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Original Research Paper



OBSERVATIONAL STUDY ON THE EPIDEMIOLOGY OF PRE-TERM DELIVERIES AT A SINGLE URBAN TERTIARY CARE OBSTETRIC UNIT

Dr Kavina Sanjay Munshi*	M.S. Obs & Gyn, Second Year Resident, Sheth KM School of Postgraduate Medicine, Ahmedabad. *Corresponding Author
Dr Devangi Sanjay Munshi	M.S. Obs & Gyn, Assistant Professor, Chinai Prasuti Gruh, Sheth VS Hospital, Ahmedabad.

ABSTRACT Introduction: Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. More than three-quarters of premature babies can be saved with feasible, cost-effective care. The aim of our universe determines the providence rates and causes of preterm deliveries in a testiany care begoing a previous of present and causes of preterm deliveries in a testiany care begoing a previous of pretermines the previous of pretermines the previous of pretermines are alived by the previous of pretermines and causes of pretermines are alived by the previous of pretermines are alived by the previous

study is to determine the prevalence rates and causes of preterm deliveries in a tertiary care hospital over a one-year period. **Materials & Methods**: We conducted a retrospective observational study and data was collected on the incidence and epidemiological causes of preterm delivery. Data was collected from a one-year period of 1st January 2017 to 31st December 2017. The data was collected from the antenatal case records of booked antenatal patients at our tertiary care obstetric unit located in Ahmedabad.

Results & Conclusion: In our retrospective patient series, approximately 10% of pregnancies ended up being delivered prematurely. Most common causes of neonatal mortality can be attributed to prematurity or related complications. By studying the epidemiological profile of premature deliveries, causes can be classified as preventable, partially preventable and non-preventable. By identifying preventable causes of preterm deliveries and providing necessary timely interventions, many lives can be saved. Our study was a small step in realizing this dream.

KEYWORDS : preterm birth, PPROM, low birth weight baby, neonatal respiratory distress

INTRODUCTION

Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age - extremely preterm (<28 weeks), very preterm (28 to <32 weeks) and moderate to late preterm (32 to <37 weeks).

In 2012, WHO and partners published a report "Born too soon: the global action report on preterm birth" that included the first-ever estimates of preterm birth by country. [1] More than three-quarters of premature babies can be saved with feasible, cost-effective care, e.g. essential care during child birth and in the postnatal period for every mother and baby, antenatal steroid injections (given to pregnant women at risk of preterm labour and meeting set criteria to strengthen the babies' lungs), kangaroo mother care (the baby is carried by the mother with skin-to-skin contact and frequent breast feeding) and antibiotics to treat new-born infections.

MATERIALS & METHODS

The aim of our study was to find prevalence rates and causes of preterm deliveries in a tertiary care obstetric unit over a period of one year. The secondary objective of the study was to identify the outcome of prematurely delivered babies and look for intra-partum or peri-partum ways to modify them, in order to prevent morbidity and mortality. Data was collected from a one-year period of 1st January 2017 to 31st December 2017. The data was collected from the antenatal case records of booked antenatal patients at our tertiary care obstetric unit located in Ahmedabad.

RESULTS





Figure 2: Incidence Of Preterm Births According To Maternal Age

The relationship of maternal age with preterm delivery shows two peaks. A teenage mother as well as an elderly mother are more likely to deliver preterm babies.

Most of the multipara in this study belonged to low socioeconomic societies who are more prone to nutritional deprivation, unhygienic conditions and poor antenatal care which ultimately results in preterm birth. Teenage mother results due to early marriage and lack of contraception knowledge. Advanced maternal age is mostly associated with genetic abnormalities, maternal malnutrition, prior preterm births and fetal loss.



Figure 3: Causes Of Preterm Labor

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Causes can be medical or obstetrical, however most often the cause of prematurity remains unknown. Premature rupture of membranes before 37 weeks is the most common cause. PPROM usually evolves to oligohydramnios and chorioamnionitis, both of which result in preterm deliveries. The second most common cause of preterm birth is pre-eclampsia. Pre-eclampsia results in release of vasoactive substances from the placenta which in turn causes placental insufficiency and fetal growth restriction resulting in preterm delivery. Increase in incidence of infertility due to changing social demographics has resulted in more couples resorting to assisted reproduction for fulfilling their desire of conception. A direct consequence is the rise in higher order pregnancies twins, triplets or more. Multiple gestations are associated with overdistention of the uterus which results in preterm rupture of membranes and preterm delivery. Placental abruption is a rare pregnancy complication which causes uterine irritation and contractions, leading to preterm birth. Other miscellaneous reasons include stress, tobacco chewing, nutritional challenge, cervical incompetence, alcohol abuse etc.



Figure 4: Birth Weight Of Babies Born Preterm

Most of the babies are Between 1500 grams and 2500 grams. Low birth weight babies weighing less than 1500 grams may require respiratory support in the form of assisted ventilation or positive airway pressure where the baby does the work of breathing with some extra air pressure to keep the lungs open.



Figure 5: Intensive Care Unit Admissions For Preterm Neonates

38% of the babies needed neonatal intensive care admissions due to various reasons including respiratory, hemodynamic and metabolic instability which makes it difficult for the baby to survive in extra-uterine life. Respiratory illnesses including lower respiratory tract infections are the dominant cause for hospital admission. More babies survive premature birth, but the number of serious health problems remains unchanged.



The most common cause for which the babies are admitted is respiratory distress syndrome. Here, the babies have breathing difficulties due to prematurity and immature lungs with deficient amount of surfactant. Supplementation of surfactant with respiratory support e.g. ventilator or CPAP is needed for appropriate management of this condition. However, antenatal administration of corticosteroids before expected preterm delivery increases surfactant production and reduces the risk of development of RDS in neonatal life. The second most common cause is early onset septicemia. Infections are common because of a much- compromised immune system, and serious infections commonly seen are pneumonia, sepsis and meningitis.

CONCLUSION

As many as 10% of pregnancies end up being delivered prematurely. [2] By studying the epidemiological profile of premature deliveries, causes can be classified as preventable, partially preventable and non-preventable. [3] Several factors in the mother, the placenta and in the baby can result in preterm birth. Preterm births are on the rise due to increased frequency of multiple births, young or advanced maternal age, low BMI, short inter-pregnancy intervals, preexisting non-communicable diseases, hypertensive disorders of pregnancy, infections and increasing psychological stress. Interventions to reduce the morbidity and mortality of preterm birth can be:

Primary

Intervention which can be directed to all pregnant women, which includes routine antenatal care, behavioural, social and financial support to women and health education for all women.

Secondary

Intervention which is aimed at eliminating or reducing the existing risk on the basis of obstetric history or current pregnancy parameters e.g. a previous preterm birth, uterineanomaly, multiple gestation, threatened miscarriage, pre-eclampsia, fetal growth restriction, maternal conditions like diabetes, thyroid disease, heart disease etc. [4]

Tertiary

Interventions that can prolong pregnancy and improve health outcomes and survival for the premature baby, antenatal transfer of the mother and the fetus to a hospital equipped to care for preterm infants, antibiotic treatment and tocolytics for PPROM to delay labour, prevent neonatal infection and cerebral damage [5], antenatal administration of corticosteroids for pulmonary maturity and surfactant production, administration of magnesium sulphate to reduce the risk of cerebral palsy and improve long term neonatal health outcomes.

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Figure 6: Complications In Intensive Care For Neonates