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ORIGINAL ARTICLE

Frequency of Cesarean Section in Premature Rupture of Membranes

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ABSTRACT

Background: Premature rupture of membranes (PROM) is always of clinical significance either it occurs before onset of labour at term or preterm. It is defined as spontaneous rupture of fetal membranes which results in leakage of amniotic fluid. PROM is related with maternal and perinatal morbidity and mortality if not treated sensibly on time, due not only to conditions causing it but also likelihood of emergency cesarean delivery.
Aim: To ascertain frequency of C- section in women presented with premature rupture of membranes at tertiary care hospital.
Study Design: Cross-sectional descriptive study
Place and Duration of Study: Department of Obstetrics and Gynaecology Unit 1, Sheikh Zayed Women Hospital, Shaheed Mohtarma Benazir Bhutto Medical University Larkana from 1st October 2020 to 30th April 2021
Methodology: One hundred and eighty six pregnant women having gestation from 28 weeks till 40 weeks and diagnosed as premature rupture of membranes were included.
Results: The average age 27.97±5.66 years. 29.57% of caesarean section presented PROM was observed.
Conclusion: PROM remains an imperative cause of maternal and fetal morbidity and increased rate of cesarean section delivery to focus upon. Timely evaluation of reasons leading to PROM can help us in reducing the soaring rate of cesarean section in developing countries.
Keywords: Premature rupture of membranes, Caesarean section, complications.

INTRODUCTION

Premature rupture of membranes (PROM) is the condition, when there is impulsive breach of amniotic membranes that leads to leakage of amniotic fluid complicating 5-10% of pregnancies. PROM occurs either before term known as preterm PROM (PPROM) or at term gestation but just before the onset of labour risking both fetal and maternal lives in case prolonged time is elapsed to delivery[1,2]. Although the pathophysiology for PROM is mainly idiopathic but it has been contemplated that infection or degeneration can make membranes fragile and subsequently spontaneous rupture may occur[3].

Since years, this has been agreed that history of PROM in a previous pregnancy, genital tract infection, antepartum bleeding, and cigarette smoking have a particularly strong association with PPROM.[4] Whatever the etiology of PROM is there, the impact of ruptured membranes may lead to increased maternal morbidity due to chorioamnionitis, operative vaginal or cesarean delivery, postpartum hemorrhage and pelvic abcess[5,6].

Preterm PROM is highly associated with increased perinatal morbidity and mortality, especially when it occurs remote from term[7, 8].

There is no unanimity on the perfect mode of delivery in PROM in many settings with scant resources, but caesarean delivery is often recommended as safe procedure to avoid prolonged labour time waiting for vaginal delivery because of impact of expected neonatal complications related with infection subsequent to PROM[9].

Multiple factors affect the mode of delivery right from patient's wishes to demographic features and up to fetomaternal complications pressing obstetricians, to keep a low threshold for cesarean delivery. Many studies have observed frequency of caesarean section in women with PROM ranging from 14% to 58.7%. In a study done by Tahir et al[10], the rate of caesarean section was14%. While another study described a caesarean section proportion of 23%.[11] In another study, had higher caesarean proportions up to 58% done by Pasquer[12] which can be justified where neonatal intensive care facilities are available. The local literature regarding the cesarean section in women presented with premature rupture of membrane is limited and scarce in our population, while the international literature studies varies due to the availability and feasibility of health facilities in developed and under developed countries. Therefore this study is not only helpful for knowing the contribution of cesarean section due to PROM on priority basis as early evaluation and management can prevent the maternal complications so that proper specific health strategies can be initialized according to the observations of present study.

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MATERIALS AND METHODS

This cross sectional descriptive study was conducted at Department of Obstetrics & Gynaecology Unit I Sheikh Zayed Women Hospital, Larkana from 1st October 2020 to 30th April 2021 after formal Institutional Ethical Committee permission. A total of 186 women recruited after their consent, through non-probability consecutive sampling technique.

All the pregnant ladies of age 18-45 years with singleton pregnancy, either primipara or multiparous having gestational age from 28 weeks till 4o completed weeks (assessed with last menstrual period history, having complaint of watery vaginal discharge (leaking membrane) before the onset of labour whether at term or preterm diagnosed as premature rupture of membranes presented in emergency room were included.

Women with multi-fetal pregnancy, history of previous cesarean section, autoimmune disorder (SLE and RA), disseminated intravascular coagulation (DIC) or bleeding disorder and use of anticoagulants, pregnant ladies having history of multiple blood transfusions during the pregnancy period, known uterine anomalies (hydronephrosis/hydroureter, renal agenesis and polycystic kidney disease) and gestational diabetes mellitus, already on steroids ,immunosuppressive, anti-inflammatory or antibiotics therapy evaluate by taking proper relevant drug history from specific participants were excluded.

Data was entered and analyzed through SPSS-22. The post stratification chi-square test was applied on categorical variables at 95% confidence interval (CI) and the p-value ≤0.05 was considered as statistically significant.

RESULTS

The average age was 27.97±5.66 years. Mean gestational age, weight, height and BMI of the women are reported in Table 1. More than half (61.85%) women were primiparous and 38.17% had multiparity. Regarding comorbid, 20.4% were obese, 16.7% had hypertension, and 10.25% anemic and 5.95% were smoker.

Frequency of caesarean section in women presented with premature rupture of membranes was observed in 55(29.57%) women (Fig. 1). Rate of caesarean section in women presented with premature rupture of membranes was significantly high in those women who were primigravidae as compared to multiparous (p=0.0005), while it was not statistically significant with age groups, booking status, address as shown in Table 2. Rate of caesarean section in women presented with PROM was significantly high in hypertensive women (71% vs 21.3% p=0.0005). Rate of C/S was also significantly high in women with placental abruption, while it was not statistically significant with anemia and fever (Table 3).

Table 1: Descriptive statistics of women (n=186)

Variable	Mean±SD
Age (years)	27.97±5.66
Gestational age (weeks)	35.65±2.47
Weight (kg)	58.33±5.28
Height (cm)	155.48±6.64
Body mass index (kg/m^2)	26.15±1.90

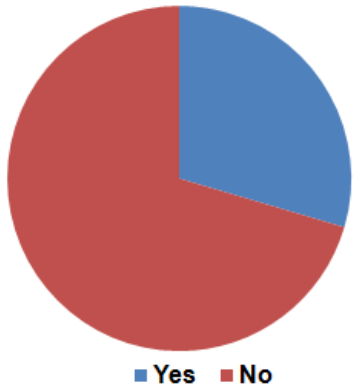
Table 2: Comparison of cesarean section according to demographic variables

Variable		Cesarean section				Total	P value
		Yes		No			
		No.	%	No.	%		
Age (years)	≤25	21	26.3	59	73.8	80	0.213
	26 to 30	19	31.1	42	68.9	61	
	31 to 40	8	25.0	24	75.0	32	
	>40	7	53.8	6	46.2	13	
Parity	Primiparous	46	40.0%	69	60.0%	115	0.005
	Multiparous	9	12.7%	62	87.3%	71	
Booked	Un-booked	28	27.7%	73	72.3%	101	0.547
	Booked	27	31.8%	58	68.2%	85	
Area	Urban	40	30.5%	91	69.5%	131	0.065
	Rural	15	27.3%	40	72.7%	55	

Table 3: Comparison of caesarean section according to different variables

Variable		Cesarean section				Total	P value
		Yes		No			
		No.	%	No.	%		
Anemia	Yes	7	36.8	12	63.2	19	0.464
	No	48	28.7	119	71.3	167	
Placenta abruption	Yes	21	80.8	5	19.2	26	0.005
	No	34	21.3	126	78.8	160	
Fever	Yes	3	30.0	7	70.0	10	0.976
	No	52	29.5	124	70.5	176	

Fig. 1: Frequency of caesarean section in women presented with premature rupture of membranes (n=186)



DISCUSSION

Premature rupture of membranes (PROM) is of uncertain outcome making not only diagnostic difficulty but also consequences affect both maternal and fetal lives, if not managed promptly. Aspects of etiology encompass various conditions signaling multifactorial involvement but in few cases cause remain unclear[13].

The occurrence of PROM is significantly greater in women with genital tract infections which is considered to be a preventable factor but still remains commonest cause despite availability of various treatment regimens[14]. Management of pregnancies complicated with PROM depends upon gestational age at presentation and women's obstetric history, however in most of cases labour start within 24 hours of ruptured membranes. Thus in women diagnosed with PROM at term, optimum treatment is ensued at once before any complication, but then again we fear complexities related with preterm birth in PPROM posing a public health alarming state[14,15]. PROM can cause complications like chorioamnionitis, antepartum hemorrhage, maternal sepsis and fetal distress or long term neonatal sequlae as a result of undue delay in delivery[16,17].

Although cesarean delivery reflects a life-saving procedure saving both the mother and the fetus but managing PROM is perplexing specially in low resource countries, even emergency cesarean section might result subsequently in surgical site infection, endometritis, visceral injury due to tissue friability, thrombotic events and hospital-acquired infections[18,19].

The average age of the women in this study was 27.97±5.66 years in our study (range was taken 18-42 years). More than half (61.85%) women were primigravidas and 38.17% had multiparity. Similar variable are found in a study done by Endale[20], where mean maternal age was 24.6 years (range 16-41 years) and he also reported that majority of women were primigravida (69.7%) while maultiparous women were only 23 (12.5%)who had PROM.

In the present study, the frequency of cesarean section in women presenting with PROM was 29.57% as mode of delivery based on any indication in liaison with PROM. Cesarean rate was noticed more in primiparous as compared to those who were multiparous (p=0.0005), this 29.57% rate of cesarean section. Although the world over debate is to decrease cesarean section rate but we see many studies in literature search, where similar rate of cesarean section in women with premature rupture of membranes like Chakraborty et al[21] in 2013 reported cesarean Section rate of 26.6 % among pregnancies with pre labour rupture of membranes in their study conducted in West Bengal, Kunze et al[22] conducted study on larger number of patients (1026) and he also had same observation about rate of cesarean section and reported rate of 27%.

IIbishi[23] and Kayiga[24] in their studies remarked about cesarean section rate 28% and 30% respectively, especially in PROM well before term (PPROM). In a study done by Tavassoli[25] though neonatal outcome was not remarkable but 32% of women with PROM had cesarean delivery. On the other hand Pasquier et al[12] reported very high rate of cesarean section of 58.7%.

Premature rupture of membranes in any settings usually adds maternal and neonatal miseries because of its effects either related to conditions responsible for it or the risks which

proportionately increase during its management Therefore mothers are having higher chances of not only operative deliveries but also its associated complications. Preterm PROM is associated with even increased perinatal morbidity and mortality. If providers are given facilities of high-tech monitoring of both mother and fetus during labour in low-resource settings, then it would have been helpful in reducing cesarean section rate.

CONCLUSION

Premature/pre-labour rupture of membranes at term or before term has big influences on maternal and fetal health enhancing chances of morbidity and mortality proportionately results in increased rate of cesarean section delivery considered as a life saving procedure. Early evaluation and management could be preventing the maternal complications so that proper specific health strategies could be initialized according to the observations.

Conflict of interest: Nil

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