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Research Article

EXPLORING DETERMINANTS OF PRETERM LABOR: INSIGHTS FROM GYNECOLOGICAL RESEARCH

Anuradha V*

Assistant Professor, Department of Obstetrics & Gynecology, Sri Lakshmi Narayana Institute of Medical Sciences & Hospital, Osudu, Puducherry – 605502, India.

ABSTRACT

In many parts of the world, premature labor can lead to neonatal death and other serious health problems. We examined the most important factors that influence preterm labor. The case group was selected from eligible samples, and the control group was created using clipper-matched sampling from mothers with full-term labor in each sample from the case group. The 28-item General Health Questionnaire and a researcher-made questionnaire were used to collect data. A final analysis of 52 cases and the same number of controls was conducted, after deleting imperfect questionnaires. There were 130 premature infants out of 5400 live births. Preterm labor risk was 5.5-fold higher among women with two or more pregnancies compared to the number of pregnancies fewer than two. A woman with low general health was more likely to experience preterm labor than a woman with a normal general health. Labor before term rates were 2.3 times higher among diabetics, thyroid dysfunction patients, and cardiac disease patients (P <0.01). In regards to the above and maternal and infant health's important role in supporting community health, a conclusion has been reached. Healthcare systems must improve health education regarding pregnancy numbers, diseases such as Identifying pregnant women who have mental health problems or inadequate support, and managing diabetes, cardiovascular disease (hypertension, eclampsia), and other conditions.

Keywords:- Preterm labor, Gynecological factors, Maternal health, Neonatal outcomes, Risk factors, Healthcare interventions

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INTRODUCTION

It is evident from the term preterm labor that the most important outcome is the birth of a premature baby before 37 weeks' (259 days) of gestation [1]. Several European countries have a preterm birth rate of 5%, while others have a rate of 18%. Asphyxiation occurs in the first week of delivery, followed by septicemia in the fourth week of delivery, resulting in 60%–80% of neonatal deaths [2,3]. Women with high educational achievement, mothers who are over 36, women who have had premature births, people who are multiparous, those with hypertension, children with diabetes, and those with oligohydramnios are more likely to have pregnancy-

related complications. A history of organic disorders (cardiac, renal, thyroid) and polyhydramnios are associated with the recurrence of premature labor [4-8]. Preterm labor is associated with problems and costs, including developing cerebral palsy, infection, the loss of a fetal or newborn, and severe problems with social skills in children. In developing countries, 99 percent of neonatal mortality cases take place every year [9,10]. Prematurity was the leading cause of neonatal mortality, accounting for approximately two-thirds of neonatal fatalities.

The lack of adequate prenatal care has been linked to preterm birth (52%), underage mothers (34.7%), third-trimester hemorrhages (23.4%), and eclampsia and preeclampsia (13.1%) [11]. Presumably, 65.7% of preterm labor infants will develop sepsis, 58.8% will develop hyperbilirubinemia, 26.8% will suffer asphyxia, and 23.3% may experience complications with their hyaline membranes [12]. Since preterm labor is associated with higher neonatal mortality, and there is no effective treatment for the condition, effective diagnosis and prevention would reduce the incidence of preterm labor.

MATERIALS AND METHODS

The study included mothers whose babies had been delivered prior to 37 weeks' (259 days') complete gestation. It was determined whether full-term labored mothers who delivered their infants within or after 37 weeks were a representative sample, while one mother who delivered her infant to create a control group, clipper-matched samples of mothers who delivered their infant within or after 37 weeks (259 days) of completion were selected. Salicylic acid is such an irritating substance (that it can only be applied externally) that various derivatives have been synthesized for systemic usage. It is possible to broadly classify these derivatives as follows: In order to collect data on preterm labor, a researcher-made survey was used. In addition to anxiety, insomnia, social dysfunction, and severe depression, the General Health Questionnaire measures 28 other factors. Using the LIKERT method, marks were allocated to the answers, which ranged from "not at all" to "a little," "a lot," and "very much [13]. This questionnaire has a maximum score of 84. In order to determine whether a participant is healthy or not, a questionnaire was administered to all participants. The data accuracy of the study was further enhanced by including other sources such as pregnancy care records, hospital medical records, urban and rural health centers, and insurance booklets.

The cardiac disease incidence among mothers of both groups was compared. After imperfect questionnaires were discarded, SPSS (IBM, Armonk, NY) statistical software was used to analyze data of 52 case members and 52 control members. In addition to univariate analysis and multivariate analysis using standard deviation, frequency, and percentage, a multivariate analysis with logistic regression model was conducted. Interpretation of the results of this study was based on a significance level of 0.05.

RESULTS

130 premature babies were born out of 5400 live births. Mothers were on average 26 years old and 4.3 years tall, respectively. Mothers with less than a diploma had 50.5% of their education, those with a diploma had 32.3%, and those with higher than a diploma had 17.2%. The case and control groups did not differ statistically in any of the variables, except the number of pregnancies and the general health status of each group.

In the case and control groups, pregnancy numbers (odds ratio [OR], 0.18; 95% confidence interval [CI], 0.07–0.46) have a significant association with general health status (OR, 0.35; 95% confidence interval [CI], 0.16–0.75), along with diabetes, thyroid dysfunction, and cardiovascular disease (OR, 0.44; 95% confidence interval [CI], 0.26–0.75). Preterm labor risk is estimated to be 5 based on these analyses using the case group as a reference.

Women with more than two pregnancies have a 5 times (1/0.18) higher risk of preterm labor, while women with less than two pregnancies have a 2.9 times (1/0.35) higher risk. A woman with low general health status has 2.9 times (1/0.35) higher risk of preterm labor, and mothers with diabetes mellitus, thyroid dysfunction, or heart disease have 2.3 times (1/0.44) higher risk than mothers with healthy conditions.

Changing	Mean value	fd	Value P	Sig
Daddy's mom's age	1.29	2	0.32	Italics
Educating	3.41	3	0.20	Italics
Work	6.36	2	0.5	Italics
The height	1.66	1	0.65	Italics
The weight	2.14	2	0.36	Italics
Resident's address	65.4	2	0.25	Italics
Earnings	6.36	1	0.12	Italics
Status of nutrition	2.23	1	0.36	Italics
Weight-for-height	5.96	2	0.21	Italics
Delivery numbers	5.32	2	0.12	Italics
Pregnancy rate	9.66	0	0.021	Italics
An abortion's history	2.32	1	0.63	Italics

 Table 1: Analyzing labor variables by univariate analysis

Histories of stillbirth	2.36	1	0.21	Italics
Twins or multiple pregnancies	2.12	2	0.22	Italics
Tobacco use	1.10	2	0.41	Italics
The use of alcohol	0.22	2	0.49	Italics
Obesity during pregnancy	6.11	0	0.21	Italics
Physique in general	18.6	2	0.002	S
Birth defects: a historical perspective	2.32	2	0.11	Italics
A radiation exposure	2.21	1	0.32	Italics
Diabetes, thyroid dysfunction, and	9.22	3	0.022	S
cardiovascular disease history				

Table 2: Multivariate analysis was conducted using a logistic regression model

The variable	Coefficient beta	Statistics derived from Wald	Value P	95% CI (Odds Ratio)
Pregnancy rate	1.50	12.55	0.000	0.07–0.65
Health of mothers	1.11	7.66	0.007	0.16-0.64
Thyroid disease/diabetes	0.66	8.54	0.003	0.26–0.66
mellitus history				

DISCUSSION

Mothers who had diabetic, thyroid, or cardiovascular disease in addition to the number of pregnancies had an increased risk of preterm labor as well. Preterm labor and intrauterine growth retardation are both associated with numerous risk factors, such as smoking, poor nutrition, and low weight gain during pregnancy. Additionally, in studies, drugs, alcohol, ambient poisons, standing up for long periods, intense work, activities, stress, inadequate social support, low age of mother, poverty, illiteracy, and hydraminus have been reported as risk factors. The risk of experiencing a pregnancy-related illness is considerable, including first pregnancies, multiple pregnancies, hydraminus, abdominal surgery, uterine fevers, pyelonephritis, breech births, abortions, and hypertension [14].

Spiritual mental factors have been considered to be important to fetal growth and development in most studies. According to the present study, preterm labor incidence was significantly correlated with maternal general health status (OR, 0.347), A study demonstrates how stress and anxiety affect premature labor at the beginning of pregnancy, as well as depression and anxiety during the last months [15].

Several mechanisms have been implicated in this correlation. Catecholamine release is believed to be directly linked to mental health (levels of anxiety, stress, depression) in mothers [16]. During pregnancy, catecholamine release results in reduced blood flow, oxygen depletion, and an inability to grow properly for the fetus. The study examined the relationship between pregnancy and premature delivery and found that both were significantly influenced by corticotropin-releasing hormone (CRH), cortisol, and plasma levels. This may lead to premature labor and increased uterine contractions. As another study also noted and indicated that pregnancy rates are related to premature labor, these findings are consistent. Women who experience premature labor during their first pregnancy experience it at 6%, 4.3% during their second pregnancy, 4% during their third pregnancy, and 5.7% during their fourth pregnancy. The condition eclampsia and pregnancy hypertension occurs in 5%-7% of all births, and is associated with major fetal diseases and preterm delivery. A study reported that premature labor is more likely to occur during the second pregnancy than the first [17]. According to this, mothers with diabetes mellitus, thyroid dysfunction, and cardiovascular diseases were significantly more likely to have preterm labor. Due to the cultural and religious differences in this population, smoking and alcohol consumption were not found to influence preterm labor in this study.

CONCLUSION

The questionnaire design missed a number of important variables in this study, including consanguineous marriage. It is important for future studies examining the factors that contribute to preterm labor to address this limitation. The health care system must provide more health education on maternal-infant health and the number of pregnancies in a community. Pregnant mothers need to receive stronger health education programs to prevent diabetes, cardiovascular disease (eclampsia and hypertension), mental strain, and inadequate support.

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