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Research Article

Maternal mortality in the context of political free health care on pregnancy and birth to the Treichville teaching hospital, Abidjan-Côte d'Ivoire

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ABSTRACT

Background: Maternal mortality continues to be a drama in the countries of Sub Saharan Africa. Despite the efforts of the world through the millennium development goals (MDGs) 5 and 6, the situation remains very worrying in this region. If in developed countries, maternal mortality is an indicator of the quality of obstetric care, for poor countries, it is an indicator of social and economic development.

Methods: Our study was designed to assess the impact of free support of pregnancy and childbirth on maternal mortality at treichville teaching hospital in Abidjan. We conducted a retrospective descriptive study of deaths of our service over the period September 2012 to August 2013 taking into account the hospital data.

Results: During this period, we recorded 32 deaths per 3173 live births. Eight out of ten patients were younger than 35 years. And half had no education. 93.75% of patients were evacuated to another structure and more than half of the deaths occurred less than two hours after admission to our service. Bleeding causes dominate with 37.50% of postpartum haemorrhage.

Conclusions: Maternal death rates in our service remain high despite the policy of free care and factors of this mortality remain unchanged for decades.

Keywords: Free care - CHU Treichville, Abidjan

INTRODUCTION

Maternal mortality continues to be a drama in the countries of Sub Saharan Africa. Despite the efforts of the world through the millennium development goals (MDGs) 5 and 6, the situation remains very worrying in this region. If in developed countries, maternal mortality is an indicator of the quality of obstetric care, for poor countries, it is an indicator of social and economic development.¹ Access to health care is especially difficult for the most vulnerable populations such as women. In Côte d'Ivoire, after the military crisis of 2010-2011, the

government has undertaken to make free health care for pregnant women and children from 0 to 5 years. This measure refers to free health care for pregnant women and children in public health centres and hospitals from the beginning of the pregnancy until delivery and 42 days after the end of pregnancy. Patients' beneficiate of free antenatal, prenatal assessment, delivery (vaginal or caesarean) and treatment of the complications that may arise. The average cost of hospital care for a pregnancy from the first consultation to delivery is estimated between 120 euro for a vaginal birth and 300 euro for caesarean section. This cost was one of the barriers to

access health care as in most poor countries, making it difficult or impossible to achieve MDG 5, whose goal is to reduce by $\frac{3}{4}$ the maternal mortality in our country.

After two years of implementation of this policy, what is the impact of this measure on the rate of maternal mortality in the Ivory Coast? What are the factors for maternal mortality?

The case of the maternity hospital and university centre (CHU) of Treichville as reference centre for level 1 and 2 peripheral maternities is a good reflection on the overall situation in the countries of sub-Saharan Africa, which already applies this policy for free delivery.

METHODS

Our work is a descriptive cross-sectional study which deals with hospital data of maternal deaths at the maternity of Treichville university hospital from September 2012 to August 2013.

Unlike other authors who took into account only the hospital data, the data collected from the population and the civil status and methods of the midwives, we stuck to the more practical and simple reasons like hospital data that was easy to collect. The results ultimately are a reflection of the impact of the policy that we implemented to lower maternal mortality. The WHO definition of 1992 defines maternal mortality based on the number of live births. This facilitates the comparison of our results with literature data. The causes of death were identified in each case by an audit committee and review of service records. In addition, we also took into account the epidemiological parameters of patients, their origin depending on the geographic area of influence of the CHU Treichville, the time of death occurred in relation to the gestational age, the concept of preventability and length of stay in the service were included in our study too.

RESULTS

Frequency

From September 2012 to August 2013 (12 months), we recorded 32 maternal deaths per 3173 live births. This means an annual rate of 1,009 deaths per 100,000 live births. Death occurred within 42 days after childbirth or during pregnancy.

Characteristics of women who died.

Age and gender

81.25% of the women who died were under 35 years with a peak between 30-34 years. The average age of death was 31.82 with extremes between 18 and 42 years. The average parity was 3.13 births per woman with extremes between 1 and 7 (Table 1).

Table 1: Age and parity.

	Number	Percentage (%)	
Age (year)	1	3.13	
≤19	8	25	
20-24	5	15.62	Extreme: 18-42 (moy:31.82)
25-29	12	37.50	
30-34	4	12.50	
35-39	2	6.25	
40-44	1	3.13	
Parity			
Primipare	10	31.25	Extreme: 1-7 (moy:3.13)
Few previous deliveries	15	46.87	
Multipare	4	12.5	
Great multipare	3	9.37	

Educational level and marital status

More than half of the patients who died had no education. The highest level of education was high school with a third being single women without any revenue generating activity. They were housewives (Table 2).

Table 2: Educational level and marital status.

	Number	Percentage (%)
Educational level		
No level	19	59.37
primary	4	12.50
Secondary	2	6.25
unspecified	7	21.87
Marital status		
In a relationship	9	28.12
single	10	31.25
unspecified	13	40.62
Profession		
household	13	40.62
Liberal	3	9.37
Saleswoman	5	16.62
unspecified	11	34.37

From the deceased patients

93.75% of deceased patients were transferred from another structure to the CHU. 62.50% of patients came from outlying maternities, CHU Treichville being a reference centre for other hospitals. Peripherals maternities are within 7 to 10 km from CHU. Other patients died because they came from much further beyond 10 km sometimes up to 80 km (evacuation out of area). The transfers must be remembered in this context and were made by private vehicles most often and rarely by ambulance. They were not ambulances equipped with a special intervention team.

Occurrence of death and duration of hospitalization

The deaths occurred for the most part (65.62%) within 42 days of delivery. 3 deaths occurred on the 6th month of pregnancy. The average length of hospitalization of patients who died in service is 12 hours and 35 minutes with extremes of 2 minutes and 81 hours. 90.62% of the deaths were preventable deaths (Table 3).

Table 3: Occurrence of death and duration of hospitalization.

	Number	Percentage (%)
Occurrence of death		
2 nd trimester of pregnancy	3	9.37
3 rd trimester of pregnancy	4	12.50
During labor	4	12.50
postpartum	21	65.62
Duration of hospitalization (hour)		
< 2	17	53.12
2-72	9	28.12
>72	6	18.75
Extreme:2 minutes-81 hours average 12 hours 35 minute		
preventability		
Preventable	29	90.62
Unpreventable	3	9.37

The causes of death

Bleeding is the leading cause of death for 22 cases (65.62%) followed by complications of hypertension in 7 cases (Table 4).

Table 4: The causes of death.

Causes	Number	Percentage (%)
Haemorrhagic		
Postpartum hemorrhagic	12	37,50
Retro placental hematoma	5	15,62
Uterine rupture	4	50
Placenta previa bleeding	1	3,12
HTA and his complications		
Eclampsia	7	21,87
Infectious		
Pneumonia	1	3,12
Anemic		
Anemia of 6 th month pregnancy	02	6,25

DISCUSSION

Frequency

To compare the rate of maternal death in this study to other national data on one hand and the data in the literature on the other hand, we held account WHO recommendations from 1992.² Thus, the mortality rate is

1009 deaths per 100,000 live births in 2013. This rate is very high compared to the national rate which is 612 per 100,000 live births according to the demographic and health survey and multiple indicators Ivory Coast (EDS-IM 2011-2012). This difference is due to selection bias because our service is a referral service which is the highest level of the health pyramid in the Ivory Coast. The reference system established between our service and the surrounding maternity systematically favors the transfer of complicated cases in our structures. This unusually high rate still knows an average decline of 10% per year compared to the rates of 1700 per 100,000 live births in the same service in 2009-2010. We could see here the impact of free care on the actual decline of this rate. Especially as patients referred in time are handled faster. In addition the internal organization of our service for more than a decade begins to bear fruit through the internal audit committee which analyzes the causes of maternal deaths, and systematically studies these cases during a common staff with gynecologists and midwives at peripheral maternities. The monthly meeting of morbidity and mortality review is a simple and reproducible method.

Hospital data in other reference centers in other countries also have times as high as ours. University hospital of Dakar (Senegal) 1498 deaths per 100,000 live births and Guediawaye hospital in Niger: 1,069 deaths per 100,000 live births.³ While European countries have rates of maternal deaths that do not exceed 15 per 100,000 live births.^{4,5} This constitutes a risk of maternal death around 1/13 in Sub-Saharan Africa, against 1/4100 in developed countries.⁶

Age and parity

Maternal deaths in our study predominate in young patients between 19 and 34 years. The majority of deaths occurred in the paucipares. Although its rates are different from those normally expected due to higher risk of death after 35 years because of the serious complications of pregnancy at this age.^{1,5,7}

Multiparity and high parity is also a risk factor for death in our study although they represented less than a third of women who died. What is obvious to all, every pregnancy faces the risk of maternal death and the risk is even more important if pregnancies are numerous.⁸

Level of education and socioeconomic level

More than 2/3 of deceased patients in our department had no or a very low level of education. Because of their level of education, one might think that these women have not benefited effectively of some good practices such as contraception, birth spacing and the reflex to quickly refer to health centers if warning signs appear. At this low level of education we add the low socioeconomic level that constitutes a wall that is blocking access to care despite the efforts of free care for pregnant women in our

country, a country that has an undeveloped medical system. The cultural factor in our context is not overlooked, as many are new mothers who initially use traditional care or traditional medicine before visiting a health center sometimes very late when the situation becomes uncontrollable. These different situations that increase the risk of maternal death were identified within some communities even in developed countries.^{9,10}

Origins and occurrence of time of death

Almost all the dead patients in our study were transferred from surrounding maternity hospitals within 10 to 80 kilometers, and sometimes more. These transfers happen in personal vehicles and mostly without intravenous lines. If this discharge rates reveal the reality of reference in our system, the circumstances of this reference are against improving. The circumstances of these transfers are identical in countries with high rates of maternal mortality.¹¹ The poor quality discharge is one of the factors on which action must be taken if we want to reduce significantly the maternal death rates in poor countries. Especially since these patients arrive late and sometimes in dramatic situations. Indeed, more than half of the patients died within two hours after admission to the service because of their poor condition on arrival and sometimes after more than 3 hours away. The poor condition of transfer associated with the delay seriously jeopardizes the care of these patients and their arrival in the reference structure.^{12,13}

More than half of the deaths occurred after childbirth and in the immediate postpartum. Deaths related to a non-diagnosed risk situation or due to late or insufficient immediate postpartum monitoring. This would be a professional failure.¹⁴

Causes of death and preventability

The main causes of maternal deaths are known to all. The magnitude varies according to studies, countries and time. In our study, the main cause of maternal death is mainly hemorrhage. It is the leading cause of death that comes up in most studies.^{4,15,16} In our context, the effective management of postpartum hemorrhage is facing a shortage of blood and derivatives. Some studies conducted in Tanzania and Nigeria between 2000 and 2005 found hypertension and its complications (eclampsia) as the main causes of maternal death.^{15,17}

90% of deaths are due to direct obstetric causes which are all preventable. Already in 1988, 89% of deaths in Abidjan were preventable.¹³ In France, 54% of death in 2007-2009 and 50% of death in 2011 are preventable.^{14,18} The analysis death by the audit committee of our service reveals that the delay in transfer and poor conditions of transfer are behind the complexity of care in our reference center. And often, the diagnosis of the complication which resulted in the death of some patients was made in time but the proper treatment was not

administered in time. This observation is found in other studies in sub Saharan Africa.^{19,20}

CONCLUSION

Maternal mortality in our country will remain very high for a long time, as the obstacles seem to be many and insurmountable. Having made free the management of pregnancy and childbirth in our country has made it possible to slightly reduce the rate of maternal deaths. The factors of maternal mortality have not changed regardless. This is due to the low socio economic; the status lack of equipment in our hospitals of reference and the delay in the transfer that is sometimes compounded by the distance between the different structures. Substantial efforts at these levels could help to further reduce this rate, which remains unacceptable for our country.

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