Clinical Paper
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Maternal death before admission to the Sylvanus Olympia University Hospital Center (CHU SO) epidemiological and etiological aspects

Summary

Objective: determine the epidemiological and etiological profiles of a pregnant, parturient or women given birth before or within 10 minutes of admission

Methods: This was a descriptive cross-sectional study from January 1, 2014, to December 31, 2021. All maternal deaths occurring before admission and within 10 minutes of admission to the clinic were included in the study. Of gynecology and obstetrics at CHU SO. The data were processed by Epi info version 7 software.

Results: in total, 654 maternal deaths including 153 maternal deaths before admission were recorded, corresponding to 23.4% of all maternal deaths. The median age was 30.2 years. 37.2% of women were uneducated. 41.2% were resellers. 79.1% of women were cohabiting.

47.1% of women had performed less than 3 ANC. 43.8% of the women who died had completed their ANC in a medical center. 54.3% by a midwife, 37.3% by unqualified personnel. 62.7% of deaths occurred postpartum and 36.3% during pregnancy. 79.1% were referrals. 88.9% of the women who died arrived in a non-medical taxi car. Among the 57 patients who died during their pregnancy, 40.3% were carrying a pregnancy of 28 to 36 weeks, and 36.3% were full-term pregnancies. Among the 96 women who died postpartum; 93.3% had given birth vaginally. Among the 121 referrals, 34.7% came from a birthing center, 56.2% were referred by a state midwife and 30.6% by unqualified personnel; 46.3% referred without a reference form, 94.3% were referred without a venous access. In 10.7% the reason for evacuation was bleeding from the delivery with an average evacuation time of one-hour 5minutes. 60.3% of women who died had an evacuation delay of more than one hour. 94.8% of patients died of direct obstetric causes including immediate postpartum hemorrhage in 60.1% of cases.

Conclusion: deaths before admission constitute an increasingly growing problem at CHU SO. Late referral is a determining factor in maternal deaths before admission.

Keywords: maternal death, before admission, reference, CHU SO

Synopsis: Maternal death before admission to a medical center is frequent in Togo. Several dysfunctions are at the origin. The causes are direct obstetric and preventable.

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Introduction

Pregnancy is a physiological phenomenon that most women aspire to at one point or another in their lives. However, this normal and life-creating process carries a risk of after-effects and death. Worldwide, each year, more than a million women die from complications of pregnancy or childbirth, and postpartum complications.[1] Maternal death according to the World Health Organization is the death of a woman occurring during pregnancy or within 42 days after its termination, regardless of its duration or location, from any cause. , determined or aggravated by the pregnancy or the care it motivated, but neither accidental nor fortuitous.[1] It is an often preventable public health problem in developing countries.[2]

Pre-admission maternal death is the death of a woman before or within 10 minutes after she is received at a health center.[3]

In Togo the maternal mortality rate in 2017 was estimated at 396/100,000 live births.[4] Maternal death before admission is an increasingly growing phenomenon in the gynecology-obstetrics clinic of the CHU-SO. No epidemiological data is available on the subject.

The general objective of this work was to determine the epidemiological and etiological aspects of these maternal deaths before admission to the gynecology-obstetrics clinic of the CHU-SO.

More precisely, the aim was to determine the frequency, describe the sociodemographic characteristics, and identify the risk factors, dysfunctions and causes of these maternal deaths before admission.

Materials and method

The gynecology-obstetrics clinic of the Sylvanus Olympio University Hospital Center in Lomé served as our study setting. This was a cross-sectional study with a descriptive aim, covering all maternal deaths before admission recorded in the department from January 1, 2014, to December 31, 2021.

No ethical approval was obtained, but informed consent from the family. Before data collection, we requested and obtained administrative authorizations. The data was collected with respect for confidentiality and anonymity.

All maternal deaths noted on admission and/or within 10 minutes of admission during this study period were included in this study.

We did not include non-maternal deaths and those occurring during hospitalization.

Sampling was systematic: all records of maternal deaths before admission during the study period were selected.

Data collection was retrospective using a pre-established survey form, standardized individual, previously tested hard paper format that we had filled manually ourselves.

Source of data collected: medical records, admission registers, evacuation and maternal death notification forms, maternal death audit reports.

The variables studied were: frequency, sociodemographic profile, pregnancy monitoring, risk factors leading to death, evacuation conditions, the dysfunctions leading to death, the causes of death.

The data was entered with Excel version 2016 software and Epi info version 7 software.

Results

Hospital frequency

The average number of deliveries is 13,000 deliveries per year in the CHU SO maternity ward. In total, 654 maternal deaths were recorded in the department, including 153 maternal deaths before admissions, which corresponded to a hospital frequency of 23.4%.

Maternal Mortality Ratio before admission

The average maternal mortality ratio (MMR) before admission was 215 per 100,000 NV. Figure 1 illustrates the evolution of the MMR before admission from 2014 to 2021 with a sawtooth evolution.

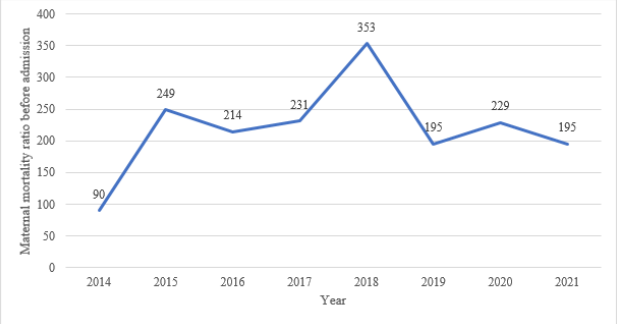

Figure 1 Evolution by year of maternal mortality ratios before admission.

Sociodemographic profile

Age: The median age of the women who died was 30.2 years with extremes of 15 and 49 years. The age group of 30 to 35 was the most represented in 29.4% of cases.

Marital status: The women who died were cohabiting in 79.1% of cases, married in 13.7%, and single in 7.2%.

Educational level: Most of the deceased women had a secondary education level in 91.4%. The uneducated represented 37.2% of cases.

Occupation: Resellers represented 41.2% while 22.2% were artisans. These craftswomen were dominated by seamstresses in 64.7% of cases; hairdressers in 32.4% of cases.

Pregnancy monitoring

54.3% of deceased women had had fewer than 4 prenatal consultations and 7.2% had had no prenatal consultation. 43.8% of the deceased women had carried out their prenatal consultation in a Medical-Social Center (MSC) and 36.6% in a birthing center. Prenatal consultations were carried out by a midwife in 54.2% of cases and by unqualified personnel in 37.3% of cases.

Malfunctions leading to deaths maternal before admission

Admission method

In total, 79.1% of the women who died were evacuated, 13.7% had a scarred uterus. Vaginal delivery was achieved in 93.5% of cases. 62.7% of deaths occurred postpartum and the deaths of pregnant women occurred in the 3rd trimester with full-term pregnancies. The different reference patterns are summarized in Figure 2.

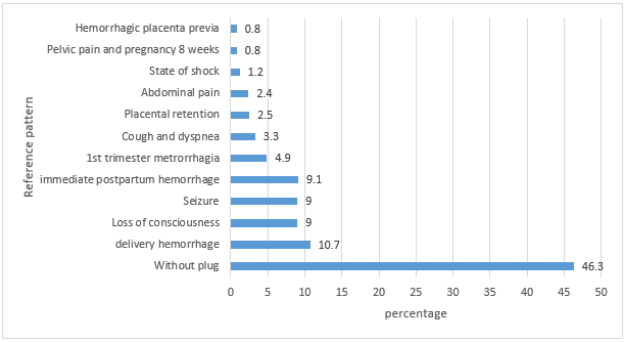

Figure 2 Distribution of women who died before admission according to references patterns.

Origin of evacuated patients

Thirty-four-point seven percent (34.7%) of the deceased women were evacuated from birthing centers and 32.2% evacuated from MSC. Midwives evacuated 56.2% of women, followed by unqualified personnel in 30.6%.

Conditions of transport

In 98.7% the means of transport was non-medical as indicated in Table 1.

Table 1 Distribution of patients according to means of transport

	Effective	Percentage (%)
Car Taxi	136	88.9
Motorcycle (Taxi, personal)	11	7.2
Personal vehicle	4	2.6
Medical ambulance	2	1.3
Total	153	100

94.3% of the women who died did not have a venous connection on arrival and only 1.3% were accompanied by a nursing staff during transport.

The average evacuation time was two hours. The average time taken before the decision to evacuate was one hour five minutes and 60.3% of the deceased women had a delay in departure of more than one hour to the CHU SO.

The women who died had traveled an average distance of 15.89 km to reach the university hospital (Table 2).

Table 2 Distribution of women who died before admission according to the distance traveled

	Workforce	Percentages
<5km	26	16.9
[5-10[km	39	25.5
[10-20[km	59	38.6
[20-40[km	20	13.1
[40-80[km	7	4.6
[80-160] km	2	1.3
In total	153	100

Cause of death

Most of the causes of death before admission were direct obstetric in 94.8%. The main cause was immediate postpartum hemorrhage. Preeclampsia and its complications represented 13.1% (Figure 3).

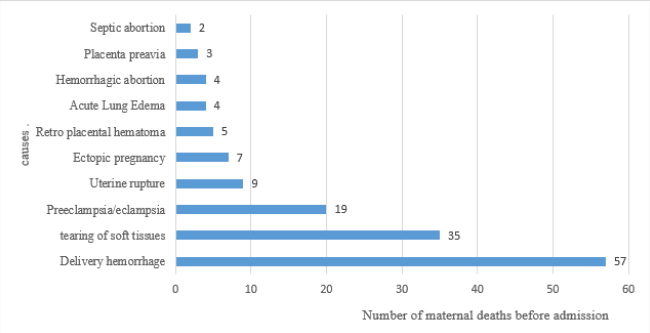

Figure 3 Distribution of patients according to direct obstetric causes.

Preventability of death

Among the 153 maternal deaths before admission, 151 deaths (98.7%) were preventable compared to 1.3% not preventable.

Discussion

This is a first study on deaths before admissions to the CHU SO. From 2014 to 2021, the Maternal Mortality Ratio before admission was 215/100,000 live births at the Gynecology-Obstetrics clinic of the Sylvanus Olympio University Hospital Center. It is a reference center of last resort in the southern zone of Togo. The sawtooth evolution with a peak ratio of 353/1000,000 in 2018 is explained by the fact that several references, particularly birthing centers, were admitted during this year.

The female victims are generally women of childbearing age (29.4%), with secondary education (91.4%) or even uneducated (37.2%), without income to support themselves. These results are like Dicko's study in Mali.[5] This reflects the low socioeconomic level of these women, implying a lack of decision to go to the hospital if necessary.[5–7]

Pregnancy monitoring was most often inadequate. These deceased women did not regularly attend prenatal consultations. Even if this is done, it is often by unqualified personnel in unequipped birthing centers as reported by Traoré[8] and Diassana[11] in Mali. The quality of prenatal consultations is an important element in the fight against maternal mortality. This is the time to detect pathologies that could compromise the normal course of the pregnancy to refer in time.

Postpartum is a delicate and dangerous period. Most deaths (62.7%) occurred during this period of high risk of life-threatening maternal complications.[9] Among the maternal deaths in the postpartum period, 93.3% had given birth vaginally. Sissoko found 53.7% of vaginal deliveries in Mali.[8] This high rate of deaths after vaginal delivery is explained by the fact that these deliveries were carried out by unqualified personnel or in health centers without a surgical branch where cesarean section is not performed.

Several factors contributed to maternal deaths: geographical inaccessibility of certain areas that are often flooded, late evacuations, unmedicalized transport. All this testifies to the poor reference system.[10]

The means of evacuation is a very important prognostic element in maternal deaths before admission. To evacuate such women by unmedicalized public transport is to subject them to inevitable death. The average time taken before the evacuation decision was made was 1 hour five minutes. 60.3% of the deceased had an evacuation delay of more than one hour. This demonstrates a lack of obstetric skills among most providers in these referral centers for the diagnosis and management of obstetric emergencies.

Obstetric causes of maternal deaths before admission were dominated by direct obstetric causes (94.8%).

Death occurred in pregnant women in the 3rd trimester or perpartum or after deliveries. The main cause was postpartum hemorrhage (63.4%) followed by preeclampsia and its complications (13.1%). This confirms WHO data according to which hemorrhage is the leading cause of maternal deaths followed by high blood pressure and its complications.

Many deaths before admission were preventable (98.7%). These deaths could be avoided if the health system from referral to reception center was better organized to manage obstetric emergencies.[11]

Conclusion

Maternal mortality before admission is a real public health problem in the southern region of Togo. The low socio-economic level, the non-qualification of nursing staff, and the poor referral system have contributed to the increase in these maternal deaths before admission. Responsibility for these deaths lies with the patient, the community, and the organization of the health system. Efforts therefore remain to be made at all levels to combat maternal mortality before admission.

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None.

Author contributions

Baguilane Douaguibe: The designer, plans and conduct the article.

SitouTogbonou[1]: Data analysis, and manuscript writing

Dédé Régina Ajavon[2]: Reader

Pankéyédou. Tongou[1]: Reader

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None.

Conflicts of interest

The authors have no conflicts of interest.

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