

ANALYSIS OF MATERNAL DEATHS IN SOUTHERN N'DJAMENA DISTRICT HOSPITAL (CHAD)

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ABSTRACT

Background: The maternal mortality ratio in Chad is 1099 per 100,000 live births. According to the WHO, 80% of the maternal deaths are preventable if appropriate measures were taken. **Objective:** to determine the proportion of preventable deaths and to identify the elements linked to maternal death in N'Djamena south District Hospital. **Materials and Methods:** This was a retrospective, descriptive study spanning over two years, from January, 1st 2013 to December, 31th 2014 carried out in N'Djamena South District Hospital concerning analysis of maternal deaths in southern N'Djamena district. All patients that died during the pregnancy or within 42 days postpartum in N'Djamena south district hospital during this survey were included. **Results:** During this survey, we recorded 52 maternal deaths for 7439 deliveries giving a maternal death rate of 699 per 100,000 deliveries. The age group between 25-29 years was the most represented with 34.6%. The majority of patients (73.1%) were referred and 48 patients (92.3%) had less than 4 prenatal consultations. The causes of maternal deaths were dominated by: delay seeking medical care, delay in accessing health facilities, and the delay in accessing efficient care. Obstetrical pathologies (direct causes) were responsible for 92.3% of deaths, these pathologies were: hemorrhage, eclampsia, abortion and infections. In 07.7% indirect causes were noted. Twenty five patients (48.2%) received medical care within 30min-1h after diagnosis. **Conclusion:** The maternal death remains a public health problem that persists in Chad. Its reduction requires the removal of delays.

KEYWORDS: Maternal, Deaths, Southern N'Djamena.

INTRODUCTION

More than 90% of maternal deaths worldwide occur in sub-Saharan Africa (SSA) and south Asia. These high maternal and associated neonatal mortality rates persist despite considerable efforts from the World Health Organization, governments, development partners, and others^(1,2,3). The majority of these deaths are related to pregnancy complications that are inadequately managed because of lack of access to emergency health care. The maternal mortality ratios (MMRs) of Sweden, the United Kingdom, and the United States are 4, 12, and 21 per 100,000 live births, respectively, whereas

those of Chad, Nigeria, and Congo are 1099, 630, and 540 respectively. In SSA, the major direct causes of maternal mortality are haemorrhage, pre-eclampsia/eclampsia, obstructed labour, and sepsis^(4,5). Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental cause⁽⁶⁾. According to the WHO, 80% of the maternal deaths are preventable if appropriate measures were taken⁽⁷⁾. Nowadays, the concept of preventability of maternal death is in the front burner, since it allows establishing a link between the population health and the functioning of the health system⁽⁷⁾. The objective of this study was to determine the proportion of preventable deaths and to identify the elements linked to maternal death in N'Djamena south District Hospital.

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MATERIALS AND METHODS

Place and period of study: This was a retrospective, descriptive study for two years, from January, 1st 2013 to December, 31th 2014 carried out in N'Djamena South District Hospital concerning analysis of maternal deaths in southern N'Djamena district hospital.

The South district hospital in N'Djamena is a level II hospital located in N'Djamena city, which is surrounded by 13 health centers. These health centers often refer patients to N'Djamena south district hospital for better care.

All patients that died during the pregnancy or within 42 days post-partum in N'Djamena south district hospital during this survey period were included.

Variables studied: epidemiological variables (maternal age, mode of admission, parity, and prenatal care), clinical variables (time between diagnosis and treatment, causes of maternal death, type of care, and cause of delay). The data were analyzed by the software SPSS.18 (SPSS, Inc, IL, and Chicago). P value < 0.05 is considered significant.

RESULTS

Frequency

Between January, 1st 2013 to December, 31st 2014, there were 52 maternal deaths among the 7439 deliveries, giving an overall maternal mortality ratios (MMRs) of 699 per 100,000 deliveries. Among the cases of maternal deaths, 43 were preventable giving a rate of 82.5%.

Table 1 shows the age and parity of the patients studied. The age group between 25-29 years was the most represented with 34.6%. The average age was 28.6 years, with the extremes ranging from 16 to 45 years.

The majority of patients (73.1%) were referred. This difference was statistically significant (p = 0.008). These patients were referred from health centers. The prenatal consultations were not adequate with 48 patients (92.3%) that had less than 4 prenatal consultations (PNC). More than the half of patients (57.7%) hadn't had PNC. Only four patients (07.7%) had made at least 4 PNC (p = 0.001).

Table 1: Age and Parity

Patient characteristics	Number	%
Age (years)		
<20	04	07.7
20-24	10	19.2
25-29	18	34.6
30-34	11	21.2
35-39	07	13.5
40	02	03.8
Parity		
primiparous	21	40.4
Pauci para	27	51.9
multiparous	04	07.7
Admission mode		
Referred	38	73.1
Non referred	14	26.9
Number of prenatal consultation		
0	30	57.7
1-3	18	34.6
4	04	07.7



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Table 2 shows the obstetrical causes of maternal death. For the majority of deaths (n = 48/52, i.e. 92.3%), the direct causes had been incriminated. But in four cases (07.7%) the indirect caused had been found.

The direct causes found in this survey were: hemorrhage, eclampsia, abortion and infections. Among the direct causes of the maternal death, hemorrhage was the leading

cause of death with 34 cases / 52 (65.4%). The eclampsia was incriminated in 13.5% of deaths. Three cases (05.8%) of death due to the malaria were encountered in this study (indirect cause).

Except cardiopathy (01.9%), other maternal deaths were preventable if efficient measures have been taken during antenatal consultation or labour.

Table 2: Obstetrical causes of maternal death

causes of maternal death	Number	%
Hemorrhage of the first trimester		
Abortion	05	09.7
Ruptured ectopic pregnancy	03	05.8
Hemorrhage of the third trimester		
Placenta praevia	03	05.8
Abruptio placenta	05	09.7
Uterine rupture	02	03.8
Hypertension and complications		
Eclampsia	07	13.5
Hypertension	02	03.8
HELLP	02	03.8
Post-partum hemorrhage		
third stage bleeding	13	25
Cervical tear	01	01.9
Clot disorder	02	03.8
Other causes		
Infection	02	03.8
Pulmonary embolism	01	01.9
Malaria	03	05.8
Cardiopathy	01	01.9

Table 3: Time for seeking care

time for seeking care	Number	%
30mn	05	09.6
30mn-1h	25	48.2
1h-1h30mn	10	19.2
1h30mn-2h	06	11.5
>2h	06	11.5
Total	52	100



Table 3 shows the time for seeking care. Twenty five patients (48.2%) received medical care within 30mn-1h after diagnosis. Six patients (11.5%) were cared > 2 h after diagnosis. This difference was statistically significant (p = 0. 006). Thirty minutes is considered acceptable time interval between diagnosis and treatment.

Table 4 shows the reason for delays in care. The causes of maternal death in African countries are dominated by three delays: delay for deciding to resort for medical care, delay for accessing health facilities, and the delay for accessing efficient care. These 3 delays were encountered in this survey with 18 cases of death (34.6%) due to the lack of blood product and 12 cases of death (23.1%) due to a late reference. The lack of medicine and the family refusal had represented respectively 15.4% and 13.5%.

Table 4: Reasons for delays in care

Reasons for delays in care	Number	%
Lack of medicines	08	15.4
Accessibility to health facilities	02	03.8
Family refusal	07	13.5
Lack of blood product	18	34.6
Late reference	12	23.1
Delay in decision to resort to medical care	05	09.6
Total	52	100

Table 5: Treatment instituted before maternal death

Treatment	Number	Percentage
<i>Medical</i>		
Blood transfusion	10	19.2
Colloid/crystalloid	18	34.6
Uterotonic	13	25
Antibiotic	14	26.9
steroid	02	03.8
<i>Héparine</i>		
Anti malaria drug	03	05.7
Anti hypertension	05	09.6
<i>Obstetrical/surgical</i>		
Suture of tear	01	01.9
Manual vacuum aspiration	05	09.6
Caesarean section	1	01.9
Laparotomy	1	01.9



Table 5 shows the treatment instituted before maternal death. In our health facilities, the management of patients often focuses on the treatment of bleeding, those of hypertension and its complications, abortions and infections. Thus, for the management of hemorrhage, the infusion of colloid / crystalloid was administered in 18 cases (34.6%) associated with 19.2% of the blood transfusion.

In order to ensure the uterine contraction 25% of patients had received utero tonic agents. Antibiotics were instituted in 26.9%

DISCUSSION

The preventable maternal deaths designate the premature deaths that should not occur if effective and preventive care is instituted. In this survey 82.5% of maternal deaths due to obstetric complications were preventable. Lansac⁸ in 2006 in France had reported 80%, in Benin Zaisonou⁷ had observed 74% of preventable maternal death. According to WHO, the majority of maternal deaths are preventable because medical solutions to prevent or manage the complications are known⁹

Our rate could be explained by the fact that the N'Djamena South District Hospital receives patients referred from health centers. These patients mostly coming from rural areas, poor and don't attend prenatal consultation. WHO reports that the factors which prevent women from receiving or soliciting care during pregnancy and childbirth are: poverty, long distance, lack of information, inadequate services, and cultural practices⁹. These findings are corroborated by our study.

The main obstetrical complications responsible for maternal mortality in this survey were dominated by bleeding 65.4%, followed by 13.5% eclampsia. Our proportions contrast with those reported previously by Kaimba¹⁰ and Bukar¹¹ that noted that Preeclampsia/eclampsia.

was the leading cause of the maternal death with respectively 31.2% and 32.1%. Through literature, many authors such as Alihonou¹² Dellagi¹³ and Memadji¹⁴ reported that

bleedings are the leading cause of maternal death.

The high rate of maternal deaths due to the hemorrhage noted in this survey can be explained on one hand by the poor monitoring of pregnancy and on the other had by the important number of referred patients. The prenatal consultations are an opportunity to screen the complications of pregnancy, the lack of which expose women to obstetrical complications.

The delay in accessing health facilities or access to efficient care had represented 48 cases (73.07%). Among these cases, the lack of blood product and the delay of reference encountered respectively in 18 cases, (34.6%) and 12 cases (23.1%). the unavailability of blood product occurred is due to lack of the stock of the blood product in N'Djamena south district hospital. This situation is experienced by all health structures in N'Djamena city. The one functional blood bank located at the General Hospital National reference does not often answer at all requests for blood products.

The care of patients was prevented by family refusal in 07 cases (13.5%). This behavior of the families to refuse the gestures provided by health workers aiming to save their parents is variously experienced worldwide. Thus Djanhan¹⁵ in Ivory Coast and Mukendi¹⁶ Congo DRC had reported respectively 41.4% and 34.4% of family refusal. Lansac⁸ noted a similar rate than ours with 13.7%.

In Chad family refusal for medical care can be explained by lack of information. For many persons, the surgical treatment and the blood transfusion are synonymous of fatal situation. Thus some families prefer to resort to traditional medicine.

The care given was mainly concerned with the treatment of bleeding. The infusions of colloid / crystalloid were performed in 18 cases (34.6%). In order to ensure uterine contraction, 25% of patients had received uterotonics. Ten patients, 19.2% were transfused. Our practice is similar to that recommended by the National College of French Gynecologist and obstetrician^{17,18}.

Despite the emergency and some cases of family refusal, the time for caring had varied

from 30 minutes to > 2 hours. Thus, 25 patients (48.2%) were cared within 1h 30mn-after diagnosis and 6 patients 11.5% were cared within > 2 h. The rapid care or the decisions to accept medical care seem to be elements improving that could improve maternal prognosis. WHO in 2008 had reported that in cases of hemorrhage, the maternal death can occur within 2 hours.

Conclusion

Maternal death remains a public health problem that persists in Chad and in other developing countries, despite the preventability of some contributing factors incriminated. The reduction of its rate requires the removal of the three delays, the improvement of medical staff skills to prevent or manage the obstetrical complications.

REFERENCES

1. World Health Organization. Trends in maternal mortality: 1990 to 2008. World Health Organization, Geneva (Switzerland) (2010).
2. World Health Organization. The World Health Report 2005. Make every mother and child count. World Health Organization, Geneva (Switzerland) (2005).
3. World Health Organization. Reduction of maternal mortality: a joint WHO/UNFPA/UNICEF/World Bank statement. World Health Organization, Geneva (Switzerland) (1999).
4. Khan K.S., Wojdyla D., Say L., Gulmezoglu A.M., Van Look P.F.. WHO analysis of causes of maternal death: a systematic review. *Lancet*, 367 (2006), pp. 1066–1074.
5. Lawn.J.E., Cousens.S, Zupan.J. Four millions neonatal deaths: when? where? why? *Lancet*, 365 (2005), pp. 891–900.
6. Doumbia Y, Y Djanhan, Kouakou KP. Problem of the maternal deaths from hemorrhage at maternity clinic of SOUTH ABOBO (Abidjan). *Int Rev Sc.* 2006; 8 (2): 41-5.
7. Saizonou J, Ouendo EM, Dujardin B. "Audit of maternal deaths in four of Benin referral maternity: Quality emergency care, causes and contributing factors." *Afr.J of reprod Health*, 2006; 10 (3): 28-40.
8. Lansac j. Maternal mortality in TOURS University Hospital. umvf.cerimes.fr/media/ressWikim/Gynecologie/college/ Accessed 12/11/2013.
9. Maternal mortality Checklist # 348 in May 2014. www.who.int/mediacentre/factsheets/fs348/fr.
10. Kaimba O. Maternal mortality in the maternity ward of the General Hospital of N'Djamena National Reference. PhD in Medicine FSSH N'Djamena; 2012. 75P.



11. Bukar M, Kunmanda V, Moruppa JY, Ehalaiye B, Takai UI, Ndonya DN. Maternal mortality at federal medical centre Yola, Adamawa State: A five-year review. *Ann Med Health Sci Res* 2013.3:568-71.
12. Alihonou E. Reviewing severe maternal morbidity at the maternity CHNU of Cotonou. Communication SAGO Third Congress, December 1996.
13. Dellagi RT, Belgacem I, Hamrouni M, et al. Follow up evaluation of maternal deaths in health facilities Tunis (1999-2004). *Rev Med sté Orientale*. 2008; 14 (6): 13380-90.
14. Memadji .M, L.Dzbernis, C.welfens, Mamourou.K, GQuenum, preliminary results because of maternal deaths in Moundou maternity 2009.SAGO 2001 to 2010.
15. Djanhan Y, Y Doumbia, Kouakou P, et al. Situational analysis of maternal mortality at the University Hospital of Bouaké from 1999 to 2002. *Obstet Gynecol Rev Int* 2004 Special Issue: 23-6.
16. Mukendi MR, Balloy KM, Ngwe TMJ, et al. Study of maternal mortality and factors associated with hospital JASON Sendwe to Lubumbashi 2000-2011. *Rev Med lakes*. 2012;1 (4):193-9
17. Beucher.G, Dreyfus.M. Initial obstetrical management of postpartum hemorrhage following vaginal delivery. *Obstetrics and Gynecology Journal Biology of Reproduction* Volume 43, Issue 10, December 2014, Pages 936-950.
18. Dupont.C, Ducloy-Bouthors. A-S, Huissoud.C. Clinical and pharmacological procedures for the prevention of postpartum haemorrhage in the third course of labor. *Obstetrics and Gynecology Reproductive Biology Journal* Volume 43, Issue 10, December 2014, Pages 1083-1103
19. WHO. Recommendations for clinical practices of obstetric and neonatal emergencies in Africa. Provider of the guide. WHO Regional Office for Africa (2009). 150 p

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