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Frequency and Causes of Early Neonatal Death at Bonzola Hospital (Mbujimayi, DRC)

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Abstract

Objective

The present study was carried out with the aim of studying the frequency and causes of early mortality with a view to improving the health of mothers and children and to make our contribution to the framework for accelerating the objectives of the millennium for development.

Material and methods

Our study is descriptive cross-sectional. It was carried out at

Bonzola hospital, town of Mbujimayi, province of Kasai Oriental in the Democratic Republic of Congo. It concerns 195 subjects.

Results

The present study reveals that the frequency of early neonatal deaths is 53.5%, prematurity is the most represented cause with 64.1%.

Keywords: Frequency, Deaths, Early Neonatal Deaths

Introduction

In 2019, 2.4 million children worldwide died in their first month of life. There are approximately 6,700 newborn deaths per day, which represents 47% of all deaths of children under 5 years old, an increase compared to 1990 when it was 40% ^[1].

The first source of concern in France is that deaths of infants less than 27 days after birth are on the rise. Nearly a quarter of deaths occurred during the first day of life and 47% during the early neonatal period, that is, the first week after birth ^[2].

Neonatal mortality is an indicator of the quality of obstetric and neonatal care. It depends on the level of socio-economic development of a country. Although neonatal mortality has been observed to be decreasing in most parts of the world, it is still a major problem in developing countries ^[3].

According to the World Health Organization (WHO), the number of newborns who died increased from 4.4 million in 1990 to 2.9 million in 2010. Several African authors have taken an interest in this subject and have shown 25.4% at the University Hospital Center of Blida, Algeria, 27.4% in Dakar, Senegal and 25.9% in Ouagadougou, Burkina Faso ^[4].

Furthermore, it was also reported that almost 75% of child deaths were due to several preventable conditions including: Prematurity, birth asphyxia and neonatal infections ^[1].

Neonatal mortality represents 40% of deaths among children under 5 years of age worldwide, particularly in developing countries. Africa has the highest neonatal mortality rate estimated at 45 deaths per 1,000 live births compared to 5 deaths in developed countries. Reducing neonatal mortality would require effective programs that take into account interventions on modifiable risk factors [2].

Children who die within the first 28 days of life have conditions and illnesses associated with the lack of quality care at birth or treatment by trained personnel immediately after birth and in the first days of life.

In Togo, the hospital frequency of mortality of full-term newborns was 10.3%, including 84.4% in the early neonatal period [5].

The Democratic Republic of Congo (DRC) is ranked among the countries with the highest number of neonatal deaths in the world with 116 neonatal deaths on average, 3% neonatal deaths globally and 47% neonatal mortality rate per 1000 births alive. As for the components of infant mortality, they stand at 28‰ for neonatal mortality and 30‰ for post-neonatal mortality and the latter seems to have been stable over the last 15 years [1].

In Kamina, Kalonji D & al [6] showed that the intra-hospital frequency of neonatal deaths which amounted to 25% was justified by four main causes, namely: Prematurity and its complications, neonatal infections, the syndrome poly malformative.

Thus, we wanted to present the frequency and study the causes of neonatal mortality in order to detect the possible risk factors which cause a newborn to die after delivery up to seven days of life.

Material and Methods

The study is being conducted at Bonzola General Hospital in Mbujimayi town.

The study is quantitative, of a cross-sectional descriptive type which generally highlights the characteristics of the people. In this study we will have to determine the frequency and causes of early death.

The population in our work consists of the mother-child couple which constitutes the focal point of our study. Thus, we used the non-probability sampling technique of the convenience type, enrolled 195 subjects in the study.

The variables retained are as follows: Maternal characteristics (maternal age, pathologies during pregnancy, mode of delivery, number of prenatal consultations attended (ANC)), characteristics of deceased newborns (age of the newborn; sex, cause of death birth weight, APGAR score at the 5th minute).

Results

Table 1: Frequency of early neonatal deaths

Frequency of deaths	Number	Percentage
Early neonatal deaths	195	46.5%
Death after 7 days	224	53.5%
Total	419	100.0%

In view of this table, most of the children who died after 7 days of life, i.e. 53.5% compared to 46.5% of early deaths.

Table 2: Distribution of deaths according to maternal age

Maternal age (in years)	Number	Percentage
16 -20	96	49.2%
21-25	26	13.3%
26-30	29	15%
31-35	18	9.2%
36 +	26	13.3%
Total	195	100.0%

Looking at this table, 49.2% of those giving birth were aged between 16 and 20 followed by those between 26 and 30 years old.

Table 3: Distribution of cases according to pathology during pregnancy

Pathology during pregnancy	Number	Percentage
Diabetes	2	1.0
HT	8	4.2
Uterine myoma	5	2.5
Malaria	51	26.2
No pathology	126	64.6
Tuberculosis	4	2.1
Total	195	100.0

From this table, 126 deaths or 64.6% occurred among women who did not suffer during pregnancy followed by those who suffered from malaria with 51 deaths or 26.2%.

Table 4: Distribution of deaths according to gestational age

Gestational age (In SA)	Number	Percentage
30-34	126	64.6
35-39	37	19
40 +	32	16.4
Total	195	100

The table above shows that 118 deaths or 64.6% occurred in pregnancies whose age was between 30 and 34 weeks of amenorrhoea.

Table 5: Distribution of deaths according to mode of delivery

Mode of delivery	Number	Percentage
Dystocic	42	21.5
Eutocic	153	78.5
Total	195	100

Looking at this table, 153 deaths, or 78.5%, occurred after an acute delivery.

Table 6: Distribution of deaths according to the number of ANC visits

Number of CPNs	Number	Percentage
1	50	25.7
2	26	13.3
3	2	1
None	117	60
Total	195	100

In view of this table, 117 deaths or 60% occurred among women who did not follow ANC followed by those who followed only once with 50 deaths or 25.7%.

Table 7: Distribution of deaths according to the age of the newborn

Age (In days)	Number	Percentage
0	1	0.5
1	132	67.7
2	34	17.4
3	14	7.2
4	10	5.2
5	2	1
6	2	1
Total	195	100

It appears from this table that 132 deaths or 67.7% occurred within one day of life followed by 34 deaths after two days of life or 17.4%.

Table 8: Distribution of deaths by sex

Sex	Number	Percentage
Feminine	80	41
Male	115	59
Total	195	100

The data in this table shows that 115 deaths or 59% occurred among male children.

Table 9: Distribution of deaths according to causes

Cause	Number	Percentage
Anemia	4	2.1
Asphyxia	28	14.4
Esophageal Atresia	1	0.5
Dysmaturity	7	3.6
Encephalopathy	1	0.5
Hypoglycemia	2	1
Macrosomia	1	0.5
Malformation	6	3
Prematurity	125	64.1
Sepsis	20	10.3
Total	195	100

Looking at this table, prematurity is the most represented cause with 125 deaths or 64.1% followed by Asphyxia with 28 deaths or 14.4%.

Table 10: Distribution of deaths according to birth weight

Birth weight (in grams)	Number	Percentage
≤1500	69	35.4
1600-2400	64	32.8
≥2500	62	31.8
Total	195	100

This table shows 69 deaths or 35.4% occurred in newborns weighing less than or equal to 1500 grams followed by 64 deaths or 32.8% between 1600 and 2400 grams.

Table 11: Distribution of deaths according to APGAR score from the first minute

APGAR in the first minute	Number	Percentage
≤ 3	15	7.7
04-6	154	79
≥7	26	13.3
Total	195	100

Regarding the APGAR score, 154 deaths or 79% occurred in newborns with APGAR between 4 and 6 in the first minute.

Discussion

Table 1 relating to the frequency of early neonatal deaths reveals that most of the children who died after 7 days of life were 53.5% compared to 46.5% of early deaths. Our results do not approach those of Kalonji Deddy C. *et al*^[6], who noted in a study on the frequency and causes of early neonatal mortality in Kamina, that the intra-hospital frequency of neonatal deaths was 25%

Looking at Table 2, 49.2% of those giving birth were aged between 16 and 20 followed by those between 26 and 30 years old. Our results are similar to those of Chiabi *et al*^[8] who found the same thing.

Considering the distribution of cases according to the pathology during pregnancy, Table 3 indicates that 64.6% occurred in women who did not suffer during pregnancy followed by those who suffered from malaria with 51 deaths or 26.2%. Our results agree with those of Saasita A. *et al* (2019) who indicated that 67.6% of deaths occurred in women who did not suffer during pregnancy.

Table 4 shows that 64.6% deaths occurred in pregnancies whose age was between 30 and 34 weeks of amenorrhea. Our results do not come close to those of Kalonji Deddy C. *et al* (2017), who found in their study that the most represented age was less than 25 years old.

Looking at the table, 153 deaths, or 78.5%, occurred after an acute delivery.

Looking at Table 6, 117 deaths or 60% occurred among women who did not follow ANC followed by those who followed only once with 50 deaths or 25.7%. Our results do not come close to those of Kalonji Deddy C. *et al*^[6], who noted the majority of women had attended the prenatal consultation.

It appears from Table 7 that 132 deaths or 67.7% occurred within one day of life. Our results correspond to those of Harir Noria *et al*^[9] who indicated that 69.9% occurred within one day of life.

The data in Table 8 shows that 115 deaths or 59% occurred among male children. Our results do not come close to those of Kalonji Deddy C. *et al*^[6] who noted that the male sex dominated with 55%, M/F sex ratio was 1.95.

Looking at Table 9, prematurity is the most represented cause with 125 deaths or 64.1% followed by Asphyxia with 28 deaths or 14.4%. Our observations are similar to those of Kalonji Deddy C. *et al*^[6] who found that prematurity and neonatal asphyxia were among the main causes of neonatal deaths.

Table 10: Distribution of deaths according to birth weight.

This table shows 69 deaths or 35.4% occurred in newborns weighing less than or equal to 1500 grams followed by 64 deaths or 32.8% between 1600 and 2400 grams.

Table 11: Distribution of deaths according to APGAR score from the first minute.

Regarding the APGAR score, 154 deaths or 79% occurred in newborns with APGAR between 4 and 6 in the first minute. This is approached by Chelo D. *et al* who had fetal factors linked to neonatal mortality are prematurity, acute respiratory distress and neonatal infections.

Conclusion

We have reached the end of our study entitled: “frequency and causes of early neonatal death at Bonzola hospital”.

To achieve our objectives we opted for the method of complementary analysis tools supported by the documentary analysis technique.

After collecting and analyzing the data we arrived at this:

- The frequency of early neonatal deaths is 53.5%
- prematurity is the most represented cause with 64.1%.

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