

A Study of Risk Factors Associated with Preterm Labour at a Tertiary Care Centre in Jodhpur, Western Rajasthan

Dr. Rakesh Choudhary¹, Dr. Rekha Jakhar²

¹3rd Year PG Student,

²Sr. Professor

Abstract: ***Objective:** To identify different associated risk factors of preterm labour and their role in preterm births. **Study design:** It is a prospective hospital based observational study done in Department of Obstetrics and Gynaecology in our hospital for a period of 4 months from May 2019 to August 2019 taking 300 cases delivered in these months. **Results:** The incidence of preterm birth is found to be 8.28%. Looking at the onset, it is found that incidence of spontaneous preterm labour is 63.33%, Preterm Premature Rupture of Membranes is 24.00% and iatrogenic preterm birth is 12.67%. It is found that the most common risk factors associated with preterm births is maternal genitourinary infections (incidence 29%). Two other more important risk factors with approximately equal incidences are birth interval less than 1.5 years (incidence 27.67%), low socioeconomic status (incidence 27.34%). Other important risk factors include prior preterm delivery (incidence 17.0%), bleeding per vaginum (BPV) during first trimester (incidence 16.0%), age less than or equal to 20 years (incidence 15%) and habit of tobacco chewing (incidence 14.67%). **Conclusion:** Mostly, the risk factors of preterm births are modifiable and hence preventable. Therefore, preconceptional counseling has a great role to play in bringing down the incidence of preterm labour.*

1. Introduction

Preterm infants are those delivered before 37 completed weeks, that is, ≤ 36 weeks. This definition, which has now been in use for almost 40 years, was first promulgated in 1976 by the World Health Organization (WHO) and the International Federation of Gynecology and Obstetrics (FIGO) (Williams 25th ed). There are sub-categories of preterm birth, based on gestational age: extremely preterm (<28 weeks), very preterm (28 to 31 weeks) and moderate to late preterm (32 to 37 weeks) (WHO, 2013). Beck et al defined preterm birth as "childbirth occurring at less than 37 weeks or 259 days of gestation" (Beck et al., 2010).

The three different modes of clinical presentation are: preterm labor (PTL), preterm premature rupture of membranes (PPROM) and medically indicated (iatrogenic) preterm birth. PTL and PPROM are often combined and called spontaneous preterm birth (Savitz, Blackmore, & Thorp, 1991; Tucker et al., 1991; Williams et al., 1992).

The incidence of preterm labour in India is 11-14%. The incidence of preterm labour between 32 and 36 weeks of gestation is 84% and between 28 and 31 weeks is 10% and it is 6% when gestational age is less than 28 weeks.

Preterm birth is leading cause of neonatal morbidity and mortality which lead to much burden on society both on health sector and economically. So we planned to study risk factors of preterm birth to find a way to prevent them.

Aims and Objective

This study is to identify different associated risk factors and to assess the neonatal mortality and morbidity in preterm births.

2. Materials and Methods of Study

It is a prospective hospital based observational study done in Department of Obstetrics & Gynaecology in our hospital for a period of 6 months from April 2019 to September 2019 taking 300 cases delivered in these months. All the preterm birth records were collected and were subdivided into 3 groups, viz. spontaneous preterm labour, preterm premature rupture of membrane and iatrogenic preterm birth. On reviewing the records, risk factors associated with preterm labour were analysed.

3. Results and Observation

In our study, the incidence of preterm birth is found to be 8.28%. Out of a total number of preterm births of 300, gestational age at birth of >34 weeks accounts for 16%, <32 weeks accounts for 45.33% of preterm birth and 32-34 weeks accounts for rest 38.67% of preterm births. Again, when we looked at the onset of preterm labour, it is found that incidence of spontaneous preterm labour is 63.33%, PPROM (Preterm Premature Rupture of Membranes) is 24.0% and iatrogenic preterm birth is 12.67%.

Study was also used to analyse the associated risk factors in preterm births in accordance with spontaneous preterm birth, PPROM and iatrogenic preterm (Table 1). The details of risk factors are retrieved from the records. It is found that the most common risk factors associated with preterm births is maternal genitourinary infections (incidence 29%). Two other more important risk factors with approximately equal incidences are birth interval less than 1.5 years (incidence 27.67%), low socioeconomic status (incidence 27.34%). Other important risk factors include prior preterm delivery (incidence 17.0%), bleeding per vaginum (BPV) during first trimester (incidence 16.0%), age less than or equal to 20 years (incidence 15%) and habit of tobacco

chewing (incidence 14.67%). Other important risk factors include prior preterm delivery (incidence 17.0%), bleeding per vaginum (BPV) during first trimester (incidence 16.0%), age less than or equal to 20 years (incidence 15%) and habit of tobacco chewing (incidence 14.67%). We also found many other risk factors that contributed to preterm births, viz. psychological factor, prior preterm births, anaemia, infection, extremes of maternal age. The maternal infections we looked into are basically urinary tract infection (confirmed by urine routine, microscopy and culture), bacterial vaginosis (confirmed by high vaginal swab) and Group B streptococcus infection (confirmed by lower vaginal and perineal swab).

4. Discussion

According to report on WHO published on 19 February 2018, every year, an estimated 15 million babies are born preterm (before 37 completed weeks of gestation), and this number is rising. Preterm birth complications are the leading cause of death among children under 5 years of age, responsible for approximately 1 million deaths in 2015 (1). Three-quarters of these deaths could be prevented with current, cost-effective interventions. Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born. The 10 countries with the greatest number of preterm birth India, China, Nigeria, Pakistan, Indonesia, United States of America, Bangladesh, Philippines, Democratic Republic of the Congo and Brazil.

Table 1: Risk factors of preterm birth

Risk Factors	Spontaneous (190)	PPROM (72)	Iatrogenic (38)	Total Preterm Births
1 st trimester bleeding	24	19	5	48(16%)
Tobacco chewing	27	11	6	44(14.7%)
Psychological factor	14	10	3	27(9%)
Hard physical work	35	9	4	48(16%)
Prior preterm birth	39	10	2	51(17%)
Age <20yrs	28	12	5	45(15%)
Age >35	4	2	1	7(0.2%)
Maternal Infection	50	22	8	80(26.67%)
Birth interval <1.5yrs	59	14	10	83(27.67%)
Kuppuswamy 4 th & 5 th	50	22	8	82(27.34%)

India being the most affected with 3 519 100 preterm births.

The risk factors for preterm labor are many. The unspaced unwanted pregnancies was found to be the most important yet avoidable risk factor with birth interval of less than 1.5 years seen in 27.67% cases. Low socioeconomic status is equally important risk factor with 27.34% women with preterm birth belonged to classes IV and V of Kuppuswami classification. The third most important risk factor for preterm labour was found to be maternal genitourinary infections being present in 26.67% of these women. Most common being E. Coli positive bacterial swab culture. Equally important being urinary tract infections. Though, association of psychological factor like anxiety, depression and stress during pregnancy leading to preterm birth is in controversy, Copper RL 1996 reported stress was associated with spontaneous preterm birth but Littleton 2008 reported that there is no evidence of an association of anxiety symptoms with adverse perinatal outcomes among those

studied thus far. But, in our study just 9% women with preterm birth had psychological problems. The most common addiction seen in these women is tobacco chewing being present in 14.67% of these cases. US Department of Health and Human Services Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health April 2004 concluded that there is a poor correlation between long working hours and preterm labour, whereas, The Cochrane Collaboration published in The Cochrane Library 2010 that there is no evidence, either supporting or refuting the use of bed rest at home or in hospital, to prevent preterm birth. But, in our study 16.0% of the women who had preterm birth are hard working required prolonged standing. Carr-Hill and Hall have shown that in women with history of one preterm delivery there is 15% chance of next preterm delivery and after two preterm deliveries there is 32% chance. In our study, only 17% women had previous preterm birth. Diallo et al in a study found that early and late age of procreation (amounting to 7.95% and 3.9% of preterm), and poor and rich women groups (amounting to 7.34% and 3.84% of preterm) are also important risk factors. But, in our study late age pregnancy (maternal age >35 years) constituted just 2.3% and but teenage pregnancy constituted 15% of preterm births which is significant.

5. Conclusion

Preterm births require early and prolonged hospitalization posing great financial and psychological burden on the family and the society at large. Mostly, etiological factors of this condition are modifiable and can be well taken care of by preconceptional counseling. Preconceptional counseling emphasis should be on the risk factors of preterm births like family planning, good nutrition, safe sex, hygiene, treatment of sexually transmitted infections, avoidance of tobacco, alcohol, abusive drugs and harmful work conditions and hence reduce the burden of preterm births. All efforts should be made to continue the pregnancy till term for a healthy mother and a healthy baby.

References

- [1] KEduhig, m.chandiramani, pt seed AL Briley, APKenyon, Ahshennan Foetal fibronectin as a predictor of spontaneous preterm labour in asymptomatic women with cervical cerclage. BJOG may 2009, vol 116, no 6
- [2] Text book of Obstetrics D.C. Dutta, 6th edition, Pg. No. 606.
- [3] Singh uma, singhnisha, sethshika. A prospective analysis of etiology and outcome of preterm labour. The journal of obstetrics and gynaecology of India, vol 57, no 1, jan-feb 2007, 48-52
- [4] Iandonald practical obstetric problem, 6th edition, 2007, 397-418.
- [5] Lange Obstetrics and Gynaecology Current diagnosis and treatment, 2007, Alan H, Lauren Nathan, T. Murphy Goodwin, neri Laufer.
- [6] Pankaj Desai, Narendramalhotra, Durushah. Principles and practice of Obstetrics and Gynaecology, 3rd edition 2008.

- [7] Sharmaparthapartem, Mukhopadhyayparthaet *al* Indian Journ. Of Obstetric and Gnnaecology, vol 57, no:4, july – aug 2007.
- [8] Peter W Callen, Ultrasound assessment in Obstetrics AndGynaecology 5th edition 2009.
- [9] Kumar aruna,kharejyoti,Role of bacterial vaginosis in preterm labour.Thejournal of obstetrics and gynaecology of India, vol 57 sep-oct 2007,413-416.
- [10] Cunningham,Leveno,Bloom,Hauth,Rouse,Spong,Willia msObstetrics 23rd edition.804-831.
- [11] Cochrane Data Base Review 2010,Issue 11.
- [12] Diallo FB, Diallo MS, Sylla M, Diaw ST, Diallo TS, et al. (1998) [Premature delivery: epidemiology, etiologic factors, prevention strategies]. *Dakar Med* 43: 70-73.
- [13] Sehgal A, Telang S, Passah SM, Jyothi MC (2004) Maternal and neonatal profile and immediate outcome in extremely low birth weight babies in Delhi. *Trop Doct* 34: 165-168.
- [14] Singh D, Varughese PV, Singh S (1992) Outcome of hospitalised out-born preterm babies. *Indian J Matern Child Health* 3: 104-107.
- [15] Carr-Hill RA, Hall MH (1985) The repetition of spontaneous preterm labour. *Br J ObstetGynaecol* 92: 921-928.