



Perinatal and Neonatal Mortality rate in Alkhalus general hospital Khalus, Diyala, Iraq.

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Abstract

Background: Perinatal and neonatal mortality has always been a major problematic issue in clinical practice. Few local studies have addressed these problems.

Objectives: Estimation of the perinatal and neonatal mortality rate and studying the major local etiological and predisposing factors in order to highlight the preventive strategies and form a base for future plans.

Design and setting: A retrospective study was carried out for all neonatal deaths from 1st January to 31st December 2011 at Al khalus general hospital in Diyala, Iraq.

Results: During the study period, the number of total births recorded was 4712. There were 56 neonatal deaths (from 28 week of gestation till one week after delivery) giving a perinatal mortality rate of 12 per 1000 births.

There were 29 early neonatal deaths (below one week) and 27 neonatal deaths as still birth(fetal death after 28 weeks of gestation), The ratio of fresh stillbirths to macerated cases was 2/1(18and 9) respectively, there were 11 neonate deaths as late neonatal deaths after 1" week of delivery up to 28 days of age). About neonatal mortality rate (early plus late neonatal deaths) is about 40 neonatal deaths (8.4 per 1000 live births).

From total neonatal death there were 35(52.2%) females, and 32(47.8%) of males.

About mode of delivery there were 45(67.2%) neonatal deaths occurred by NVD and 22(32.8%)neonatal deaths occurred by C/S. The direct leading causes behind fresh stillbirths were placental abruption (25.4%), pre-eclampsia (16.7%), and congenital anomalies (14.3%). The main causes of maceration were pre- eclampsia (33.3%), diabetes mellitus (21.6%) and luuyenul anomalies (20%).

Prematurity (46.9%), birth asphyxia (19.9%) and congenital alies (12.4%) were strongly associated with perinatal deaths (29 cases).

Prematurity(33.6%), sepsis(32%), asphyxia(20%), congenital anomalies(13.4%), intracranial hemorrhage(1%) were strongly associated with late neonatal deaths.

A significantly higher risk of neonatal death was observed among women under 20 or over 40 years of age, grand-multiparty, low socioeconomic status, and poor antenatal care attendance.

Conclusions: The profile of perinatal deaths among the studied group suggests the need for improvement in obstetric care, early referral to hospital and early admission , There is also a serious need to provide a new aseptic NICUs with new technologies like central oxygen supply and portable X. Ray & new therapeutics like surfactants which use in premature neonates with RDS& amore professional training for doctors & nurses.

Keywords: Perinatal and neonatal mortality, NVD, X. Ray & new therapeutics

Introduction

The World Health Organization had estimated that perinatal conditions took more than 2.4 million lives in the year 2000, representing 4.4% of all deaths in the world(2). In Africa, perinatal mortality rate is estimated at 75 per 1000 births and ranged from 36 - 74 per 1000 births in Asia(1). In England and Wales, stillbirths were registered for the first time in 1928. In 1949, they were combined with early neonatal deaths to form the perinatal mortality rate, which was then found to be 38.1 per 1000 total births(3).

Earlier studies carried out in both developed and developing countries had revealed a large number of risk factors with respect to perinatal and neonatal mortality. Some of these risk factors are related to the mother, others to the child. Perinatal deaths are largely the result of poor maternal health, adverse social conditions, and inadequate care during pregnancy, delivery, and the immediate postpartum period(4). Studies of individual cases of death in various European countries during 1993-1998 have shown that neonatal deaths are related to suboptimal care before, during and after childbirth. Richardus et al found that four out of ten deaths are attributed to inadequate care(5). Stillbirths and early neonatal deaths differ substantially with respect to their principle causes, although conditions such as birth asphyxia and abruptio placenta play a major role for both stillbirths and early neonatal deaths(6). The etiological determinants differ widely according to whether stillbirth occurs before or during labor. Ante-partum stillbirths are often combined with severe maternal, placental or fetal abnormalities, including pre-eclampsia, diabetes mellitus and congenital anomalies, while intrapartum fetal death is usually the result of fetal distress and /or obstructed labor, in addition Prematurity, sepsis, asphyxia, are strongly associated with late neonatal deaths (7).

In our region, the estimation of data on the frequency, distribution and predisposing factors of adverse birth outcome is an essential step for future planning to promote maternal and child health care services.

Patients and Methods

This retrospective study was carried out in Al khalus General Hospital, The hospital contains the main maternity and obstetric unit which receives most of the referral cases from the rural areas. The study period was from 1st January to 31st December 2011.

Information regarding all neonatal deaths and perinatal deaths was retrieved from the maternity and neonatal registry records. Collected data had included cases with late fetal death (at or after 28th week of gestation) and early neonatal deaths (up to the seventh day of life and late neonatal deaths (up to 28 day of life). Cases with death in utero diagnosed before the onset of labour was regarded as macerated stillbirth, whereas death of fetus which took place during labor or at time of delivery been included as fresh stillbirth.

The rate of stillbirth is presented as a proportion of all births and early neonatal death rate presented as a proportion of live births. Demographic and clinical data pertaining to the perinatal deaths and neonatal deaths were analyzed including age, parity, and mode of delivery. Details about antenatal attendance were recorded.

Information regarding complications of pregnancy and labor such as ante-partum hemorrhage, pre-eclampsia, diabetes mellitus, prolonged labor and other illnesses were recorded. Pregnancy outcome including gestational age, sex of neonate obvious congenital anomalies and the cause of death were also recorded. Associations between variable were assessed using the Chi-square test with a critical P value of <0.05.

Results

During the period of the study, the total births recorded were 4712. The perinatal deaths were 56 (83.5% from total deaths) giving a perinatal mortality rate of (12/1000 births). There were 29 early neonatal deaths giving a rate of (6.3/1000 live birth) which was higher than still birth rate 27 (5.7/1000 birth). Out of 27 stillbirths, fresh stillbirth were the highest 18 (67.7%) nearly twice the proportion of macerated stillbirth 9 (32.3%). The late neonatal deaths (from days of life up to 28 days) were 11 neonate deaths, 2/1000 live birth (16.5% from total neonatal death) which was less than perinatal death rate, About neonatal mortality rate early plus late neonatal deaths) is about 40 neonatal deaths 8.4 per 1000 live births). From total neonatal death there were 35 (52.2%) females, compare to 32 (47.8%) of males.

About mode of delivery neonatal deaths occurred by NVD {45 (67.2%)} was more higher than neonatal death occurred by C/S {22 (32.8%)}

Placental Abruption was the major cause behind fresh stillbirths (25.4%) followed by pre-eclampsia (16.7%), congenital anomalies (14.3%), prolonged labor (11.9%) and breech presentation (10.3%). As for macerated stillbirths, the three main predisposing factors were pre-eclampsia, (33.3%), diabetes mellitus (21.7%) and congenital anomalies (20%) (table 1). The causes of early neonata deaths were identified and recorded in table 2. Prematurity was th highest (46.9%), followed by birth asphyxia (19.9%), congenital anomalies (12.4%), infections (7.5%), diabetes mellitus (7%) and hemolytic diseases (6.3%). While the causes of late neonatal deaths were identified and recorded in table 3. Prematurity was the highest(33.6%), followed by sepsis(32%), asphyxia(20%), congenital anomalies(13.4%) and

intracranial hemorrhage(1%). Women whose age was lower than 20 or higher than 40 years had a higher prevalence of perinatal death compared to the other age groups (P<0.0001). The lowest perinatal mortality rate were found in the "20-29" years age group (9.4/1000 birth), followed by the "30-39" (15.6/1000 birth) (Table 4).

The safest outcome was found among mothers with Para 1-4 (11.5 per 1000 birth) whereas the highest perinatal mortality was encountered in primiparas (16.2 per 1000 births) and grand multiparas (18.1 per 1000 births) (P<0.001) (Table 5). Women with poor antenatal care had a higher prevalence of perinatal deaths forming more than half of the cases (55.3%) (Table 6).

Table (1) : Etiological factors behind stillbirths .

Causes	Fresh stillbirth No. (%)	Macerated Stillbirth No. (%)
Placental Abruption	5 (27.7)	0
Pre-eclampsia	4 (22.4)	3 (33.3)
Congenital anomaly	3 (16.6)	2 (22.2)
Prolonged labor	2 (11.3)	0
Breech presentation	1 (5.5)	0
Unknown cause	1 (5.5)	1 (11.1)
Diabetes Mellitus	1 (5.5)	2 (22.2)
Rhesus Isoimmunization	0	1 (11.1)
Total	18 (100.0)	9 (100.0)

Table 2 . Etiological factors of early neonatal deaths .

Causes	No . (%)
Prematurity	13 (44.8)
Birth asphyxia	7 (24.2)
Congenital Anomaly	4 (13.7)
Infection	2 (6.9)
Diabetes Mellitus	2 (6.9)
Hemolytic diseases	1 (3.5)
Total	29 (100.0)

Table 3 . Etiological factors of late neonatal deaths .

Causes	No . (%)
Prematurity	4 (36.3)
Sepsis	3 (27.3)
Asphyxia	2 (18.2)
Congenital anomalies	1 (9.1)
IC hemorrhage	1 (9.1)
Total	11 (100.0)

Table 4 . Distribution of Neonatal by different maternal-age groups

Age (years)	No . of neonatal death	Total birth	Rate / 1000 birth
< 20	6	215	27.9
20 – 29	23	2439	9.4
30 – 39	30	1916	15.6
> 40	8	142	56.3
Total	67	4712	

(P < 0.0001)

Table 5 . Distribution of perinatal deaths according to the parity perinatal deaths .

Parity	No.	Total birth	Rate / 1000 birth
Primi	13	800	16.2
P1- 4	30	2593	11.5
Grand multipara	24	1319	18.1
Total	67	4712	

(P < 0.0001)

Table 6. Distribution of perinatal death according to frequency of antenatal Visits .

No. of antenatal visits	Perinatal deaths No(%)
0 – 2 (poor)	37 (55.3)
3 – 5 (acceptable)	21 (31.3)
5 (good)	9 (13.4)
Total	67 (100.0)

Discussion

PMR in NICU in Al Khalus general hospital during the years 2011 was 12/1000 ,A higher study was conducted by Chalumeau in West Africa and found the perinatal mortality rate to be 41.8/1000.(8).

In the United Kingdom the PMR was 4.7 per 1000 births. This low rate is mostly related to the substantial improvement in the antenatal care and modes of deliveries. The largest reduction occurred in intra-partum related deaths, and deaths due to congenital anomalies, antepartum hemorrhage and pre eclampsia.(9)

About NMR it is low (8.4/1000 live births) if compared to 24.9/1000 live births in Al-Yarmook hospital in Baghdad (10). low rates found in Qatar 4/1000 live births, UAE 5/1000 live births, Kuwait & Bahrain 6/1000 live births, Oman 7/1000 live births, Lebanon 8/1000 live births, Libya 9/1000 live births (11,12). this low rate is due to most of these cases are missed, as most of them be-ing shifted to special centers in Baghdad for manage-ments, others being managed at home because the family refuse admission to the NICU.

Although many studies suggested that stillbirths form the major proportion of perinatal deaths,(13,14,15) our results suggest that early neonatal deaths are higher than stillbirths. The main reasons behind this finding are attributed to the high incidence of prematurity and birth asphyxia which provide lower chances of survival after delivery.

Fresh stillbirths were found to be two fold higher than macerated stillbirths. A similar result was found by Manandhar who reported a very high rate of fresh stillbirths(13).Macerated stillbirths are often associated with insults that occur in utero during the antenatal period, while fresh stillbirths and early neonatal deaths may suggest problems with the care available during labour.(16, 17) As for the causes of stillbirths, different etiological factors were identified. Antepartum hemorrhage, pre-eclampsia, congenital anomalies, prolonged labour and diabetes mellitus were the major predisposing factors. Many studies conducted in developing countries show the same results.(18,19-20) A study conducted in Kenya by Weiner found that labour complications played a major role behind the increase in perinatal mortality. Complications like hemorrhage, eclampsia, prematurity and prolonged labour increased perinatal deaths by 8-62 folds(21).

Prematurity, birth asphyxia and congenital anomalies were the major contributing factors behind perinatal mortality. Prematurity had been identified as a major cause for early neonatal deaths in many countries(13).

Considering the major cause late neonatal deaths, respiratory insufficiency of prematurity remains the major cause of death ,similar to what was reported in Yarmook Hospital [10] & Diyala province, Iraq [23] & results reported by Dawou A, et al. at UAE [11], sepsis being the 2nd, birth asphyxia 3rd & congenital anomalies being the 4 Females are the main victims which not agreed with most of studies (10,11,12).

Obstetrical variable revealed a higher mortality rates among spontaneously delivered babies(67.2) versus those delivered by cesarean section(32.8).

A high neonatal mortality rate was recognized among mothers aged under 20 or over 40 years. This finding goes with the classical U-shaped association with maternal age(15, 22).

First pregnancies and high parity had been associated with poor neonatal outcome. A safer pregnancy and a better neonatal survival rate have been recognized in mothers with parity of 1 to 4. These results were comparable to studies conducted by Hinderaker and Lucy(18,19).

In the current study, poor antenatal care was contributing factor for the high neonatal mortality. A significant reduction can be achieved by improving antenatal services and enhancing social development(9).

Conclusion and Recommendations

The high perinatal mortality rate seen in the present study was mainly related to pregnancy and birth complications with contributing factors such as high parity and poor antenatal attendance. The findings indicate that early prenatal care can assist in rapid identification and management of risk factors for perinatal deaths to reduce subsequent mortality & morbidity, there is a serious need to establish a clear plan to prevent preterm & low birth weight deliveries & to offer early fetal diagnosis of congenital malformations by providing better antenatal care services with a good interaction between obstetricians & paediatricians, & improving the educational & socioeconomic status of the community plus having a better family planning. There is also a serious need to provide a new aseptic NICUs with new technologies like central oxygen supply and portable X. Ray & new therapeutics like surfactants which use in premature neonates with RDS& amore professional training for doctors & nurses.

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