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RESEARCH ARTICLE

Intrapartum Fetal Death in the Maternity of N'Djamena Mother and Child University Hospital

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Abstract

Introduction: Intrapartum fetal death, defined as fetal death occurring during labor (term ≥ 22 weeks of pregnancy or fetal weight ≥ 500g). It is a tragedy for families and a major concern in obstetrics.
Objective: Study the factors contributing to the occurrence of intrapartum fetal death.
Patients and Method: This was a cross-sectional, descriptive study with retrospective data collection, covering a 12-month period from October 1st, 2023 to September 31st, 2024. All parturients admitted to the delivery room during the study period with a live fetus in the maternity of N'Djamena Mother and Child hospital. All parturients with a pregnancy term ≥ 22 gestational weeks and documented fetal death during labor were included. The sampling was exhaustive, with consecutive registration of all parturients meeting the inclusion criteria. Epidemiological, clinical and therapeutic variables were studied. Data were compiled, entered and analyzed using SPSS version 20 software.
Results: During the study period, we recorded 43 cases of intrapartum death, giving a frequency of 0.6%. Only 34 cases meeting our selection criteria were retained. The age group of 18-35 years accounted for 64.7%. The mean age was 24.5 ± 2.1 years, with extremes of 14 and 40 years. These patients were unschooled (47%), housewives (67%), married (85.3%), mulitiparous (47.06%), and 50% had undergone less than 4 ante natal cares. Intrapartum fetal death occurred during the active phase in 67.64% of cases. Fetal hypoxia accounted for 44.12% of etiologies. Delivery was vaginal in 82.36% of cases, with meconium-stained amniotic fluid in 55.8%. No maternal deaths were recorded.
Conclusion: The reduction of intrapartum fetal death pass across a sensitization of patients aiming to improve prenatal cares.

Keywords: Intrapartum Fetal Death, Etiologies, Chume, Chad.

1. Introduction

Intrapartum fetal death, defined as fetal death occurring during labor (term ≥ 22 weeks of pregnancy or fetal weight ≥ 500g). It remains a major public health problem, particularly in developing countries, where limited resources and inadequate obstetric care increase the risk of perinatal death [1].

Inadequate infrastructure, overworked caregivers and poor management of intrapartum complications contribute significantly to these deaths.

This phenomenon is distinct from antepartum fetal death, which occurs before the onset of labor. [2]. According to the World Health Organization (WHO), around 2 million stillbirths are recorded worldwide each year, of which almost 50% occur during labor, underscoring the seriousness of the problem [3].

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In sub-Saharan Africa, intrapartum fetal mortality rates remain high due to a combination of factors, including lack of access to quality emergency obstetric care, inadequate medical infrastructure and delayed management of complications [3, 4].

The most frequent causes of these deaths include acute hypoxia, often due to umbilical cord anomalies or placental insufficiency, as well as hypertensive disorders of pregnancy and dystocia [5]. Risk factors associated with intrapartum fetal death include advanced maternal age, multiparity, a history of obstetric complications, and certain maternal medical conditions such as gestational diabetes and infections [6].

Furthermore, health system failures, including delays in access to emergency care and low availability of skilled health professionals, exacerbate the risk of fetal death in labor in low-resource countries [7].

Chad is among the countries with a high rate of perinatal mortality, but specific data on intrapartum fetal death are limited. For this reason, we conducted this study with a view to identifying the factors contributing to the occurrence of intrapartum fetal death in the maternity ward of the Ndjamena mother and child hospital.

2. Patients and method

This was a descriptive cross-sectional study with retrospective data collection, covering a 12-month period from October 1st, 2023 to September 31st, 2024 and including patients admitted to the delivery room during the study period with a live fetus in the maternity of N'Djamena Mother and Child hospital. All parturients with a pregnancy term ≥ 22 gestational weeks and documented fetal death during labor were included. The sampling was exhaustive, with consecutive registration of patients meeting the inclusion criteria.. Data were collected from obstetric records and the delivery register. Variables studied included patients' socio-demographic characteristics, medical history, complications during pregnancy, and management modalities. Data were compiled, entered and analyzed using SPSS version 20 software.

3. Results

3.1 Frequency

During the study period, we recorded 43 cases of intrapartum fetal death out of 6742 deliveries at the maternity of N'Djamena Mother and Child university hospital giving a frequency of 0.6%.

3.2 Epidemiological characteristics

The mean age was 24.5 ± 2.1 years, with extremes of 14 and 40 years. In 47% patients were unschooled. Housewives represented for 67.65% and 85.3% of patients were married.

Caesarean sections accounted for 11.76% of previous surgery. Patients were multi-gestational in 61.8%, and 50% of them had undergone less than 4 ante natal cares (35.3% of patients had not attended prenatal cares). In 62.8% patients were referred.

3.3 Clinical aspects

Uterine contractions were the main reason for admission with 41.2%. Patients with full pregnancy term represented 52.9% and 23.7% were preterm. Cephalic presentation was the most common with 85.3%.

Table 1. *preexisting pathology*

Preexisting	n	%
Hypertension and its complications	12	35.3
Vicious presentation	3	8.8
Diabetes	1	2.9
Hemorrhagic placenta previa	2	5.9
Severe malaria / Severe anemia	3	8.8
Premature rupture of membranes	2	5.9
None	11	32.4
Total	34	100

Preexisting pathologies were dominated by hypertension and its complications with 35.3%.

Table 2. *etiology of fetal death.*

Etiology of fetal death	n	%
Tight cord knot	5	14.7
Acute fetal hypoxia	15	44.1
Dystocia	5	14.7
Placental abruption	2	5.9
Idiopathic	7	20.6
Total	34	100

Fetal hypoxia accounted for 44.12% of etiologies .

Table 3. *Period of fetal death.*

Period of fetal death.	n	%
Latency phase	5	14.7
Active phase	23	67.6
Expulsive phase	6	17.6
Total	34	100

Intrapartum fetal death occurred during the active phase in 67.64% of cases.

3.4 Mode of delivery

Delivery was by the vaginal route in 82.4% of cases. The amniotic fluid was stained with meconium in 55.88% of cases.

4. Discussion

The incidence of intrapartum fetal death in this study was 0.6%. This result is close to Touré 'finding in Mali in 2023 [8], who noted a frequency of 0.9%. However, other authors like Sandjong et al. in Cameroon in 2009 [9], and Sylla et al. in Guinea in 2021 [1] reported higher proportions of 4.2% and 4.99% respectively. These observed differences may be explained by variations in access to prenatal care, the quality of hospital infrastructures, and the effectiveness of referral procedures. In Chad, limited resources and poor access to quality care in certain regions may contribute to an even higher perinatal mortality rate in under-equipped areas.

With regard to age, we observed that the mean age was 24.5 ±2.1 years, with extremes of 14 and 40 years. Looking at age, we can see that there are disparities throughout the world. For example, Logbo-Akey et al. Logbo-Akey et al. in Togo in 2023 [5], reported that 90.12% of women were under 35 years. This remains true in this series, where 92% of patients were under 35 years. Fetal mortality is particularly high in adolescent and elderly women, probably due to the possibility of complications arising during labor. Indeed, the occurrence of dystocia at the unset of or during labor influences the fetal condition and can lead to death in the absence of adequate treatment. According to Mokoko et al. in Congo in 2021 [10], there is an increased risk of intrapartum death in women over 35 years, that could be explained by a higher prevalence of comorbidities at this age. In Chad, early marriage and pregnancy are common due to socio-cultural practices, which increase the risks for young women due to their physiological immaturity, lack of health-related education and limited access to specialist care.

With regard to educational level, in this series, 47% of patients had no schooling. This rate is lower than those of Touré in Mali in 2023 [8], Al Tidjani et al. in India in 2018 [11], and Keita [12], who noted a proportion of unschooled women between 61.5% and 83.2%. This confirms the fact that a low level of schooling is often associated with a lack of knowledge of maternal health concepts, thus reducing access to prenatal care contributing to the occurrence of complications.

In terms of job, the majority of patients were housewives (67.65%). This result is close to those of Logbo-Akey et al. in Togo in 2023 [5] and Keita in Mali in 2020 [12], who report 58.2% and 82.3% housewives respectively. According to Mokoko et al. in Congo in 2021 [10], low socio-economic status is a factor limiting access to quality healthcare. This becomes particularly acute in families where the woman does not perform a generative function.

According to marital status, 85.3% of patients were married. This confirms data from Sylla et al. in Guinea in 2021 [1], which showed that 80.3% of patients were married. Our result is explained by cultural factors. In Chad, childbirth outside marriage is not tolerated by many tribes. The home appears to be the ideal setting for childbirth.

Taking medical history into account, we noted that hypertension accounted for 35.3%. Other studies, notably that of Sylla et al. in Guinea in 2021 [1] and Al Tidjani et al. in India in 2018 [11], also report high rates of preeclampsia and hypertension. A history of hypertension is known to increase the risk of intrapartum complications. Indeed, the onset of hypertensive pathologies exacerbates the fetal condition, sometimes leading to the discovery in utero of intrauterine growth retardation or fetuses too small for age.

In this study, multigestation represented 61.8% of patients, and 47% were multiparous. These data corroborate those of Sylla et al. in Guinea in 2021 [1] and Touré in Mali in 2023 [8], who noted a high proportion of multigestas and multiparas. Ouahid et al. in Morocco in 2019 [13], observed that multiparity was significantly associated with an increased risk of intrapartum mortality compared with primiparity, with an adjusted OR of 2.27. This suggests that multiparity may increase obstetrical risks, particularly in the absence of adequate follow-up. Multiple pregnancies

without adequate medical follow-up increase maternal and fetal health risks.

Taking prenatal follow-up into account, 35.3% of patients had not attended prenatal cares, and 50% had had less than four consultations. In fact, the absence or poor monitoring of pregnancy are factors likely to influence the outcome of parturition. The discovery of a complication during labor can make it difficult to manage. In some cases, this can lead to intrapartum death. The same observation is made by authors such as Touré in Mali in 2023 [8], Al Tidjani et al. in India in 2018 [11], and Mokoko et al. in Congo in 2021 [10], who show a link between lack of antenatal care and the risk of complications. Ouahid et al. in Morocco in 2019 [13], showed that pregnancy follow-up was protective against intrapartum mortality (adjusted OR 0.22). In our context, poor access to antenatal care, due to lack of knowledge about maternal health and access to quality care, increases the risk of fetal mortality, as obstetric complications often go unnoticed.

According to admission mode, we found that 62.8% of patients were referred. This is close to the data of Sylla et al. in Guinea in 2021 [1] and Sandjong et al. in Cameroon in 2009 [9], who reported 61.9% and 63% of referred patients respectively. Delays in transfer increase the risk of intrapartum death, especially when patients are in active labor. According to some authors [10,8], transferring parturients is associated with a high rate of intrapartum death. The fetal outcome of referrals such as acute fetal distress is often uncertain.

Concerning gestational age, in this study, 52.9% of pregnancies were at term, which corroborates the data of Merger et al. in France in 2001 [14], and Davidesko et al. in Israel in 2023 [15], who observed that the majority of women in a delivery room carries a pregnancy that is often full-term. According to Merger [14], only 10-15% of women are affected by prematurity.

Some authors, such as Merger et al. in France in 2001 [14], and Shattnawi et al. in Jordan in 2020 [16], report that fetuses present in cephalic presentation in most pregnant women after 28 weeks of pregnancy. This study corroborates this assertion, with 85.3% of fetuses in cephalic presentation. For Merger, this is the most frequent presentation linked to accommodation phenomena. In fact, the larger fetal seat occupies the uterine fundus.

With regard to preexisting factors, we found that hypertension and its complications accounted for 35.3%. This result corroborate the findings of some authors such as Shattnawi et al. in Jordan in 2020 [16], Mondal [17], and Madhi et al. in South Africa in 2019 [18]. Indeed, the preexisting factors are likely to alter the fetal heart rate, leading to the occurrence of intrapartum death. In addition to these factors, the frequency of contractions can alter the fetal heart rate and lead to in utero death. . For Merger et al. in France in 2001 [14], and Muna et al. in Congo in 2017 [19], uterine hyperkinesias are responsible for fetal suffering. Uterine contraction anomalies are often encountered during the active phase of labor. According to some authors [14,20], the use of uterotonics at any stage of labour may be the cause of uterine hyperkinesias. Physiologically, however, these hyperkinesias are often observed in the active phase [14]. In many cases, this leads to an alteration of the fetal heart rate and death in utero if left untreated. This study confirms these assertions, with 67.64% of intrapartum deaths occurring during the active phase of labor.

According to the delivery route, we observed a vaginal delivery rate of 82.4%. This rate is close to those of Al Tidjani et al. in India in 2018 [11], Madhi et al. in South Africa in 2019 [18], and Malonga et al. in Congo in 2018 [20], who noted a proportion varying between 80.1% to 83.4%. Indeed, in the presence of in utero death, the most recommended attitude is to proceed with expulsion of the fetus by vaginal delivery [21], For Malonga et al. in Congo in 2018 [20], and Gabkika et al. in Chad in 2019 [22], vaginal delivery of intrapartum fetal death protects the patient from the morbidities associated with caesarean section.

According to Merger et al. in France in 2001 [14], there are several factors incriminated in the occurrence of intrapartum fetal death: dystocia leading to altered fetal heart rate, hemorrhage (uterine rupture, retro placental hematoma, placenta previa and Benckiser hemorrhage) and maternal fever. All these complications, in the absence of adequate management, lead to death during parturition. This study confirms this assertion, with 44.1% of cases of acute fetal distress. Acute fetal distress is often obvious to diagnose. This can be confirmed by regular delivery monitoring [23,24]. The diagnosis of acute fetal distress is based on altered fetal heart rate, altered amniotic fluid and altered PH. Ouahid et al. in Morocco in 2019 [13], found that monitoring fetal heart sounds during labor was associated with a reduced risk of intrapartum mortality (adjusted OR 0.22).

5. Conclusion

Intrapartum fetal death is a frequently observed phenomenon at the CHUME maternity hospital.There are many factors leading to its occurrence: pregnancy monitoring, referrals, the parturient's history and management of labor.

All these situations are avoidable if adequate measures are taken during pregnancy and parturition. This underscores the need for a change focused on the quality of consultations and, above all, on the provision of neonatal and obstetric care in our country.

6. References

1. Sylla I, Diallo MH, Diallo FB, Baldé O, Bah IK, Baldé IS (2021). Intrapartum fetal mortality: socio-demographic characteristics and etiological factors in 76 cases at the maternity ward of Hôpital National Ignace Deen du CHU de Conakry. Ann SOGGO,15,35:70-74.
2. Komboigo BE, Zamane H, Coulibaly A, Sib SR, Thiombiano M, Thieba B (2023). Factors associated with intra partum stillbirth in a tertiary teaching hospital in Burkina Faso. Front Glob Womens Health,4:1038817. doi: 10.3389/fgwh.2023.1038817.
3. United Nations (2015). The global strategy for women's, children's and adolescents' health (2016-2030). New York: United Nations; .
4. United Nations Children's Fund (2014). Estimates developed by the UN inter-agency group for child mortality. New York: UNICEF.
5. Logbo-Akey KE, Kétévi T, M'Bortché KB, Kambote YP, Patidi NK, Ajavon DR, et al (2023). Perinatal asphyxia at the CHU Kara maternity hospital: epidemiological, clinical and prognostic aspects. ESJ Nat Life Med Sci,19,30:323-9.
6. Egbe TO, Ewane EN, Tendongfor N (2020). Stillbirth rates and associated risk factors at the Buea and Limbe regional hospitals, Cameroon: a case-control study. BMC Pregnancy Childbirth,20:75-9.
7. Traoré M, Traoré S O, Traoré O M, Traoré S, Dolo A (2021). Stillbirth in the Gynecology-Obstetrics Department of the Reference Health Center of Commune V (CSREF CV) of the District of Bamako. Mali medical ,25,3: 41-44.
8. Touré NF (2023). Stillbirth at the maternity ward of the reference health center of commune V of Bamako [thesis: Med]. Bamako: Faculty of Medicine of Odontostomatology and Faculty of Pharmacy .
9. Sandjong TID, Tebeu PM, Mbu RE, Mboudou E, Guegang GE, Nkwabong E, et al (2009). Intrapartum fetal death in Cameroon: an analysis of two referral hospitals in Yaoundé, Cameroon. Clin Mother Child Health,6,2:1123-1127.
10. Mokoko JC, Buambo GRJ, Eouani LME, Mahoungou P, Potokoue MSN, Itoua C, et al (2021). Determinants of stillbirth in four maternity units in Brazzaville. Health Sci Dis,22,3:27-32.
11. Altijani N, Carson C, Choudhury SS, Rani A, Sarma UC, Knight M, et al (2018). Stillbirth among women in nine states in India: Rate and risk factors in a study of 886,505 women from the annual health survey. BMJ Open, 8,63-9.
12. Keita M (2020). Stillbirth in the maternity ward of the reference health center of commune I of the district of Bamako [Thesis:Med]. Bamako: USTTB.
13. Ouahid H, Adarmouch L, Belouali R, Mouwafaq S, Soummani A (2019). Factors associated with intra partum and very early neonatal mortality at the maternity of University Hospital Mohammed VI, Marrakech, Morocco. Case-control study. *Rev Epidemiol Sante Publique*,67:233-238.
14. Merger R, Levy J, Melchor J (2001). Precis of obstetrics. Paris: Masson.
15. Davidesko S, Levitas E, Sheiner E, Wainstock T, Pariente G (2023). Critical analysis of risk factors for intra partum fetal death. Arch Gynecol Obstet,308,4:1239-1245
16. Shattnawi KK, Khader YS, Alyahya MS, Al-Sheyab N, Batieha A (2020). Rate, determinants, and causes of stillbirth in Jordan: Findings from the Jordan Stillbirth and Neonatal Deaths Surveillance (JSANDS) system. BMC Pregnancy Childbirth,29,20,1:571-9.
17. Mondal D, Galloway TS, Bailey TC, Mathews F (2014). Elevated risk of stillbirth in males: systematic review and meta-analysis of more than 30 million births. BMC Med,27:12:220
18. Madhi SA, Briner C, Maswime S, Mose S, Mlandu P, Chawana R, et al (2019). Causes of stillbirths among women from South Africa: a prospective, observational study. Lancet Glob Health,7;4: e503-e512
19. Muna R, Kakudji Y, Nsambi J, Mukudji O, Maleya A, Kinenkinda X, et al (2017). Primiparous delivery in Lubumbashi: maternal and perinatal prognosis. Pan Afr Med J,27:77-82.
20. Malonga FK, Mukuku O, Ngalula MT, Luhete PK, Kakoma JP (2018): Anthropometric and external pelvimetric study in nulliparous women in Lubumbashi: risk factor and predictive score for mechanical dystocia. Pan Afr Med J,2 :31-9
21. Collège National des Gynécologues Obstétriciens Français (2007). Recommandations pour la pratique Clinique : Modalités de surveillance fœtale au pendant le travail.

22. Gabkika BM, Foumsou L, Masra N (2019). Pregancy and delivery in Advanced maternal Age: epidemioligic aspect and prognosis. JMR ,5,5:239-42

23. Rakotomalala M, Ratozanany B, Razafindraibe A, Ramarokoto M, Felanarivo, Rafamatanantsoa (2019). Pregnancy and childbirth in women aged 40 and over at Befelatanana Maternity. Madascagar, Arch pathol Clin Res ,3:022-027

24. Michal Fishel Bartal MD, Baha M, Sibai (2022). Eclampsia in the 21st century. American Journal of Obstetrics and Gynecology ,226,2:S1237-1253.

25. Komboigo BE, Zamane H, Coulibaly A, Sib SR, Thiombiano M, Thieba B (2023). Factors associated with intra partum stillbirth in a tertiary teaching hospital in Burkina Faso. Front Glob Womens Health, 4:1038817.