

Management and Immediate Maternal & Neonatal Outcomes of Pre-Labour Rupture of Membranes (PROM) at Ompada Teaching Hospital

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Abstract:

➤ *Background:*

Pre-labour rupture of membranes (PROM) is a rupture of the membranes prior to the onset of labour at or beyond 37 weeks gestation. The study aimed to assess the management and immediate maternal & neonatal outcomes of pre-labour rupture of membranes at term.

➤ *Methods:*

A Cohort prospective base study conducted among pregnant women at term attended to the emergency department complained of drainage of liquor at Ompada teaching hospital. The data were collected by structured questionnaire filled through direct face to face interviews after obtained informed consent.

➤ *Results:*

Out of 150 pregnant women were included in the final analysis of pre-labour rupture of membranes at term, the mean age of included women was 28.5 (range between 18-37 years) with majority cases were multigravidas. About 19.3% of the cases were un-booked with 32.7% of them had similar condition of PROM and 20.7% of the cases had previous history of preterm delivery on the past. About 17.3% of the cases chosen the Expectant management and the second group managed by immediate delivery (82.7%) either by Caesarian section (33.8%) or by Acceleration (66.2%). There was no statistically significant difference between postpartum maternal health and plan for delivery (p value 0.133). On the neonatal health, 81.3% of them delivered alive.

➤ *Conclusions:*

The main risk factors that contributed on development of PROM was lower urinary tract infections. The mode of delivery is either planned early induction or expectant management, depend on the conditions of the patients and the

cervical favorability, with increase rates of caesarean section in expectant. Early acceleration and induction are recommended to decrease the interval of PROM and the risk of sepsis. Early diagnosis and prompt management is required for better outcome for mother and baby.

Keywords: Pre-Labour Rupture of Membranes, Term, Sudan, Ompada, Management.

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I. INTRODUCTION

Pre-labour rupture of membranes is a rupture of the membranes prior to the onset of labour at or beyond 37 weeks gestation ^[1]. At term, programmed cell death and activation of catabolic enzymes, such as collagenase and mechanical forces, result in ruptured membranes ^[2]. The fetal membranes are essential for embryonic development, playing roles in embryonic nutrition protection and excretion. The presence of these membranes with their adaptations and modifications ensures that both the nutritional and metabolic requirements of the embryo are met ^[3].

PPROM occurs probably due to the same mechanisms and premature activation of these pathways. However, early PROM also appears to be linked to underlying pathologic processes, most likely due to inflammation and/or infection of the membranes ^[2].

The incidence of term PROM) is 8%. Spontaneous labour follows PROM at 24, 48 and 96 hours in 70%, 85% and 95% of women, respectively, Thus, an important proportion of women have significant latency from PROM to delivery if managed expectantly, particularly nulliparous women ^[1]. The differences in prevalence are partly a result of differences in study populations, cut-off points for term ranging from 34 to 38 weeks and the specific time interval from rupture of the membranes and the onset of contractions the diagnosis is based ^[4].

Clinical Risk factors associated with increase the risk of PROM; which include are intrauterine infection, previous history of PPROM or preterm labour, cervical insufficiency, polyhydramnios, multiple gestation, trauma, fetal malformations, and amniocentesis also lower socioeconomic status, cigarette smoking, and sexually transmitted infections are commonly associated with PROM. Pre-labour rupture of membranes is linked with many complications that associated with maternal and fetal morbidity and mortality, some of these complications can occurs immediate such as cord prolapse, cord compression and placental abruption bleeding and then Disseminated intravascular coagulopathy and others Risks Delayed include maternal and neonatal infection ^[1,5].

Initial assessment of women presenting with PROM should include confirmation of the diagnosis, starting by the

history that should analyze the time of rupture, amount and consistency of the fluid leakage beside essential to establish an accurate gestational age to appropriately manage the patient, then followed by examination starting from the vital signs to identifying infectious cause maternal tachycardia and fever can point to probable infection, then Abdominal examination to exclude and evaluated fundal tenderness for possible chorioamnionitis or placental abruption, at the last vaginal examination by sterile speculum (SSE), Digital vaginal examination should be avoided unless immediate induction is planned as this has been shown to increase the rate of neonatal infection, on SSE first visualizing the cervix, the dilation and effacement should be noted then have the patient Valsalva or cough to see whether any pooling is present. For the investigations complete blood count, c reactive proteins and urinalysis with culture and sensitivity should be ordered, Ultrasound to evaluate the Amniotic fluid index, fetal presentation and estimated fetal weight should be determined. If no previous ultrasounds, gestational age can be confirmed ^[1,5].

According to the guideline that developed and proved by Royal Australian and New Zealand College of Obstetricians and Gynecologists 2017, the management of PROM can categorized into Active and Expectant management, for the first by induction and acceleration is associated with advantages of reduced maternal infective morbidity and increased maternal satisfaction without increasing caesarean section or operative vaginal birth, fewer infants are admitted to NICU and fewer infants require postnatal antibiotics. Nevertheless, following preliminary assessment, some women and/ or clinicians may reasonably elect for a short trial of expectant management in highly selected and well supervised cases ^[6].

The objective is to assess the management and immediate maternal & neonatal outcomes of pre-labour rupture of membranes at term.

II. MATERIALS AND METHODS

➤ Study Design and Sample Size:

A cohort prospective facility based study conducted at obstetrics & gynaecology emergency departments, Ompada teaching hospital. All pregnant women complained of drainage of liquor at or beyond 37 weeks were included in the study.

Total coverage of all the study population in the study area had been performed and data collected through direct face to face interviews after obtained informed consent by structured questionnaire filled, which included; independent variables were socio-demographic characteristics of the participants (age, parity, education level, weight, residency), risk factors of PROM (antenatal follow-up, history of similar condition, history of preterm delivery, medical problems, number of fetus in current pregnancy, ultra sound finding, history of recent infections and history of trauma), recent history of diagnosis (drainage of liquor, PV done before admission, history of fever, history of abdominal pain, history of change or offensive odour, pulse rate on admission, temperature, abdominal tenderness, cervix dilatation and total white blood cells) and management of PROM (use of Antibiotics, time of antibiotics given, type of antibiotic given, plan for delivery, immediate delivery, if emergency caesarean section cause, if Acceleration of labour - interval of delivery, change of plan to emergency Caesarean after decision of Acceleration of labour, cause of change plane after decision of induction of labour, if Expectant management interval of delivery, change of plan after expectant decision and new plan, cause of change plan after decision of expectant management, postpartum maternal health, if maternal ill, early neonatal health, if ill-admitted to the nursery, if admitted to the nursery and condition on discharge).

➤ *Data Analysis:*

The data was computerized Microsoft excel version 2015 and analyzed by using Statistical Package for Social Sciences software, version 23.0 (IBM SPSS Inc., Chicago, IL) was used. Both descriptive and inferential statistics involving Fisher's Exact Chi square Test was used to present the results. A p value of less than 0.05 was considered statistically significant.

➤ *Ethical Considerations*

Ethical approval obtained from research ethics committee department in Sudan Medical Specialization Board (SMSB), ethical Committee of the research and publications department in Education Development Center (EDC) and from general director of Ompada teaching hospital. Verbal inform consent was obtained from participants after explained the objectives of the study and that their participation is on voluntarism and none rock solid for participation.

III. RESULTS

A total of 150 women were included in the final analysis presented with rupture membrane at term, the mean age of included women was (28.5) range between (18 years up to 37 years). (57.3%) of them from rural area and (42.7%) of them from urban areas. The education levels categorized into four groups: (illiteracy: 20.7%) (Primary school level: 38%) (Secondary school level: 37.3%) (University level: 4%). Also, according to parity (30.7%) of the cases were primigravids, multigravidas (45.3%) and (24%) of them were grand multiparas. The body mass index

measurement classified into average weight (52%), Obese (32.7%) and over weigh (15.3%). **Table 1**

In addition, the risk factors that contributed in increases the risk of drainage of liquors which include 19.3% of participants were un-follow antenatal care, 32.7% had pervious of rupture membranes and 20.7% had previous history of preterm delivery on the past. The most common medical conditions of the patients categorized into diabetes, hypertension and thyroid problems. About 94% of the cases had singleton pregnancy. On history of recent infections that may contribute in rupture membranes (19.3%) of the cases said they had upper respiratory tract infections in the last few days of admission, (50.7%) with history of lower urinary tract infections, (4.7%) with history of malaria, and (25.3%) denied to have any form of infections or symptoms. On the other hand, for the risk of (PROM), (97.3%) of the cases were free from history of exposure to trauma and (2.7%) of the cases with positive history of trauma. **Table 2**

For the diagnosis of pre-labour rupture of membrane according to history, examination and investigation; the majority of the cases had history of drainage of liquor within 12 hours (40%) and had being examined the vaginal before admission at home by midwives or when they presented complain of Labour pain (67.3%). About 63.3% of the cases complained of history of fever before arriving to hospital, 24.7% of them said they had history of abdominal pain and 72% of the cases had no history of changes. Examination and investigation to reach the diagnosis of rupture membrane and is it associated with chorioamnionitis; 53.3% of the cases showed normal pulse rate at the first examination on admission, 34% with high grade fever between (38c-40c), 17.3% of them had abdominal tenderness at the time of admission and 90% of the cases presented with dilated cervix examined by fingers or speculum. According to investigation the full blood count had being measured and 53.3% of the cases had increased in total white blood cells between (more than 11.000 and 41.3% of them had serum C reactive protein was more than 6. **Table 3**

Regarding to antibiotics was used on management, about 90.7% of the participants received antibiotic, 84.6% from those who received the antibiotics were being given injectable cephalosporin's and 48.6% of them received antibiotics between 12–24 hours from drainage of liquor. **Table 4**

In addition, about 17.3% of the cases had being counseled and given the expectant management choice for delivery, those with no suspect or diagnosis of chorioamnionitis, normal ultrasound finding, and free from others obstetrical or medical complications, 42.3% of them take their full chance to delivered normally and 63.6% of them had interval of delivery between 6hours up to 12hours, (27.3%) of the cases with expectant management delivered between 12hours and 24 hours with no developing chorioamnionitis or complications and (9.1%) delivered in the first 6hours from admission. (57.7%) of the cases that had taken decision of expected management for them

changed either by acceleration (40%) or delivered by cesarean section (60%) according to their conditions and obstetrical complications that occurred the most common was failure of progress (60%) , developing chorioamnionitis (33.3%) and the less (6.7%) developed abruption placenta. Management by Termination and delivery, the decision of immediate termination or delivery was the common (82.7%) according to their conditions at the time of admission. About (33.8%) of the cases terminated and delivered by caesarian section, the indications of the caesarian section were (28.6%) chorioamnionitis with un favorable cervix for acceleration , (26.2%) with previous scar, (11.9%) fetal distress on admission, (4.8%) with abruption placentae on admission and (28.6%) was others indications like breech presentation, macrosomia, oligohydramnios. About (66.2%) of the cases had being managed by acceleration by using of oxytocin in patients presenting with favorable dilated cervix. So, the total number of the patients given the management by acceleration were 82 cases, (68) of them (82.9%) completed their delivery with interval between (less than 6hours 60.3%), (6hours to 12hours 38.2%) and (12hours to 24 hours 1.5%), while 14 cases (17.1%) the decision had changed to emergency caesarian section according to their indications (7.1% developed chorioamnionitis), (28.6% with foetal distress) and (64.3% with failure of progress). Table 5

According to maternal health and conditions within the first 24 hours after delivery (52%) of them were on good conditions through history and examinations, while 48% of them were ill due to sepsis 69.4%, postpartum hemorrhage 16.7%, sepsis with postpartum hemorrhage 4.2%, malaria 5.6% and preeclampsia or eclampsia 4.2%). According to the neonatal conditions, about 81.3% of them delivered alive, 7.3% were still birth delivery and 11.3% confirmed intra uterine foetal death. From a lived neonate, 81.1% admitted to nursery for prophylactic antibiotics (47.5%), diagnosis of sepsis (38.4%), diagnoses with respiratory distress syndrome (8.1%) or maternal complications like mothers with diabetes (6.1%). On admission to nursery, 96% of the cases admitted to nursery discharged within good conditions, while (4%) developed poor prognosis and were early neonatal death. Table 6

Our most concern in this study was the postpartum conditions of developing symptoms and signs of the sepsis, and the result showed that (50) of participants developed

sepsis and (3) cases developed sepsis with postpartum hemorrhage. According to their interval of drainage of liquor (10) cases came within duration less than 12 hours, (21) case of sepsis and (1) case of sepsis with postpartum hemorrhage came within interval between 12hours and 24 hours, (14) case of sepsis and (1) case of sepsis with postpartum hemorrhage presented within interval between 24hours to 48 hours and (5) cases of sepsis with (1) case of sepsis associated with postpartum hemorrhage presented within interval more than 48hours. Table 7

From the total population 50 case developed signs and symptoms of sepsis after delivery, 41 from them their total white blood cells were more than 11,000 from the time of admission. According to C reactive protein, 34 cases from who developed sepsis admitted with ratio more than 6mg/dl. Regarding to Time of antibiotics used depend on the time of arrival the patient to emergency department with complain of (PROM). Our study showed that 50 case that developed sepsis from them 31 cases received antibiotics within interval of less than 24 hours and 19 cases developed sepsis received antibiotics after 24 hours from (PROM). There is no statistically significant difference between maternal sepsis with TWBC, C-reactive protein, time and type of antibiotics given (p value 0.132, 0.298, 0.280 and 0.066 respectively), the mean difference is significant at the P value 0.05 level. Table 8

Our study showed that there is a no statistically significant difference between postpartum maternal health and Plan for delivery (p value 0.133), the mean difference is significant at the P value 0.05 level. Table 9

Our data analysis showed that from (50) women that developed sepsis after delivery (45) case was delivered by immediate delivery either by Acceleration or by Caesarian section and (5) cases were delivered by Expectant management. Table 10

According to neonatal health (26) alive neonates were delivered by Expectant management and (96) Delivered by Immediate delivery. The fresh still birth were (11) all of them delivered by immediate delivery either by Acceleration or by caesarean section. The diagnosed intra uterine foetal death (IUFD) were (17). Table 11

Table 1 Socio-Demographic Data of Participant (n=150).

Variables	Mean	Std. Deviation	Minimum - Maximum
Age	28.5	4.35	18 - 37
		Number	%
Residency	Rural	86	57.3
	Urban	64	42.7
Education level	Literacy	31	20.7
	Primary school	57	38
	Secondary school	56	37.3
	University	6	4
Parity	Prim gravida	46	30.7
	Multigravida	68	45.3
	Grand multipara	36	24
	Average weight	78	52

Body mass index	Over weight	49	32.7
	Obese	23	15.3

Table 2 Risk Factors for PROM in Ompada Population (n=150).

Variables		Number	%
Antenatal follow-up	Yes	121	80.7
	No	29	19.3
History of similar condition	Yes	49	32.7
	No	101	67.3
History of preterm delivery	Yes	31	20.7
	No	119	79.3
Medical problems	Diabetes	13	8.7
	Hypertension	17	11.3
	Thyroid	1	0.7
	Free	119	79.3
Number of fetus in current pregnancy	Single	141	94
	Multiple	9	6
Ultra sound finding	Polyhydramnios	12	8
	Anhydromin	2	1.3
	Abortion	2	1.3
	Other	1	0.7
	no Abnormal finding	133	88.7
History of recent infections	URTIS	29	19.3
	LUTS	76	50.7
	Malaria	7	4.7
	no history	38	25.3
History of trauma	Yes	4	2.7
	No	146	97.3

Table 3 History of Participant's Diagnosis (n=150).

Variables		Number	%
Drainage of liquor	Within 12 hrs.	60	40
	12 – 24 hrs.	58	38.7
	24 – 48 hrs.	25	16.7
	> 48 hrs.	7	4.7
PV done before admission	S. speculum	49	32.7
	Gloves	101	67.3
History of fever	Yes	95	63.3
	No	55	36.7
History of abdominal pain	Yes	37	24.7
	No	113	75.3
History of change or offensive odour	Yes	42	28
	No	108	72
Pulse rate on admission	Normal	80	53.3
	tachycardia	70	46.7
Temperature	Less than 37c	99	66
	38c – 40c	51	34
Abdominal tenderness	Yes	26	17.3
	No	124	82.7
Cervix dilatation	Yes	135	90
	No	15	10
Total white blood cells	400 -11,000	70	46.7
	11,000 – 15,000	75	50
	15,000–20,000	5	3.3
C reactive protein on admission	Less than 6mg/dl	88	58.7
	More than 6mg/dl	62	41.3

Table 4 Management of Participants used Antibiotics (n=150).

Variables	Frequency	Percent %	
Use of Antibiotics	Yes	136	90.7
	No	14	9.3
Time of antibiotics given (n=136)	Less than 12 hrs.	38	27.9
	12 – 24 hrs.	66	48.5
	More than 24 hrs.	32	23.5
Type of antibiotic given (n=136)	Erythromycin	21	15.4
	Cephalosporin's	115	84.6

Table 5 Mode of Delivery for the Patients Presenting with Rupture Membrane at Term (n=150).

Variables	Number	%	
Plan for delivery	Expectant	26	17.3
	Termination	124	82.7
Expectant of pregnancy (n=26)			
Change of plan after expectant decision	Yes	15	57.7
	No	11	42.3
If Expectant management interval of delivery (n=11)	Less than 6 hrs.	1	9.1
	6 – 12 hrs.	7	63.6
	12 – 24 hrs.	3	27.3
New plan of Change from expectant decision (n=15)	acceleration	6	40
	C emergency	9	60
Cause of Change from expectant decision (n=15)	Chorioamnionitis	5	33.3
	Placental abruption	1	6.7
	Failure of progress	9	60
Termination of pregnancy (n=124)			
If termination of pregnancy	Emergency of C/S	42	33.8
	Acceleration oxytocin	82	66.2
If emergency Caesarean Section – Causes (n=42)	chorioamnionitis	12	28.6
	Placental abruption	2	4.8
	Fetal distress	5	11.9
	Previous scar	11	26.2
	Others	12	28.6
	Change of plan to emergency Caesarean after decision of Induction of labor (n=82)	Yes	14
Cause of change plane after decision of induction of labor (n=14)	No	68	82.9
	Chorioamnionitis	1	7.1
	Failure of progress	9	64.3
If Induction of labor – interval of delivery (n=68)	fetal distress	4	28.6
	Less than 6 hr.	41	60.3
	6 – 12 hr.	26	38.2
	12 – 24 hr.	1	1.5

Table 6 Maternal and Neonatal Health Outcomes in Patients Presenting with Rupture Membrane at Term (n=150).

Variables	Number	%	
Maternal health			
Postpartum maternal health	Good	78	52
	ILL	72	48
	Total	150	100
If maternal ill (n=72)	sepsis	50	69.4
	PPH	12	16.7
	PPH and sepsis	3	4.2
	Malaria	4	5.6
	preeclampsia	3	4.2
Neonatal health			
Early neonatal health	Alive	122	81.3
	Still birth	11	7.3
	IUFD	17	11.3
	Yes	99	81.1

If ill – admitted to the nursery (n=99)	No	23	18.9
If admitted to the nursery (n=99)	For prophylactic antibiotic dose	47	47.5
	Sepsis	38	38.4
	Respiratory distress syndrome	8	8.1
	Mother DM	6	6.1
Condition on discharge	alive	95	96
	Died	4	4

Table 7 Statistical Summary of Drainage of Liquor with Maternal ill (n=72)

If maternal ill			
	Sepsis	PPH and sepsis	Other disease
Within 12 hr.	10	0	11
12 – 24 hrs.	21	1	6
24 – 48 hrs.	14	1	2
> 48 hrs.	5	1	0
Total	50	3	19

Table 8 Association of Total White Blood Cells, C Reactive Protein, Type and Time of Antibiotics given with Maternal ill (n=72)

		Maternal illness		
		Sepsis	Other disease	P value (Fisher's Test)
C reactive protein on admission	Less than 6	16	10	0.298
	More than 6	34	12	
Total WBC	less than 11,000	9	8	0.132
	More than 11,000	41	14	
Type of antibiotic given	Erythromycin	2	4	0.066
	Cephalosporin's	48	18	
Time of antibiotic	Less than 24	31	17	0.280
	More than 24	19	5	

* The mean difference is significant at the P value 0.05 level.

Table 9 Association of Plan for Delivery and Postpartum Maternal Health (n=150)

	Postpartum maternal health		
	Good	Ill	P value
Expectant	17	9	0.133
Termination	61	63	

* The mean difference is significant at the P value 0.05 level.

Table 10 Statistical Summary of Maternal ill with Plan for Delivery (n=150)

Variables	Plan for delivery	
	Expectant	Termination
Sepsis	5	45
PPH	3	9
PPH and sepsis	0	3
Malaria	0	4
preeclampsia	0	3
Total	8	64

Table 11 Statistical Summary of Early Neonatal Health with Plan for Delivery (n=150)

Variables	Plan for delivery	
	Expectant	Termination
Alive	26	96
Still birth	0	11
IUFD	0	17
Total	26	124

IV. DISCUSSION

Results indicated that the majority of maternal parity (30.7%) were multigravidas with body mass index classified

into average weight (52%), Obese (32.7%) and over weigh (15.3%). The latency of maternal completed their delivery with interval period less than 6 hours 60.3% followed by 6 - 12 hours (38.2%) and only 1.5% of them were delivered

between 12 hours to 24 hours 1.5%, which were similar with some consistent to international studies reported by Khodry *et al* ^[7], of the participants 39.02% were normal weight, 34.15% overweight and 18.29% obese and by Jayashalini S ^[8], the mean latency period from PROM to delivery was 12.8 ± 5.6 hours.

In addition, the most common medical conditions of the patients categorized into diabetes, hypertension and thyroid problems. About 94% of the cases had singleton pregnancy. On history of recent infections that may contribute in rupture membranes (19.3%) of the cases said they had upper respiratory tract infections in the last few days of admission, (50.7%) with history of lower urinary tract infections, (4.7%) with history of malaria, and (25.3%) denied to have any form of infections or symptoms. On the other hand, for the risk of (PROM), (97.3%) of the cases were free from history of exposure to trauma and (2.7%) of the cases with positive history of trauma, a value that was the same observation and consistent with internationally studies reported by Khodry *et al* ^[7], diabetes and hypertension was present in 7.32%, by Wolde *et al*,^[9] history of abortion, urinary tract infection, antepartum hemorrhage and what chewing in the current pregnancy were all significantly associated with pre-labor rupture of membrane and by Shakya *et al* ^[10], the frequently associated maternal risk factors were history of prior abortion (19.5%), urinary tract infection (8.5%) and antecedent coitus (7, 8.5%). These variation may be due to difference in awareness in health care follow up and geographical area of studies.

Furthermore, about 66.2% of the pregnant women had being managed by acceleration by using of oxytocin in patients presenting with favorable dilated cervix, while 17.1% the decision had changed to emergency caesarian section according to their indications, which were due to developed chorioamnionitis, foetal distress and failure of progress, the findings support and agreed the suggestion of previous research studies reported by Khodry *et al* ^[7], less than half of maternal were descried to caesarean delivery 48.78% and by Jayashalini S ^[8], about 72% of women delivered vaginally, while 28% required cesarean delivery due to fetal distress (11%), failure to progress (9%) and chorioamnionitis (5%).

Moreover, the maternal health and conditions within the first 24 hours after delivery, about 48% of them were ill which were developed sepsis, postpartum hemorrhage, sepsis with postpartum hemorrhage, malaria, preeclampsia and eclampsia, which was the same observation and consistent with internationally studies reported by Khodry *et al* ^[7], non-viable pregnancies had earlier ROM and delivery ages, higher caesarean rates and more chorioamnionitis and maternal sepsis, by Jayashalini S ^[8], Chorioamnionitis (7%) was the most common maternal complication, significantly increasing when PROM lasted >24 hours (29% vs. 3%, $p=0.004$) and by Naveen Chandra *et al* ^[11], the estimated occurrences of unfavorable maternal was 24.5 with C-reactive protein (CRP) was positive among 44.0% of the mothers and the most complication of maternal were fever, puerperal sepsis, wound infection and postpartum

hemorrhage. Early premature deliveries make PROM management difficult. Variations in medical procedures need customized care.

In the other hand, about 81.3% of neonatal delivered alive, while 7.3% still birth delivery and 11.3% confirmed intra uterine foetal death. From a lived neonate, 81.1% admitted to nursery for prophylactic antibiotics (47.5%), diagnosis of sepsis (38.4%), diagnoses with respiratory distress syndrome (8.1%) or maternal complications like mothers with diabetes (6.1%), a value that was the same observation and consistent with internationally studies reported by Khodry *et al* ^[7], neonatal survivors had higher, birth weights, pulmonary hypoplasia and sepsis rates than non-survivors, by Jayashalini S ^[8], about 16% of neonate required NICU admission, primarily due to respiratory distress syndrome (8%) and neonatal sepsis (6%), by Wolde *et al*,^[9] of all neonates 24.64% were delivered with low birth weight and Naveen Chandra *et al* ^[11], the estimated occurrences of unfavorable neonatal was 28.0% with the main complication of neonatal were birth asphyxia, neonatal septicemia and convulsion, while, which were disagree and consistent with previous international study reported by Shakya *et al* ^[10], about 83% of neonates had complications. The incidence of neonatal sepsis following PROM in present study was 6.1%. The most frequently occurring complication were neonatal sepsis, meningitis, respiratory distress syndrome and perinatal death.

On admission to nursery, 96% of the cases admitted to nursery discharged within good conditions, while (4%) developed poor prognosis and were early neonatal death, which were consistent and markedly decrease with previous international studies reported by Jayashalini S ^[8], perinatal mortality was higher with PROM >24 hours and by Wolde *et al*,^[9] the overall perinatal mortality rate was 10.1%. These variation may be related to the availability of resources, healthcare infrastructure and public health policies greatly influence the present of these complication.

V. CONCLUSIONS

From the others risk factors that contributed on development of PROM, lower urinary tract infections were the most obvious factor. The mode of delivery is either planned early induction or expectant management, depend on the conditions of the patients and the cervical favourability, with increase rates of caesarean section in expectant. Early acceleration and induction are recommended to decrease the interval of PROM and the risk of sepsis. Early diagnosis and prompt management is required for better outcome for mother and baby.

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