

How to Cite:

Sattar, F., Anwar, S., Bashir, H., Rafique, I., Rehan, S., Saleem, U.-A., & Ahmad, S. (2022). Frequency of pyrexia among women presenting with premature rupture of membranes. *International Journal of Health Sciences*, 6(S10), 998–1003. <https://doi.org/10.53730/ijhs.v6nS10.13764>

Frequency of pyrexia among women presenting with premature rupture of membranes

Fehmida Sattar

Assistant Professor Obs/gyn Shaikh bin Zayed Hospital Quetta

Sadia Anwar

Assistant Professor obs/gyn Mufti Mehmood hospital D.I.Khan
Corresponding author email: sasajjaddr@gmail.com

Humaira Bashir

Registrar obs/gyn Muftimehmood hospital D.I.Khan

Irum Rafique

Medical officer THQ Hospital Kabirawala

Saima Rehan

Registrar obs/gyn Muftimehmood hospital D.I.Khan

Umme-Aimen Saleem

Registrar obs/gyn Women and children hospital D.I.Khan

Sajjad Ahmad

Professor of Pathology Gomal medical college, D.I. KHAN

Abstract---Background: Premature rupture of membranes (PROM) is defined as the rupture of fetal membranes before the onset of labor. PROM complicates 8 – 10% of pregnancies, contributing to maternal and perinatal mortality and morbidity. Maternal pyrexia is a sign observed in women with PROM indicating intrauterine infection. Objective: To determine the frequency of pyrexia among women presenting with premature rupture of membranes. Material And Methods: Department of Obstetrics and Gynecology, Khyber Teaching Hospital, Peshawar. It was a Descriptive (cross-sectional) study conducted from Jan 13, 2016 to July 12, 2016. Sample size was 369, keeping 4% proportion of pyrexia among women with PROM, 95% confidence interval and 2% margin of error under WHO sample size calculation. Sampling Technique was non-probability consecutive sampling Results: In this study, 369 women with premature rupture of membranes were observed. Average age was 29.53+6.3SD. The

pyrexia among women presenting with premature rupture of membranes was observed in 10.57 %. Conclusion: Maternal pyrexia after PROM is more common in older women.

Keywords---frequency, pyrexia, pregnancy, premature, rupture of membranes.

Introduction

Premature rupture of membranes (PROM) is defined as the rupture of fetal membranes before the onset of labor ¹. PROM occurs in 8 – 10% of pregnancies, and complicates nearly one - third of preterm births ². PROM and preterm PROM (PPROM), has been associated with chorioamnionitis, umbilical cord compression and increased risk of perinatal mortality ³. Majority of women with PROM undergo labor within a week ⁴. The birth weight of the fetuses ranges between 1 kg to 2.5 kg while those weighing less than 1000 g constitute less than 0.5%. Preterm PROM is responsible for 30% of all preterm deliveries ⁵ The exact cause of PROM is unknown but a multifactorial association has been made with the condition which could be either maternal or fetal in origin or both. The most common aetiological factor is clinical or subclinical Intrauterine infection ⁴. Other factors are malnutrition, poor socioeconomic status, lack of antenatal care, use of tobacco, smoking and other drug addiction ^{6,7}. The diagnosis and evaluation of PROM varies and is based on clinical examination of amniotic fluid from vagina during speculum examination, observing the fern pattern at microscopy, and biochemical tests⁸, including nitrazine paper test, alpha fetoprotein, insulin-like growth factor binding protein-1, human chorionic gonadotropin, fibronectin, and amniSure placental alpha macroglobulin-1 tests.⁹. The ultimate complication chorioamnionitis can be detected by the following criteria: a) purulent vaginal discharge; b) maternal pyrexia with uterine tenderness; or c) fetal tachycardia; d) non-reassuring fetal heart tracing on the cardio-tocogram.¹⁰ Delivery is indicated after clinical chorioamnionitis, fetal death or advanced labor⁷ Many women develop pyrexia or fever after PPRM. The present study is designed to determine the frequency of pyrexia among women presenting with PROM. This study will definitely help to highlight the magnitude of problem which will be useful guide for future research and management for women with PROM and pyrexia.

Objective

To determine the frequency of pyrexia among women presenting with premature rupture of membranes.

Materials and Methods

This Descriptive (Cross Sectional) Study was conducted in obstetrics and gynecology department, Khyber Teaching Hospital, Peshawar Sample size was 369, keeping 4% proportion of pyrexia among women with PROM, 95% confidence interval and 2% margin of error under WHO sample size calculation. Sampling technique was non probability (Consecutive) sampling and study duration was from Jan 13, 2016 to July 12, 2016. All women presenting with PROM, of

reproductive age group (15-45 years) were included in study while women with any other cause or site of infections based on history and physical examination were excluded from study.

A written informed consent was taken from women who fulfilled the inclusion criteria. A detailed history and obstetrical examination was performed. A standard thermometer was used to measure the rectal temperature of the woman with PROM. Three separate readings were taken 5 minutes apart and an average of the three were taken as body temperature of the woman with PROM. They were labelled as having pyrexia or no pyrexia. Maternal body temperature of equal to or more than 99° F was taken as having pyrexia. All the data like age, parity, gestation etc was recorded and entered in a predesigned proforma. All data were entered and analyzed in SPSS version 17.0. Mean + SD were calculated for quantitative variables like age. Frequencies and Percentages were calculated for categorical variables like pyrexia. Pyrexia was stratified among age to see the effect modification. The results were presented in tabulation and graphs.

Results

A total of 369 women presenting with premature rupture of membranes were enrolled and observed for pyrexia. Patient's age was divided in four groups. About 41(11.1%) patients were of the age less than or equal to 20 years. One hundred and thirty-nine (37.7%) patients were in the age range of 21-30 years, 179 (48.5%) were in age group 31-40 years and 10 (2.7%) presented at age more than 41 years. The average age of the study population was 29.53+6.3 SD. (Table 1) and the most common age group presenting with PPRM was 31 to 40 yrs. The pyrexia was observed in 39(10.57%) women presenting with premature rupture of membranes while 330 (89.43%) women were free of pyrexia with ruptured membranes. Age wise distribution of pyrexia was a little bit higher in older ages compared to younger ages although it was statistically insignificant with p-value=0.987. The patients having age less than or equal to 20 years of age have pyrexia of 9.8%, age group 21-30 years had 10.1%, 31-40 years age groups had 11.2% and patients having more than 40 years of age have 10% pyrexia.(Table 2)

Table 1
Age wise distribution of patients (n=369)

	Frequency	Percent	Mean +SD
<= 20.00	41	11.1	29.53+6.3SD
21-30.00	139	37.7	
31.00 - 40.00	179	48.5	
41.00+	10	2.7	
TOTAL	369	100	

Table 2
Age wise distribution of pyrexia (n=369)

Age	Pyrexia yes	Pyrexia no	Total	P value
= <20	4 9.8%	37 90.2%	41 100%	

21 -30	14 10.15	125 89.9%	139 100%	0.987
31-40	20 11.2%	159 88.8%	179 100%	
>41	1 10%	9 90%	10 100%	
Total	39 10.6%	330 89.4%	369 100%	

Discussion

Premature rupture of the membranes (PROM) is defined as rupture of fetal membranes before the onset of labor. This condition occurs in 5– 10% of all pregnancies. Majority of the of cases of PROM occur in term patients with greater risk of maternal and fetal complications.¹¹ Chorioamnionitis is directly related to perinatal mortality and morbidity as bacterial colonization can affect the tensile strength of fetal membranes predisposing to rupture. Sbarra and colleagues¹² demonstrated that growth of *Escherichia coli* and group B streptococci on the decidual surface can significantly weakens the tensile strength of the fetal membranes compared with uninfected control membranes.

Schoonmaker and coworkers¹³ demonstrated that exposure of fetal membranes to group B streptococci, *Staphylococcus aureus*, or activated neutrophils and neutrophil elastase resulted in significant decreases in membrane strength and elasticity. Johnson and coworkers¹⁴ evaluated 8320 women of varying gestational ages who had PROM. In women with prolonged rupture of membranes at 37 weeks' gestation or above, the incidence of intrapartum fever was significantly high. There was an increase rate of perinatal mortality due to stillbirths in women with prolonged rupture of membranes greater than 72 hours. In a study by GÜNGÖRDÜK K et al ¹⁵, 4% of patients presenting with PROM had pyrexia¹¹. Women are checked frequently (usually every 4 hours) for signs of infection. The clinical features of in utero infections are fever (> 38 °C/100.5 °F), uterine pain, maternal tachycardia (>100 beats per minute), fetal tachycardia (>160 beats per minute), or foul-smelling vaginal discharge ¹⁶, while leucocytosis can predict infection but it could be normally high in labor.¹⁷ All cases with suspected or confirmed chorioamnionitis are induced to end pregnancy and broad spectrum antibiotics are initiated. Mode of delivery should be based on obstetrical grounds by clinicians. There is inconclusive data to suggest for home monitoring rather than continued hospitalization in women with PPROM. It is reasonable to keep the woman in hospital for at least 48 hours for monitoring of clinical features of infection¹⁸. The management should be individualised and women should be instructed to take regular temperature recordings at home every 4–8 hourly. Maternal and fetal assessment should be continued until alarming clinical features develop.¹⁹⁻²⁰

Conclusion

This study concludes that maternal pyrexia in patients with ruptured membranes is a sign of chorioamnionitis. Maternal pyrexia was observed in 10% of women with higher rates in older women in age group 31 to 40 yrs.

References

1. Di Renzo GC, Roura LC, Facchinetti F, Antsaklis A, Breborowicz G, Gratacos E et al. Guidelines for the management of spontaneous preterm labor: identification of spontaneous preterm labor, diagnosis of preterm premature rupture of membranes, and preventive tools for preterm birth. *J Mat Fet Neon Med.* 2011;24(5):659-667.
2. Kacerovsky M, Musilova I, Andrys C, Hornychova H, Pliskova L, Kostal M et al. Prelabor rupture of membranes between 34 and 37 weeks: the intraamniotic inflammatory response and neonatal outcomes. *AJOG.* 2014;210(4):325-e1.
3. Frenette P, Dodds L, Armson BA, Jangaard K. Preterm prelabour rupture of membranes: effect of latency on neonatal and maternal outcomes. *JOGC.* 2013;35(8):710-717.
4. Theron GB. Preterm rupture of membranes. In: Cronje HS, Cilliers JBF, Pretorius MS. *Clinical Obstetrics: a Southern African perspective.* 3rd Ed. Pretoria. Van Schaik;2011.p.204-10.
5. Osaikhuwuomwan JA, Okpere EE, Okonkwo CA, Ande AB, Idogun ES. Plasma vitamin C levels and risk of preterm prelabour rupture of membranes. *Arch Gynecol Obstet.* 2011;284:593-7. 79
6. Dekker GA, Lee SY, North RA, McCowan LM, Simpson NA, Roberts CT. Risk factors for preterm birth in an international prospective cohort of nulliparous women. *PLOS One* 2012. [Accessed July 27, 2015]. Available at; <http://journals.plos.org/plosone/article?id=10.1371/journal.pon.e0039154>
7. Al Riyami N, Al-Ruheili I, Al-Shezaw F, Al-Khabori M. Extreme preterm premature rupture of membranes: risk factors and foeto maternal outcomes. *Oman Med J.* 2013;28(2):108.
8. Wiberg-Itzel E, Pettersson H, Cnattingius S, Nordstrom L. Prediction of time to spontaneous onset of labour with lactate concentration in vaginal fluid in women with suspected preterm prelabour rupture of the membranes. *Int J Obstetr Gynaecol.* 2009;116:62-6.
9. Kariman N, Tolouih, Azarhous R, Alavi MH, Diagnostic values of urea and creatinin values of cervicovaginal discharges in determining of premature rupture of membranes in Iran in2008..*Res Med.* 2010;33:222-8.
10. Caughe B, Robinson N, Norwitz R. Contemporary Diagnosis and Management of Preterm Premature Rupture of Membranes. *Int J Gynecol Obstetr.* 2010;1:11–22 80
11. Duff P, Huff R, Gibbs RS. Management of premature rupture of membranes and unfavorable cervix in term pregnancy. *Obstet Gynecol.* 1984;63:697
12. Sbarra AJ, Thomas GB, Cetrulo CL. Effect of bacterial growth on the bursting pressure of fetal membranes in vitro. *Obstet Gynecol.* 1987;70:107
13. Schoonmaker JN, Lawellin DW, Lunt B. Bacteria and inflammatory cells reduce chorioamniotic membrane integrity and tensile strength. *Obstet Gynecol.* 1988;74:590
14. Johnson JWC, Daikoku NH, Niebyl JR. Premature rupture of the membranes and prolonged latency. *Obstet Gynecol.* 1981;57:547 96
15. Güngördük K, Asicioglu O, Besimoglu B, Güngördük OC, Yildirm G, Ark C et al. Labor induction in term premature rupture of membranes: comparison between oxytocin and dinoprostone followed 6 hours later by oxytocin. *AJOG.* 2012;206(1):60-e1

16. Alan DC. Current Diagnosis & Treatment : Obstetrics & Gynecology. Late Pregnancy Complication, section: premature rupture of membranes. New York: McGraw-Hill Medical; 2013.p. Chapter 14
17. Cunningham, F. Williams Obstetrics.. pp. Chapter 23: Abnormal Labor. New York: McGraw-Hill Education; 2014.p153- 9
18. Ismail MA, Zinaman MJ, Lowensohn RI, Moawad AH.The significance of C-reactive protein levels in women with premature rupture of membranes. Am J Obstet Gynecol. 1985;151:541-4.
19. Carlan SJ, O'BrienWF, Parsons MT, Lense JJ. Preterm premature rupture of membranes: a randomized study of home versus hospital management. Obstet Gynecol 1993;81:61-4.
20. Romem Y, Artal R. C-reactive protein as a predictor for chorioamnionitis in cases of premature rupture of the membranes.Am J Obstet Gynecol. 1984;150:546-50. 97