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Full Length Research Paper**Incidence of Spontaneous Preterm Labor at Farwaniya Hospital, Kuwait**Soliman Ali¹, Madhu Gupta², Salwa Al Rifai³, Amal Ayed⁴¹M.D, Obstetrics and Gynecology Specialist, Farwaniya Hospital, Kuwait.²FRCOG, Obstetrics and Gynecology Consultant, Farwaniya Hospital, Kuwait.³Obstetrics and Gynecology Consultant, Farwaniya Hospital, Kuwait.⁴FRCOG, Consultant and head of Obstetrics and Gynecology department, Farwaniya Hospital, Kuwait.**ARTICLE INFORMATION****Corresponding Author:**

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ABSTRACT

Background: preterm birth represents major public health problems worldwide due to its association with the catastrophic effects of morbidity and mortality. The current study aimed to evaluate medical staff performance for such cases at our hospital in comparison to the global incidence in developed countries in order to estimate our performance. **Methods:** Farwaniya Hospital is a secondary care hospital serving a population of approximately 725300 persons in Kuwait. This was a prospective study, and the data were collected between January 2018 and December 2018. we analyzed the medical records of all pregnant women who were admitted with preterm deliveries to Farwaniya hospital, Kuwait. Information gathered from reliable information sources including labor room delivery registers and patient's files and computerized Health Information system. The data were analyzed using both descriptive and inferential statistics. **Results:** During the study period, Total births were 5241. The main findings of the current study are the estimation of rates for preterm birth 9.13%. The rate of preterm birth (9.13%) was slightly higher in comparison to the previous rate reported in Abu Dhabi (6%)² but was similar to Saudi Arabia (6.5%)³ and lower than those found in Oman, 9.7%⁴, and Kenya, 18.3%⁵. **Conclusions:** The burden of preterm birth is substantial and has not much improved in spite of controlling the predisposing risk factors and improving obstetric and neonatal care. Most morbidity and mortality affect preterm neonates (less than 32wk) and extremely preterm neonates (less than 28 wks). Our incidence was least below 28 wks and highest above 32 wks.

Introduction

Preterm births (Birth before 37 weeks) are a major challenge of perinatal health across the globe. It has short- and long-term effects on the health of baby. Prematurity is a major cause of neonatal morbidity and mortality. In addition, emotional and financial strain can't be underestimated. According to the World Health Organization (WHO)¹, every year an estimated 15 million babies are born preterm (<37 weeks of gestation) and this global trend is rising. In 2020, preterm birth affected 1 of every 10 infants born in the United States. The preterm birth rate declined 1% in 2020, from 10.2% in 2019 to 10.1% in 2020. However, racial and ethnic differences in preterm birth rates remain. In 2020, the rate of preterm birth among African American women (14.4%) was about 50 percent higher than the rate of preterm birth among white or Hispanic women (9.1% and 9.8% respectively). Approximately 45-50% of preterm deliveries follow spontaneous onset of labor, 30% follow preterm rupture of membranes and 15-20% of preterm births are provider-initiated².

While the etiology of spontaneous preterm birth is heterogeneous and poorly understood, many maternal factors are known to increase risk, such as age (adolescence and advanced age), race, multiple pregnancy, short inter-pregnancy interval, infections, medical conditions, poor nutrition, lifestyle factors, psychological factors and genetic predisposition^{3,4}.

Aim

To analyze spontaneous preterm labor (PTL) rate in the year of 2018 at Farwaniya hospital, Kuwait. Farwaniya hospital is a major referral hospital approximately 5000 deliveries per year.

Methods

Farwaniya Hospital is a secondary care hospital serving a population of approximately 725300 persons in Kuwait. In this retrospective national-based study, we analyzed the medical records of all pregnant women who were admitted with preterm deliveries to Farwaniya hospital, Kuwait between January 1st, 2018, to December 31st, 2018. During the study period, a total of 5241 pregnant women were admitted for delivery and the incidence of Preterm deliveries were 479 cases.

Patient selection criteria

We enrolled all pregnant women admitted to the maternity department, Farwaniya hospital, Kuwait due to onset of labor.

Data collection

Maternal and neonatal data were extracted from labor room delivery registers and patient's files and computerized Health Information system. Electronic medical records or medical charts using a standardized data collection sheet. For maternal data, we recorded the information on gestational age, parity (nulliparous or multiparous), pre-existing medical condition and presenting symptoms prior to admissions, such as fever, sore throat/ nasal or sinus congestion, cough/chest pain, vomiting/diarrhea, and fatigue/myalgia).

Definitions

Gestational age (GA) was defined as a measure of the age of a pregnancy in weeks, which is taken from the beginning of the woman's last menstrual period. *Term birth* was defined as the birth of a baby at ≥ 37 weeks GA. *Preterm birth* was defined as the birth of a baby at < 37 weeks GA.

Data collected were analyzed into 3 groups according to gestational age:

First group: Gestational age 24-27⁺⁶,

Second group: Gestational age 28-31⁺⁶ and

Third group: Gestational age 32- 36⁺⁶wks

As neonatal morbidity and mortality differs widely in different groups. Incidence was compared to the average global incidence of developed countries.

In addition, two main background risk factors were analyzed in our setting. It included multiple pregnancies and association of preceding PROM (premature rupture of membranes).

Statistical analysis

The data were analyzed using Statistical Product and Service Solutions (IBM SPSS Statistics for Windows, Version 20.0. IBM Corp., Armonk, NY, USA). The data were analyzed using both descriptive and inferential statistics. Gestational age at delivery (term and preterm) was analyzed as the dependent variables. Chi-square tests were applied to analyze the categorical data.

The study was approved by the Ethics Committee of the Ministry of Health of Kuwait.

Results

During the study period, Total births were 5241. The main findings of the current study are the estimation of rates for preterm birth 9.13%. The rate of preterm birth (9.13%) was slightly higher in comparison to the previous rate reported in Abu Dhabi (6%)⁵ but was similar to Saudi Arabia (6.5%)⁶ and lower than those found in Oman, 9.7%⁷, and Kenya, 18.3%⁸.

Global incidence of PTL found in literature 10.16%. When we did the statistical analysis, our results didn't reach the significance level and was comparable to the global incidence. We analyzed the results in 3 different groups according to gestational age as neonatal outcome differs widely in these three groups. Further analyzing the data in the different gestational groups, 24-27⁺⁶: 8.35%, 28-31⁺⁶: 12.1% and 32-36⁺⁶ was 79.56%. In two large observational studies, average rate in simultaneous groups were 11.15%, 18.97% and 69.88%. When further comparing the results in different groups to the literature our rates were slightly higher in first two groups and lower in the third group. However, this difference didn't reach the statistical significance using chi square test. Multiple pregnancies were 73 accounted for 15.24% and preceding PROM 213 cases accounted for 44.9 % of preterm deliveries.

Table (1): Studied population

Total no. of deliveries	5241
Less than 28 wks	40
28 wks- 31 wks + 6 d	58
32 wks- 36 wks+6 d	381

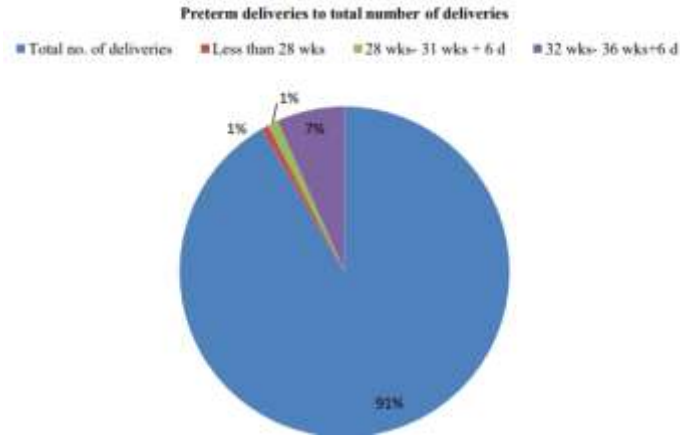


Fig. (1): preterm deliveries to total number of deliveries

Table (2): Preterm deliveries divided according to gestational age.

Total preterm deliveries	479
Less than 28 wks	40
28 wks- 31 wks + 6 d	58
32 wks- 36 wks+6 d	381

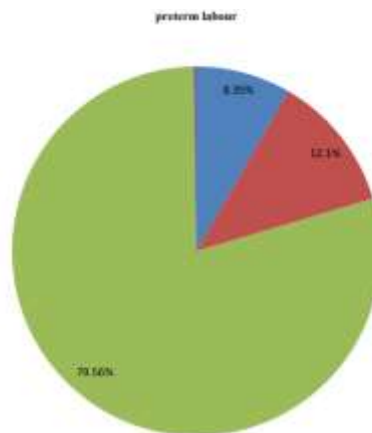


Fig. (2): Preterm deliveries divided according to gestational age.

Table (3): Comparing to global incidence of PTL and with Farwaniya Hospital

	Farwaniya Hospital	Global
Less than 28 wks	8.35%	11.15%
28 wks- 31 wks + 6 d	12.1%	18.97%
32 wks- 36 wks+6 d	79.56%	69.88%

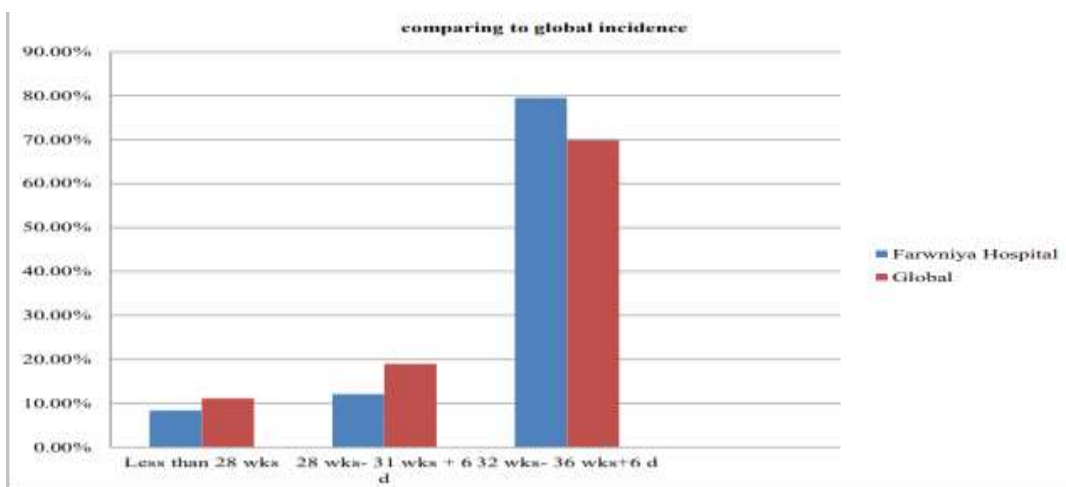


Fig. (3): Comparing to global incidence of PTL and with Farwaniya Hospital

Table (4): Associated risk factors

	No. of deliveries	Total PTL
PROM	213 ~ 44.46%	479
Multiple pregnancy	73 ~ 15.24%	479

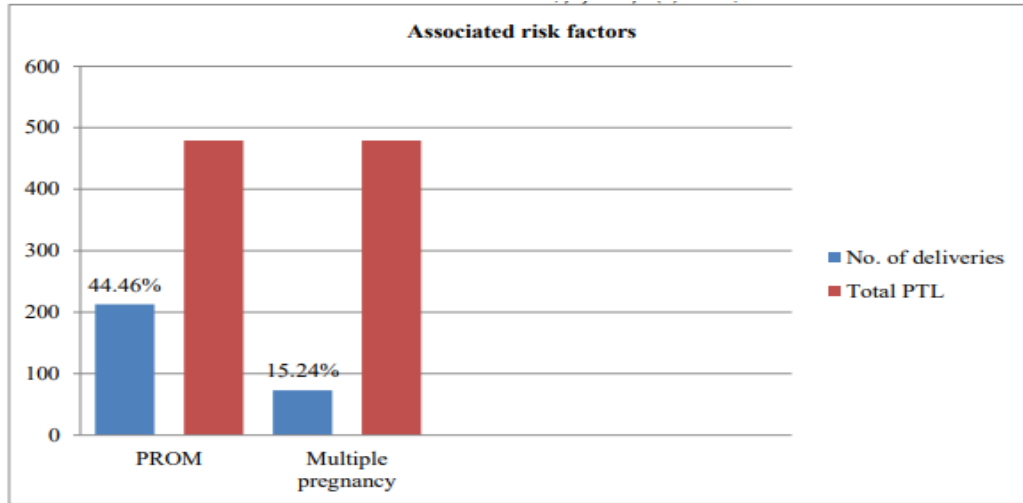


Fig. (4): Associated risk factors

Conclusion

The burden of preterm birth is substantial and has not much improved in spite of controlling the predisposing risk factors and improving obstetric and neonatal care. Most morbidity and mortality affect preterm neonates (less than 32wk) and extremely preterm neonates (less than 28 wks). Our incidence was least below 28 wks and highest above 32 wks. However, better effective care is always a concern with updating guidelines and adherence strategies to hospital protocols along with audits at intervals.

Author Contributions

Soliman Ali designed the study and recruited the participants. Madhu Gupta, Salwa Al Rifai analyzed the data and wrote the manuscript. Soliman Ali and Amal Ayed contributed to the design of the study and manuscript writing. All contributing authors of this original manuscript authorized the final version of the manuscript. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest: The authors declare no conflict of interest.

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