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Original Research Article

Maternal Mortality at the Mother and Child Health Center of the Zinderregion: Causes and Epidemiological Profile of Patients

Aboukari BM[1*], Rabiu MB[2], Magagi A[1], Hounkpe PC[2], Lankonde Z[3], Maikassoua.M[1], Idrissa A[3]

[1]Anesthesia resuscitation service of the Niamey National Hospital - Nigeria
[2]Department of Anaesthesia, Abubakar Tafawa Balwa University Teaching Hospita Bauchi, Nigeria
[3]Anesthesia Resuscitation Service of the CNHU-HKM BENIN

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Abstract: ***Introduction*****:** The study of mortality makes it possible to control and revise therapeutic measures in a health facility. Maternal death is a major concern in the world, it is a social tragedy. We present a study on maternal death at the Mother Child Health Center in the Zinder region. ***Methodology:*** The study was a retrospective, descriptive study covering eleven months from January 1st to November 30th, 2017. Study conducted at the mother and child health center in the Zinder region, the main regional reference point for obstetric gynecology. The objective was to determine the epidemiological profile of deceased parturients. Patients admitted directly or evacuated from other health facilities and who died as a result of maternity were included. Patients who died outside the gestational setting were excluded. Data was collected from the admission register, the maternal death audit report and the patient record. The variables studied were epidemiological data, type of anesthesia, ASA class, cause of death, mode of transport. ***Results:*** A total of 10090 patients admitted were studied, one hundred and sixteen (116) women died (1.14%) and 3030 deliveries was conducted, of which 2635 were live births. The average age was 26.28 years with extremes of 15 years and 42 years. The 21 to 30 age group was the most affected with 31.89% (n = 37). Large multiparas (5 to 13 parities) were in the majority with 46.55% (n = 54). Transportation was unsafe at 86.20% (n = 100) and 68.96% (n = 80) was more than 50 km from the site of care. Almost all, 99.13% (n = 115) were uneducated and unprofessional. NPC was not achieved in 98.27% (n = 114) of the cases. Anesthesia was performed in 23.27% (n = 27) of the patients including 19.82% general anesthesia and 03.44% spinal anesthesia. The ASA I class represented 14.81% (n = 04), ASA II 74.07% (n = 20) and 11.11% for the other classes. The midwife was the caregiver in 87.93% (n = 103) of the cases. Delayed treatment was the leading cause of death in 51.72% (n = 60) of cases followed by inadequate treatment and delay in 12.06% (n = 14) and delayed diagnosis or intervention in 06.03% (n = 07) cases. Pathologically, anemia, haemorrhage and eclampsia were found in 39.65% (n = 46), 17.24% (n = 20) and 16.37% (n = 19) respectively. **Conclusion:** Poor quality of care, delay in care and inadequate quality and quantity of material and staff were the determining factors in the occurrence of deaths at the maternal health center. Child from the Zinder region.

Keywords: Maternal mortality, Zinder, Niger.

INTRODUCTION

World Health Organization, Geneva 1977, defined maternal death as: "The maternal death is the death of a woman during pregnancy or within 42 days of termination of the pregnancy, whether of the duration or the localization, for any cause determined or aggravated by the pregnancy or the care which it has treated, but neither accidental nor fatal " . Maternal mortality remains a major concern worldwide, although majority occurs in Africa Sub-sahara and part of Asia, death during pregnancy or during childbirth is a human tragedy at the individual, family and social level. The best way to assess the quality of care of a country and similarly in a hospital environment is to determine the maternal mortality rate. An audit will provides guide and help the policy makers to review preventive and therapeutic measures. In Africa the

***Corresponding Author:** Aboukari BM

likelihood exists for a girl of 15 years died of a complication related to a pregnancy and childbirth during her lifetime is highest, it reached a on twenty-six (1/26). In view of all the above, we proposed to study the causes and the epidemiological profile of deceased parturients as well as the factors likely to influence the mortality and morbidity at Zinder region.

Aims

Determine the epidemiological profile of parturient died in mother child health center in the region of Zinder.

Specific objectives

Evaluate the epidemiological data of patients, Identify the possible causes of maternal mortality.

PATIENTS AND METHODS

This study was a retrospective, descriptive conducted over 11 months from 1 January to 30 November 2017. The study took place at the mother child health center, the main reference center for obstetrics and gynecology in the region, but also receives patients from the Diffa region and northern Nigeria. All women that died from pregnancy or within 42 days of termination of the pregnancy, whether of the duration or the localization, for any cause determined or aggravated by the pregnancy or the care which it was treated admitted directly or after evacuation of other health facilities and died in the center were included in the study. All patients who died in the center outside pregnancy and childbirth were excluded. The data was collected from the admission register, the parturient record and the maternal death audit report. The variables studied were age, occupation, pregnancy, parity, mode of evacuation, time to evacuate, type of anesthesia, ASA class, time to care, distance covered to access care, cause of death and length of stay.

RESULTS

During the study one hundred and sixteen (n = 116) audited maternal deaths were recorded out of 10090 patients admitted and 3039 deliveries were made, including 2635 live births, a frequency of 1.14%. The average age of patients was 26.28 years old with extremes of 15 years old and 42 years old. The 21 to 30 age group was the most concerned with 37.93% (n = 44) followed by the 15 to 20 age group with 31.89% (n = 37) and the 31 to 40 age group represented 28, 44% (n = 33).

Large multiparas (5 to 13 parities) made up 46.55% (n = 54) of the sample, primiparas 25.86% (n = 30) and 3 to 4 parities accounted for 26.72% (n = 31). The transport of the patients was not medicalized in 86, 20% (n = 100) of the parturients against only 13, 79% (n = 16) for the medicalized one. More than half of the patients 68.96% (n = 80) came from an average of more than 50 km from the place of care (maternal health center) versus 31.03% (n = 36) for the community urban area of Zinder, where the center exists.

Nearly all patients, 99.13% (n = 115) were unemployed and out of school, only one patient (0.86) was in school. More than half of the patients, 92.24% (n = 107) had no history of surgery, five of them (04.31%) (n = 05) had a scarred uterus and 01.72% (n = 01) had respectively arterial hypertension and diabetes. Nearly all patients, 98.27% (n = 114) did not have an antenatal consultation (ANC), only one patient (0.86%) had five (5) ANC. Anesthesia was performed in 23.27% (n = 27) of which 19.82% (n = 23) were general anesthesia versus 03.44% (n = 04) of spinal anesthesia. The ASA I class represented 14.81% (n = 04), the ASA II class accounted for 74.07% (n = 20) and the 11.11% (n = 03) for the ASA III, IV classes. The caregiver who took care of the patient first was a midwife in 87.93% (n = 103) of the cases. Patients were referred by a senior obstetric and neonatal technician in 10.34% (n = 12), and by the obstetrician gynecologist first in only 0.86% (n = 01) and in only one case was 0. 86% (n = 01) the midwife team, senior obstetric and neonatal technician and gynecologist obstetrician met together for management.

The file analysis found that treatment delay was one of the leading causes of death in 51.72% (n = 60) of cases, followed by treatment and delay inadequacy in 12.06% (n = 60). 14). The delay in diagnosis or surgical intervention was the cause of death in 06.03% (n = 07) of the patients and the social weight of the husband was involved in 03.44% (n = 04) of the cases. In 26.72% (n = 31) of patients, the cause of death was imprecise. Pathologically, anemia was a major factor in the occurrence of death with 39.65% (n = 46), followed by hemorrhages in 17.24% (n = 20) and the eclampsia crisis in 16.37%. (n = 19).

Table-1: Pathology s and maternal death

Pathology	Number of cases = n	Percentage
Eclampsia	n = 19	16 , 37 %
Anemia	n = 46	39.65 %
septicemia	n = 12	10.34 %
Renal failure	n = 01	0 , 86 %
Haemorrhage	n = 20	17.24 %
endometritis	n = 02	1.72 %
PAO	n = 06	05.17 %
chorioamnionitis	n = 01	0 , 86 %
Malaria on pregnancy	n = 01	0 , 86 %
Abdominal bloating	n = 01	0 , 86 %
hypoglycemia	n = 01	0 , 86 %
Uterine rupture	n = 04	03.44 %
Mole hydatiform	n = 01	0 , 86 %
Occlusion on pregnancy	n = 01	0 , 86 %
Anesthesia (stop on table)	n = 01	0 , 86 %
Diabetes on pregnancy	n = 01	0 , 86 %
Complication post op ératoire	n = 01	0 , 86 %
Ovariantumor on pregnancy	n = 02	1.72 %
Trauma on pregnancy	n = 01	0 , 86 %

The number of deaths in this center is decreasing over the years:

Table-2: Distribution of the number of deaths per year at CSME Zinder

Year	Number of deaths
2014	167
2015	182
2016	138
2017	**116**

Elsewhere in the world it was found to be a high death rate compared to the rest of the world:

Table-3: Distribution of the death rate by country in 2015.

Country	Death rate per 100,000 live births	Year
Niger	553	2015
Tchad	856	2015
Benin	405	2015
Mali	587	2015
Senegal	315	2015
Nigeria	814	2015
Kenya	510	2015
Djibouti	229	2015
Swiss	05	2015
Italy	04	2015

DISCUSSION

The demographic profile of parturients showed that, maternal mortality can occur in any women of childbearing age, married or single. However, the risk was high in our study because majority were uneducated and multiparous mothers. High proportions of housewives found among deaths correlate with the fact that the majority of the women were not educated and are unemployed. This study highlight the causes responsible for maternal deaths in Zinderregion based on audit reports. Our study found anemia (39%) followed by haemorrhage (17%) and eclampsia (16%) was found to be the leading cause of maternal mortality in our setting.

WHO regions between 2003 and 2009 showing 73% of direct obstetric causes and 27% of indirect causes [13]. In sub-Saharan Africa, the main causes reported were hemorrhages 24.5% (16.9-34.1), hypertension 16% (11.7-21), abortion 9.6% (5.1-17.2), embolism 2.1% (0.8-4.5), sepsis 10.3% (5.5-18.5) [12]. Dellagi, *et al*. [15] found 69.8% hemorrhage. Touaibia, *et al*. [16] described the most common causes of death

as bleeding (75.6%), hypertensive complications (28%), dystocia (12%), heart disease (6%) and infections (4%). One study [16] conducted in the city of Lubumbashi (DRC) at Sendwe hospital indicates that out of 77 maternal deaths were identified during 2013-2015, 74.03% of deaths occurred direct obstetric causes; bleeding with 61.04% was the leading cause of maternal death followed by eclampsia (31.58%); indirect causes were dominated by heart disease (30.0%); 75.32% of deaths had occurred within 24 hours of admission. The major causes are similar but occurring with different rates according. Although, various indirect factors might have contributed such as; culture, poverty, negligence and ignorance.

The progress made at the Mother and Child Health Center in the Zinder region was partly due to the strengthening of staff in both quality and quantity in comparison with a year prior to this study. Indeed, there had been the assignment of seven obstetrician gynecologists against one at the beginning. It emerged from this study majority of the patients 86% were not transported with ambulance neither were accompanied by any medical staff despite the critical nature of their condition. These may be attributed to poor resources in terms of manpower and logistics in our settings. This study revealed that, the distance separating the center of the health facilities having referred the patients (on average more than 50 km for 68% of the patients) may be significant contributing indirect factor associated with poor outcomes found in our study, patients living more than 50KM from our center may have delayed in accessing tertiary care as a result of Delay or refusal in taking decision. Poor roads network and lack of national Ambulance services may result in further delay in initiating advance care. Similarly, majority of the patients in this study have no antenatal care (ANC), the role of ANC in early identification of high risk pregnancy cannot be over emphasize. Symptoms associated with high risk pregnancy can be discussed during health talk may prompt the pregnant women to seek medical attention early thereby preventing further deteriorating of their clinical conditions. Other causes were also observed: the delay of care (51%), the inadequacy of treatment (12%), the delay of diagnosis (6%).

The health worker who first cared for the patient would also have an impact in the occurrence of the death. This has also been noticed in Kinshasa [13].In general, lack of money and transportation or ignorance would prevent poor families from accessing obstetric centers quickly. The study of Hynes, *et al*. [18] reported that about 80% of the women arrived at the health center on foot and 7% of women had had a pregnancy at home. We agree with Alexander Dumont [19] who concluded that the delay in care has a fatal outcome for the mother in developing countries. Maternal death is an indicator of the weak-nesses of the health system and development as well in a country.In this study majority of the parturient were seen by midwives. Presence of obstetrician at rural areas will indeed reduce the severity of the complications through early detection and management.

With respect to health facilities, the responsibilities are related to inadequate infrastructure and lack of qualified people in rural and small health facilities, consistent with the study of Hynes *et al*., according to that study, the authors showed that 52.1% of the caregivers had received training in normal (uncomplicated) deliveries, while only 10 (43.4%) had received training on the complications of childbirth. Mouzou, *et al*. [20] found in their study that almost all deceased parturients who underwent caesarean had not benefited from the physician's services for resuscitation.

Maternal death is an indicator of the weaknesses of the health system and development as well in a country [20]. However surprisingly, even in the United States, the number of maternal deaths remains high. A health system can be strong but the cost of care must not be out of reach of the population [21]. Many cases of maternal deaths are too often multifactorial and can be hidden events and go notice because of the diverse cultural practices and weakness of health information and records. Also "near misses" defined as women who almost died but, with luck and care, survived [22] were not accounted in the present study, contrarily to what is done in developed countries where maternal deaths are rare. The study found that a large proportion of maternal deaths were due to delayed or insufficient emergency obstetric care, inadequate management, lack of medical and technical equipment. Thus, improving the infrastructure of obstetric medical facilities and the professionalism of health practitioners, while educating pregnant women on good birthing practices and family planning and women empowerment can significantly reduce maternal mortality in that region. There is an urgent need to develop specialist manpower and designed emergency protocols such as early maternal warning score to improve identification and the management of obstetric complications in resource-poor settings.

CONCLUSION

Poor quality of care, delay in care and inadequate quality and quantity of material and staff were the determining factors in the occurrence of deaths at the maternal health center. Child from the Zinder region

REFERENCE

1. Costello, A., Osrin, P., Mamandhar, D. (2004). Maternal reducing and neonatal mortality in the poorest communities. *BMJ*, *329*; 1166-1168.
2. Divid, C., Francisca, M. (2012). Francine Romyae T Felix Tietech Early neonatal mortality and its

determinants in a Level I maternity in Yaounde, Cameroon. *The Pan African Medical Journal, 13*; 67.
3. Bromley, R., Dolk, H., Loane, M., Given, J., Geldhof, A., Jordan, S., & Zeitlin, J. D1. 2 Core evidence elements for generating medication safety evidence for pregnancy using population-based data.
4. Esteves-Pereira, A. P., Deneux-Tharaux, C., Nakamura-Pereira, M., Saucedo, M., Bouvier-Colle, M. H., & Leal, M. D. C. (2016). Caesarean delivery and postpartum maternal mortality: a population-based case control study in Brazil. *PloS one*, *11*(4), e0153396.
5. KE. Aka, Gahoro, M. (2016). KONE Free obstetric care policy and maternal and child health indicators. Results and impact in tertiary maternity in Abidjan. Research en, 3; 1551 CC - BY License
6. Ouedraogo, T., Kpozehouen. (2013). Evaluation of the implementation of free cesarean section in Benin. Public Health, *4*(25) 158.
7. World Health Organization Maternal mortality. (2015). Memorandum No. 348. Geneva ; WHO: November 2015
8. Ouedrago. C.M., Ouedrago. A., Ouattara. A, Lankondé. J. (2015). The practice of caesarean section in a district hospital in Ouagadougou: epidemiological, clinical and prognostic aspects: about 3381 cases. *Tropical Medicine and Health*, *25*(2)194 - 199.
9. Pascaline H. R. The matrones and the reduction of maternal mortality, a contribution to the debate. *Global Heath Promotion*, *18*(4); 31 - 4.
10. Thero. T. (2013). Reduction of maternal and neonatal mortality by free caesarean section at NianankoroFomba Hospital in Segou, Mali. *Mali Med*; 28 (2); 41 - 44.
11. Zongo. A. (2012). Organization of gynecological obstetrics services on maternal mortality hospitalized in Mali. Journal of Epidemiology and Public Health, *60*(4) 265 - 274.
12. Xavier Kirienkindra, Olivier Mukuku, FaustinCher ge, Prosper Kakudji Cesarean section in Lumbashi Democratic Republic of Congo I. (2017). Frequency, indication and maternal and perinatal mortality. *The Pan African Journal*, 27: 72 doi 1011604 / Pamj 2017 27 72. 12147.
13. WHO. (2004). Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer.
14. Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A. B., Daniels, J., ... & Alkema, L. (2014). Global causes of maternal death: a WHO systematic analysis. *The Lancet global health*, *2*(6), e323-e333.
15. Dellagi, R., Belgacem, I., Hamrouni, M., & Zouari, B. (2008). [Evaluation of the maternal death system in public facilities in the Tunis [1999-2004]]. *EMHJ-Eastern Mediterranean Health Journal, 14 (6), 1380-1390, 2008*.
16. Touaibia, S., Youcef, E., Zahra. (2017). Prevalence of the maternal mortality in the region of Chief.
17. Odette, K. M. (2017). Etiologies of Maternal Mortality in the Hospital Provincial Janson Sendwe in Lubumbashi (DR. Congo). *Open Access Library Journal*, *4*(03), 1.
18. Hynes, M., Meehan, K., Meyers, J., Mashukano Maneno, L., & Hulland, E. (2017). Using a quality improvement approach to improve maternal and neonatal care in North Kivu, Democratic Republic of Congo. *Reproductive health matters*, *25*(51), 140-150.
19. Dumont, A. (2012). How Can Maternal Mortality be reduce? Bull Acad Natle Méd 196: 1521-1534. 15
20. Kapiteni, W., Mamba, C., & Kadima, J. N. (2018). Insight into Audit Reports on the Causes of Maternal Deaths in Poor Health Settings: The Case of North Kivu Province in Democratic Republic of Congo. *Int J Womens Health Wellness*, *4*(079), 2474-1353.
21. United Nations Development Program. (2013). Rise of the South: Human Progress in a Diverse World. The 2013 Human Development Report
22. Kabali, E., Gourbin, C., & De Brouwere, V. (2011). Complications of childbirth and maternal deaths in Kinshasa hospitals: testimonies from women and their families. *BMC pregnancy and childbirth*, *11*(1), 1-9.
23. Deboutte, D., O'Dempsey, T., Faragher, B., & Amuda Baba, A. (2016). Socioeconomic consequences of maternal death: A Qualitative study in Bunia, Democratic Republic of the Congo. *Int J Womens Health Wellness*, *2*, 027.
24. Punita, A. (2005). Maternal mortality-Indian scenario. *Med J Armed Forces India, 61*; 214-215.

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