meconium	17	22.6	16	21.3
Thick meconium	5	6.6	14	5.3

Mode of Delivery

Out of the 150 cases, 110 resulted in vaginal deliveries, 11 were delivered by outlet forceps and 29 by caesarean section. The incidence of LSCS is more in primigravida than in multigravida.

Majority of the LSCS were done for cephalopelvic disproportion followed by uterine inertia and fetal distress. Most common indication for LSCS in primigravida is cephalopelvic disproportion. Most common indication for LSCS in multi gravida is fetal distress. In our study, forewater rupture is more common than hindwater rupture. The percentage of occipitoposterior position was 14 %. The percentage of cord prolapse was 2%.

Table 6. Mode of Delivery in Primigravida and Multigravida

Mode of delivery	primigravidae	%	multigravidae	%
Normal	48	64	62	82.6
Instrumental	11	14.6	--	--
Cesarean	16	21.3	13	17.3

Maternal Morbidity

The percentage of maternal morbidity was 5.3% with fever in 5 cases and fever with wound infection in 3 cases.

Maternal morbidity increased with increase in the latent period. Majority of the cases with maternal morbidity were with latent period of 12-24 hrs. Maternal morbidity is more in primigravida when compared to multigravida, probably due to a longer latent period and longer PROM - Delivery interval in primigravida when compared to multigravida. There are no cases of maternal mortality due to PROM in our study.

Table 7. Maternal Morbidity

	primigravidae	%	multigravidae	%
Fever	3	4	2	2.6
Fever with wound infection	2	2.6	1	1.3

Infant Morbidity and Mortality

Factors responsible for infant mortality were foetal distress in 5% cases, cord prolapse in 2% cases, still birth in 1% cases and congenital heart disease in 1% of the cases. Infant deaths were more common in the early neonatal period. Infant deaths were more common with a longer latent period (latent period is between 12-24hrs in 5 (3.3%) cases and >24hrs in 1 (0.6%) case).

Table 8. Infant Mortality

	primigravidae	%	multigravidae	%
Still birth	1	0.6	2	1.3
Early neonatal death	3	2	2	1.3

DISCUSSION

Obstetricians from the very ancient days, were of the opinion that premature rupture of membranes can cause maternal complications, increased operative procedures and neonatal morbidity and mortality. Much of the literature available pertaining to studies in developed countries where better neonatal care, strict asepsis and appropriate antibiotics are used when necessary show a decrease in maternal and fetal complications associated with PROM. In developing countries like India, incidence of perinatal morbidities is still higher especially in resource poor setting.

Use of cervical swabs for culture and sensitivity and accordingly of sensitive antibiotics can further decrease rate of such morbidities. Proper aseptic and antiseptic precautions during labour can help to decrease incidence of neonatal sepsis. In a large randomized trial, one half of women with PROM who were managed expectantly gave birth within 5 hours. In 2006 cochrane library published that induction of labour in PROM does not increase the risk of rates of caesarian delivery or operative delivery.

More and more institutions worldwide now accept the early induction in cases of PROM to improve perinatal outcome (Enhrom and Simmons, 2002; Hannah et al., 1996; Kabiraj and Dutta, 2007; Kimberly and Kelly, 1999). Also PROM increases the risk of maternal infection, which may manifest as chorioamnionitis or endometritis (e1970 Romero³). Early diagnosis and careful management with appropriate use of various labour inducing agents can be helpful in decreasing perinatal morbidities in cases of PROM.

However, randomised controlled trials involving large sample size is needed to draw further conclusions.

Conclusion

The outcome of premature rupture of membranes in mature vertex pregnancy is more favourable to multigravida with a shorter latent period, a shorter elapsed period, and with a shorter PROM delivery interval. The incidence of cesarean section is more in primigravida than in multigravida. However, PROM is not the indication per se for caesarean section. The incidence of maternal morbidity is more with a longer latent period. The incidence of infant morbidity and mortality is more with a longer latent period. Infant mortality in premature rupture of membranes is due to foetal distress. With aseptic precautions, maternal and infant morbidity and mortality can be reduced. With active management of premature rupture of membranes in mature vertex pregnancy, latent period, elapsed period and PROM delivery interval can be shortened, thus reducing the maternal morbidity, infant morbidity and mortality.

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