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Socio-demographic profile of the women presenting with preterm premature rupture of the membrane at tertiary care hospital.

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Abstract

Introduction: Preterm premature rupture of membrane is one of the most common cause of prematurity. It is associated with increased perinatal morbidity and mortality. Very few studies have been done till date regarding socio-demographic characteristic of the women presented with PPROM. Keeping this in mind this study was planned to study socio-demographic characteristics on timing of presentation to the health facility following the onset of PROM.

Material and method: It was a hospital based observational study. 130 women with PPROM were

included in the study. A detailed history was taken regarding socio-demographic characteristics of the women and data analyzed.

Result: Majority of the women (56%) in our study were in the age group of 21 to 25 years, Hindu (74.7%), literate (54.7%), belonging to lower middle socio-economic status (68.7%), residing in rural areas (59.3%). Out of 150 women studied, 96 (64%) were unbooked. Majority of the women were primigravida (44.7%). Past history of preterm delivery, abortion or cesarean delivery was seen in 18.6%, 12.9% and 18.6% women respectively. In 98 women (65.3%) gestational age was 34 weeks or above. PROM to delivery interval varied from 3 hours to 80 hours. PROM to delivery interval was ≤24 hours in majority of them (52%).

Conclusion: PPROM is a major complication of pregnancies and an important cause of perinatal morbidity and mortality. By encouraging women for regular antenatal checkups and counseling them for early admission to the hospital in the event of PROM will reduce the maternal and perinatal complications.

Introduction

Preterm premature rupture of membrane (PPROM) is one of the most common cause of prematurity. It complicates up to 2% of all pregnancies and 40% of all preterm births.[1,2] The pathophysiologic mechanism of PPROM has not been clearly defined yet. It is multifactorial in etiology and several different risk factors that may be associated with PPROM. These include placental abruption, excessive collagen degradation or decreased membrane collagen content, localised membrane defects, excessive membrane stretch (uterine over distension), precocious programmed amniotic cell death and choriodecidual infection.[3,4,5,6] However, many cases of PPROM occur without a clearly identifiable etiology.

PROM contributes to adverse maternal morbidity and mortality including chorioamnionitis, endomyometritis, postpartum hemorrhage, pelvic abscess, and increased likelihood of caesarean delivery [7]. Preterm PROM is associated with increased perinatal morbidity and mortality, especially when it occurs remote from term [8]. Perinatal outcomes constitute prematurity, neonatal sepsis, respiratory distress syndrome (RDS), intraventricular hemorrhage (IVH), risk of fetal and neonatal death. [9] Management of PROM is particularly challenging in low-resource settings, where access to caesarean delivery may be limited and may result in long waiting times for surgery. More vaginal deliveries could potentially help decrease time to delivery and thus reduce the risk of maternal infections, stillbirths and neonatal morbidity and mortality. Expectant management with antenatal antibiotic and corticosteroid administration are the recommended standard of care in the setting of PPROM at gestational age of ≤34 weeks.[10]

Approximately two-thirds of the patients with PROM are delivered within the next 4 days of rupture of membrane land the rest within 1 week. The time between the rupture of membranes and onset of labor (latent period) may extend from hours to days, generally shorter the gestation period longer the latent period.[11]

In a low resource setting like ours we identified pre-labour or pre-mature rupture of membranes (PROM) as one obstetric condition that requires timely and guided intervention of a skilled attendant to avert adverse outcome. Very few studies have been done till date regarding socio-demographic characteristic of the women presented with PPROM. Keeping this in mind this study was planned to study socio-demographic

characteristics on timing of presentation to the health facility following the onset of PROM.

Material and method

The present study was carried out in department of Obstetrics and Gynaecology, S.M.S Medical College and attached groups of hospital, Jaipur from July 2018 onwards. It was a hospital based observational study. 130 women with PPROM were included in the study after obtaining written informed consent. A detailed history was taken regarding socio-demographic characteristics of the women. PPROM was confirmed by history, observation of pooling of amniotic fluid in posterior fornix of vagina or active leakage of amniotic fluid from cervix and fern test if required.

Women were assessed by clinical signs and symptoms together with one of the following tests: white blood cell count in CBC, C reactive protein and fetal heart rate monitoring to diagnose the presence of intrauterine infection. PPROM had been managed by antibiotics and betamethasone. Labor was induced in pregnancies complicated with PPROM at and after 34 weeks of gestation or earlier in women at imminent risk of delivery within the next seven days. Data were entered in Microsoft excel sheet and analyzed statistically.

Result

Table 1 shows socio-demographic profile of the women presented with PPROM. Mean age of the women was 24.02±3.24 years with a range of 19 to 35 years. Majority of the women (56%) in our study were in the age group of 21 to 25 years. This reflects that early marriage is still prevalent in our state. Majority of the women presented with PPROM in our studies were Hindu (74.7%), literate (54.7%), belonging to lower middle socio-economic status (68.7%), residing in rural areas (59.3%) and had normal BMI (80.7%). Out of 150 women studied, 96 (64%) were unbooked.

Obstetric history of the women with PPROM is shown in table 2. Majority of the women were primigravida (44.7%) with a range of gravidity 1 to 5. Mean gravidity was 1.98 ± 1.07. Most of the women were nulliparous (35.4%). Mean parity was 1.13 ± 1.06. Past history of preterm delivery, abortion or cesarean delivery was seen in 18.6%, 12.9% and 18.6% women respectively. In 98 women (65.3%) gestational age was 34 weeks or above (between 34 to 36.6 weeks) and in remaining 52 women gestational age was below 34 weeks (between 26 to 33.6 weeks). PROM to delivery interval varied from 3 hours to 80 hours. PROM to delivery interval was ≤24 hours in majority of them (52%).

Comparative analysis of the socio-demographic and obstetric profile of women in two groups based on PROM-to-delivery interval is shown in table 3. Out of 150 women studied, majority of the women (52%) delivered within 24 hours of onset of PROM. In remaining 48% women PROM to delivery interval was more than 24 hours. Both the groups were comparable in terms of mean age, weight, height, BMI, residence and socio-economic status. There was no statistically significant difference (p >0.05). There was statistically significant difference in the literacy status (p- 0.02) and mean gravidity (p- 0.004) in the two groups. Both the groups were comparable in terms of mean parity, gestational age, previous preterm delivery, abortion or cesarean delivery.

Discussion

At present, pre-labor rupture of the membrane (PROM) is one of the challenging and controversial issues. Socio-demographic characteristics of the women presented with PPROM in our institute were studied. In our study, maximum number of women were between 21-25 years. Our results were similar to that of Shukla

P et al[12]. They reported that maximum number of the women were between 21-25 years. The mean age of women was 24.02±3.24 years with a range of 19 - 35 years. This reflects that marriage at young age is still prevalent in our state. Mean age of the women in our study (24.02±3.24 years) was comparable with that observed by Shukla P et al[12], Ahankari A. et al[13] and Y Neggers et al[14] but lower than that observed by Theresia B Temu et al[15], Melamed et al[16], Manuck and Varner[17] and Toprak et al[18] and Kayiga H et al[11].

Women residing in rural areas during pregnancy have been shown to have a slightly more chance to have PPROM and preterm delivery. Our results were consistent with the results observed by Chang HH et al[19] and Theresia B Temu et al[15]. This may probably be due to lack of accessibility to health facilities in rural areas as compared to urban areas along with the fact that women living in rural areas are more likely to be involved in hard physical works like farming which increases the risk of preterm delivery particularly in women with other risk factors for preterm delivery. Majority of women in our study belongs to lower socio-economic status which was consistent with the results of Shukla P et al[12] where majority of women belonged to low socio-economic status. Low socio-economic status is an imperative risk factor for both PROM and preterm labour. Related factors such as malnutrition, overexertion, poor hygiene, stress, recurrent genitourinary infections and anaemia significantly increment the risk [20]. In a study by Begum, half of the patients were in the gathering of low financial condition having no or unpredictable antenatal registration which is relatively like this study[21]. 54.7% women were literate in our study. Our results were in contrast to the observation made by H.K. Daglar et al[22]. They observed that all the women were literate.

The mean BMI of the women in our study (23.2±2.2 kg/m2) was lower than (26.6±7.3, 27.0±5.1 kg/m2) that reported by Manuck and Varner et al[17] and Souza Alex Sandro Rolland et al[23] respectively. In our study majority of the women were unbooked and referred which is consistent with the study of Kayiga H et al[11]and Shukla P et al[12].

Majority of the women in our study were primigravida (44.7%). Our observation was comparable with that of Kayiga H et al[11], Shukla P et al[12] and Arij Faksh Doa et al[24]. Mean gravidity was 1.98 ± 1.07. The mean gravidity in our study was lower than 3.9±2.7 reported by Toprak et al[18]. Maximum number of the women in our study were nullipara (35.4%) followed by primipara (29.3%). Parity wise distribution of women in our study was similar to that observed by Al Fatah A N et al[25] and Tavassoli F, et al[26]**.** The mean parity (1.13 ± 1.06) in our study was comparable to that (1.1± 1.6) observed by Melamed et al[16] and lower than that observed by Kayigaet H al[11]and Toprak et al[18]. History of prior preterm delivery was present in 18.6% of women in our study which was much lower than that (27.5%) observed by Manuck and Varner et al[17].The mean gestational age in our study was 33.9 ± 1.9 weeks which was lower than mean gestational age (35.5±0.8 weeks) observed in the study done by Melamed et al[16] and higher than that observed by Souza Alex Sandro Rolland et al[23] and *Tavassoli F, et al*[26] respectively. Past history of preterm delivery was seen in 18.6% women which was lower than that (9.6%) observed by Yang et al[27].

The PROM to delivery interval in our study was 12 hours or less in 18%, 13-24 hours in 34% and more than 24 hours in remaining 48%. Our results were comparable with the result observed by J liu et al[28].

They observed the latent period was <12 hrs in 10.0%, ≥12 hrs in 33.0% and ≥24 hrs in 57% cases.

Conclusion

PPROM is a major complication of pregnancies and an important cause of perinatal morbidity and mortality. Majority of the women presented with PPROM were in the age group 21-25 years, Hindu, literate, belonging to lower socio-economic status and rural area and unbooked in the hospital. 48% women had PROM to delivery interval > 24 hours. By encouraging women for regular antenatal checkups and counseling them for early admission to the hospital in the event of PROM will reduce the maternal and perinatal complications.

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Legends Tables

Table 1: Socio-demographic profile of the women with PPROM

Variable	Number	Percentage
Age		
<20	21	14.0
21-25	84	56.0
26-30	34	22.7
≥31	11	7.3
Religion		
Hindu	112	74.7
Muslim	38	25.3
Booking status		
Booked	54	36.0
Unbooked	96	64.0
Residence		
Urban	61	40.7
Rural	89	59.3
Literacy status		
Literate	82	54.7
Illiterate	68	45.3
Socio-economic status		
Upper	47	31.3
Middle.	42	28.0
Lower	61	40.7
BMI		
18.5 – 24.9	121	80.7
25.0 – 29.9	25	16.7
30.0 – 34.9	4	2.6

Table 2: Obstetric profile of the women with PPROM

Variables	Number	Percentage
Gravidity		
Gravida 1	67	44.7
Gravida 2	36	24.0
Gravida ≥3	47	31.3
Parity		
Para 0	53	35.4
Para 1	44	29.3
Para 2	36	24.0
Para ≥	17	11.3
Past history of Preterm delivery	13	18.6
Past history of abortion	9	12.9
Past history of LSCS	13	18.6
Gestational age		
≥34	98	65.3
<34	52	34.7
PROM to delivery interval		
≤12 hours	27	18.0
13-24 hours	51	34.0
25-36 hours	26	17.3
37-48 hours	13	8.7
>48 hours	33	22.0

Table 3: Comparative analysis of the socio-demographic and obstetric profile of Women in two groups based on PROM-to-delivery interval

Variables	Within 24 hours (n=78)	>24 hours (n=72)	P value
Mean Age	23.7 ± 3.1	24.2 ± 3.2	0.3
Mean weight	55.3 ± 6.4	56.2 ± 7.9	0.4
Mean Height	154.5 ± 4.4	154.9 ± 4.7	0.5
Mean BMI	23.0 ± 1.9	23.3 ± 2.5	0.4
Literate	41	51	0.02
Urban Residence	28	33	0.2
SE status Lower	29	32	0.5

Middle Upper	23 26	19 21	
Mean Gravidity	1.7 ± 1.0	2.2 ± 1.1	0.004
Mean Parity	1.2 ± 1.1	1.1 ±1.0	0.5
Gestational Age	34.02 ± 1.9	33.8 ± 2.0	0.4
Previous Preterm birth	7	6	0.8
Previous PROM	1	3	0.3
Previous CS	8	5	0.4