

## Fetal Death in Utero at the Maternity Hospital of Koutiala in Mali

Cheickna Sylla<sup>1,\*</sup>, Sitapha Dembele<sup>8,7</sup>, Siaka Amara Sanogo<sup>1,7</sup>, Moussa Goita<sup>2</sup>, Séma Keita<sup>4,7</sup>, Seydou Z. Dao<sup>5,7</sup>, Alou Samake<sup>6,7</sup>, Adane Adiawiakoye<sup>1</sup>, Seydou Fane<sup>1</sup>, Amadou Boucoum<sup>1</sup>, Ibrahima Teguete<sup>1</sup>, Youssouf Traore<sup>1</sup>, Niani Mounkoro<sup>1</sup>

<sup>1</sup>Gabriel Touré University Hospital in Bamako, Mali

<sup>2</sup>Reference Health Centre of Koutiala, Mali

<sup>3</sup>Mohamed VI Mother and Child Polyclinic in Bamako, Mali

<sup>4</sup>Fana Reference Health Centre, Koulikoro, Mali

<sup>5</sup>Reference Health Centre of Commune II of the District of Bamako, Mali

<sup>6</sup>Reference Health Centre of Commune VI of the District of Bamako, Mali

<sup>7</sup>National Centre for Scientific and Technological Research in Bamako, Mali

<sup>8</sup>Fousseyni Hospital DAO of Kayes, Mali

DOI: <https://doi.org/10.36348/sijog.2024.v07i09.003>

Received: 01.08.2024 | Accepted: 09.09.2024 | Published: 11.09.2024

\*Corresponding author: Cheickna Sylla

Gabriel Touré University Hospital in Bamako, Mali

### Abstract

The aim was to assess the frequency of fetal death in utero; to describe the sociodemographic and clinical characteristics of patients; to identify risk factors for IUD; to describe its management and to determine the maternal prognosis. **Material and Method:** This was a descriptive, cross-sectional, analytical study of the prospective case/control cohort type from June 2021 to May 2022, i.e. a period of 12 months in the maternity ward of the Koutiala reference health center. **Results:** Fetal death in utero concerned 85 deliveries out of a total of 3024 deliveries, i.e. a frequency of 28.11 %. The epidemiological profile is that of a poor person (37.6%) between 25 and 29 years of age (31.8%), with a pregnancy of 28 to 37 weeks of amenorrhea; they came on their own in (64.7%) of cases. If, in 5.9% of cases, the cause of fetal death was not known in the study; arterial hypertension was the most common etiology with 37.6% of cases. Patients gave birth vaginally in 89.4% and presented complications of infections (endometritis) in 10.6% of cases.

**Keywords:** Fetal death, etiology, management.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

In utero fetal death syndrome (IUDD) is considered an incomprehensible tragedy for families as well as healthcare staff. It constitutes a failure of the normal course of pregnancy. It is a multifactorial phenomenon, linked essentially to the socio-economic level. Indeed, MFIU is found on a smaller scale in developed countries (5%), compared to 3% of births in the least advantaged countries [1]. This contrast between developed and emerging countries is explained by the early detection of high-risk pregnancies, and the management of risk factors, namely low level of education, hypertensive pathologies, as well as factors related to the pregnancy itself such as retroplacental hematoma and intrauterine growth restriction. However, recent risk factors such as smoking among women and being overweight limit the progress of obstetrics [2].

Although the diagnosis of IUD is facilitated by ultrasound, the identification of etiological factors is not always obvious, so 30% of cases remain unexplained. Monitoring of a subsequent pregnancy as well as adequate management prevent the recurrence of this tragic event. MFIU, as a complication, is often subject to misunderstanding and perpetual questioning on the part of parents and their loved ones, resulting in a certain feeling of guilt on their part. The psychological support provided by the nursing staff is very important. Scientific research is still underway on possible ways to prevent its occurrence. The interest of our work, the objective of which is to analyze through a prospective statistical study: The evolution of the MFIU during our study period. The sociodemographic and clinical characteristics of patients. Risk factors for IUD. The etiologies of MFIU. Complications of MFIU. The

comparison of the results obtained with the data from the literature.

### Objectives

The aim was to assess the frequency of fetal death in utero; describe the sociodemographic and clinical characteristics of patients; Identify risk factors for IUD; to describe its management and to determine the maternal prognosis.

## MATERIALS AND METHODS

This was a descriptive, cross-sectional, analytical, prospective case/control cohort study from June 2021 to May 2022, i.e. a period of 12 months in the maternity ward of the Koutiala reference health center. The study population consisted of all registered births. Were included as Cases: All patients with in utero fetal death diagnosed at admission before any onset of labor, with a term greater than or equal to 28 weeks of amenorrhea and who were managed in the department during the period. And as Controls: all parturients who gave birth to live children with a gestational age greater than or equal to 28 weeks of amenorrhea. The criteria for non-inclusion: for cases: in utero fetal deaths occurring before the 28th week of amenorrhea or for which the weight of the fetus is less than 1000 grams. In utero fetal death which was managed in other departments. Intrapartum fetal deaths. For the Witnesses: Childbirth outside the ward. Sampling was obtained on the basis of one case (MFIU) for two controls admitted immediately after the case. Data collection was based on obstetric records and the delivery register, and was recorded on an individual data sheet including anamnestic, clinical, paraclinical and evolutionary elements. Data collection and processing were done on SPSS version 20 software. The statistical tests used for comparison are Pearson's Kh<sup>2</sup>, Fischer's test, and the estimated mean. The differences are significant if  $P < 0.05$ .

## RESULTS

### Epidemiological Aspects

Out of a total of 3024 deliveries from June 1, 2021 to May 31, 2022, we recorded 85 cases of MFIU, a frequency of 2.81%. The age group of (25-29) years was the most frequent, accounting for 31.8% of cases compared to 24.7% for controls. The average age in our study is 32.5 years with extremes of 17 years and 45 years for cases. About 82.4% of pregnant women were housewives among the cases compared to 87.1% among the cases. Approximately 82.4% of our pregnant women were housewives in cases compared to 87.1% for controls, and 91.8% of pregnant women were married in cases compared to 97.6% in cases. The minianka were the most represented with 45.9% of the cases compared to 42.4% of the controls. Most of our pregnant women

were not in school: 62.4% for cases and 65.3% for controls. These epidemiological aspects are presented in Table 1.

**Table 1: Epidemiological aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Age (years)	Case		Witnesses	
	Actual	%	Actual	%
≤19	15	17,6	22	12,9
[20-24]	22	25,9	53	31,2
<b>[25-29]</b>	<b>27</b>	<b>31,8</b>	<b>42</b>	<b>24,7</b>
[30-34]	16	18,8	32	18,8
≥35	5	5,9	21	12,4
<b>Profession</b>				
<b>Housewife</b>	<b>70</b>	<b>82,4</b>	<b>148</b>	<b>87,1</b>
Official	8	9,4	10	5,9
Student	5	5,9	8	4,7
Merchant	2	2,4	3	1,8
Other	0	0	1	0,6
<b>Marital status</b>				
Bride	78	91,8	166	97,6
Bachelor	5	5,9	2	1,2
Widow	1	1,2	2	1,2
Divorcee	1	1,2	0	0
<b>Schooling</b>				
Not in school	53	62,4	111	65,3
Fundamental	22	25,9	50	29,4
Secondary	10	11,8	7	4,1
Upper	0	0	2	1,2

### Clinical aspects

Chronic hypertension was the most common history and was present in 23.5% of cases compared to 8.2% in controls. Poor gestures accounted for 37.6% of cases compared to 37.1% of controls. A history of IUE was found in 24.7% of cases compared to 21.2% for controls. About 44.7% of pregnant women had at least 4 ANC's for cases compared to 60% for controls. Pregnant women were carriers of a mono-fetal pregnancy in 89.4% of cases compared to 88.8% for controls. About 35.3% of pregnant women were referred for cases compared to 42.9% for controls. About 51.2% of pregnant women resided outside Koutiala for the cases compared to 41.8% for the controls. MFUI in the gestational age range of (28-33) in AS occurred in 65.9% of cases. Thick gout was positive in 11.8% in cases compared to 11.2% in controls. An abnormality of the ECBU was observed in 47.06%. Approximately 2.4% of the cord knot or prolapse was found in cases compared to 4.1% for controls and 5.9% of envenomation syndrome in cases compared to 1.2% of controls. High blood pressure was the most common at 22.4%. These clinical aspects are summarized in Tables 2, 3, 4 and 5.

**Table 2: Clinical aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Medical ATCD	Case		Witnesses	
	Actual	%	Actual	%
<b>Chronic hypertension</b>	<b>20</b>	<b>23,5</b>	<b>14</b>	
Diabetes	2	2,4	4	
Heart disease	1	1,2	1	
Nephropathy	2	2,4	3	
None	60	70,6	148	
Total	85	100	170	
Background Obstetric	Case		Witnesses	
	Actual	%	Actual	%
<b>Gesturity</b>				
Primitest	15	17,6	26	15,3
Pauci gesture	32	37,6	63	37,1
Multi-gesture	29	34,1	57	33,5
Great multi-gesture	9	10,6	24	14,1
<b>Parity</b>				
Primiparous	14	16,5	25	14,7
Pauci parries	34	40	73	42,9
Multiparous	19	22,4	38	22,4
Large multiparous	2	2,4	5	2,9
<b>Abortion</b>				
Yes	41	48,8	70	41,2
No	44	51,8	100	58,8
<b>MFUI</b>				
Yes	21	24,7	36	21,2
No	64	75,3	134	78,8
<b>Caesarean section</b>				
Yes	11	12,9	17	10
No	74	87,1	153	90

**Table 3: Clinical aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Number of ANCs	Case		Witnesses	
	Actual	%	Actual	%
No	44	51,8	9	5,3
<b>Less than 4</b>	<b>38</b>	<b>44,7</b>	<b>102</b>	<b>60</b>
≥ 4	3	3,5	59	34,7
Total	85	100	170	100
<b>Khi2=86.529 ddl=2 P=0.000</b>				
Type of pregnancy	Case		Witnesses	
	Actual	%	Actual	%
<b>Monofetal</b>	<b>76</b>	<b>89,4</b>	<b>151</b>	<b>88,8</b>
Twin	9	10,6	19	11,2
Total	85	100	170	100
Khi2=0.020 ddl=1 OR/CI=1.063[0.459- 2.460] P=0.887				
Admission method	Case		Witnesses	
	Actual	%	Actual	%
Coming of her own accord	55	64,7	97	57,1
<b>Referred</b>	<b>30</b>	<b>35,3</b>	<b>73</b>	<b>42,9</b>
Total	85	100	170	100
Chi2=1.376 ddl=1 OR/CI=1.38 [0,81-2,36]				

**Table 4: Clinical aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Residence	Case		Witnesses	
	Actual	%	Actual	%
Koutiala	41	48,2	99	58,2
Out of koutiala	44	51,2	71	41,8
Total	85	100	170	100
Chi2=2.289	ddl=1	OR/CI=0.668	[0,396-1,128]	P=0.130
Term in SA	Case		Witnesses	
	Actual	%	Actual	%
(28-33)	56	65,9		
(34-36)	22	25,9		
(37-40)	5	5,9		
Additional examinations	Case		Witnesses	
	Actual	%	Actual	%
GE Result				
Positive	10	11,8	19	11,2
Negative	75	88,2	151	88,8
Blood glucose result g/dl				
Less than 0.91	52	61,2	51	30
Greater than 0.92	7	8,2	5	2,9
Not done	26	30,6	114	67,1
Result of Toxoplasmosis				
Positive in IGM	8	9,4	7	4,1
Negative	47	55,3	41	24,1
Not done	30	35,3	122	71,8
Blood Rhesus Result				
Negative	6	7,1	4	2,4
Positive	80	92,9	166	97,6
HIV Result				
Positive	1	1,2	4	2,4
Negative	84	98,8	166	97,6
ECBU	Case		Witnesses	
	Actual	%	Actual	%
Yes	34	40	53	31,2
No	51	60	117	68,8
Total	85	100	170	100
Khi2= 3.652 ddl=2 P=0.161				

**Table 5: Clinical aspects of in utero fetal death at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

ECBU Result	Case		Witnesses	
	Actual	%	Actual	%
Sterile	23	67,4		
Non-sterile	11	32,6		
Knot or prolapse of the Cord	Case		Witnesses	
	Actual	%	Staff	%
Yes	2	2,4	7	4,1
No	83	97,6	163	95,9
Envenomation syndrome				
Yes	5	5,9	2	1,2
No	80	94,1	168	98,8
Etiology of MFUI	Case		Witnesses	
	Actual	%	Actual	%
HRP	4	4,7		
Chronic hypertension	19	22,4		
Diabetes	7	8,2		
Malaria	10	11,8		
Maternal Foteo Incompatibility	6	7,1		

HIV	1	1,2
Infection	11	12,9
Sickle-cell anemia	2	2,4
Procidence	2	2,4
Toxoplasmosis	8	9,4
Envenomation	5	5,9
Unknown	10	11,8

### Therapeutic aspects

The bishop score was less than 6 in 63.5% of cases. About 67.1% of pregnant women had received treatment inducing labour for the cases compared to 0.6% for the controls. Vaginal delivery was the most common with 89.4% of cases compared to 87.6% of controls. About 55.6% of caesarean sections were indicated for failure to induce surgery. In our study, 62.4% of stillbirths were female.

In cases compared to 46.5% of controls. The weight range between (1000-2400) was the most numerous with 65.9% of cases compared to 5.9% in controls. Macerated stillbirths accounted for 72.9% of cases. A malformation was found in 3.5% of cases compared to 2.9% for birth controls. Anencephaly was the most common malformation with 66.7% of cases. Calcification of the placenta was observed in 12.94% of cases. These therapeutic aspects are classified in Tables 6 and 7.

**Table 6: Therapeutic aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Bishop	Case		Witnesses	
	Actual	%	Actual	%
< 6	37	64,9	1	100
Greater than or equal to 6	20	35,1	00	00
Total	57	100	1	100
<b>F test =2.310 ddl=1 P=0.129</b>				
Type of release	Case		Witnesses	
	Actual	%	Actual	%
Spontaneous	28	32,9	169	99,4
Induction of labour	57	67,1	1	0,6
TOTAL	85	100	170	100
<b>F test=142,486 ddl=1 P=0,000</b>				
Route of delivery	Case		Witnesses	
	Actual	%	Actual	%
Low Lane	76	89,4	149	87,6
Caesarean section	9	10,6	21	12,4
<b>Khi2=0.170 ddl=1 P=0.680</b>				
Directions	Staff	%		
Failed to trigger	4	55,56		
Hydrocephalus	1	11,11		
Macrosomia	1	11,11		
Bi-scarred uterus	1	11,11		
Cross-Sectional Presentation	1	11,11		
Sex	Case		Witnesses	
	Actual	%	Actual	%
Masculine	32	37,6	91	53,5
Feminine	53	62,4	79	46,5
Total	85	100	170	100
<b>Khi2=5.725 ddl=1 P=0.017</b>				
Birth weight in g	Case		Witnesses	
	Actual	%	Actual	%
(1000-2400)	56	65,9	10	5,9
(2500-3999)	28	32,9	153	90
≥ 4000	1	1,2	7	4,1
<b>F test=104.912 ddl=2 P=0.000</b>				

**Table 7: Therapeutic aspects of fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Appearance of the fetus	Case			
	Actual		%	
Fresh stillbirth	23		27,1	
Macerated stillbirth	62		72,9	
Fetal malformation	Case		Witness	
	Actual	%	Actual	%
Yes	3	3,5	5	2,9
No	82	96,5	165	97,1
<b>Chi2=0.065 ddl=1 P=0.799</b>				
Type of malformation	Case		Witnesses	
	Actual	%	Actual	%
Anencephaly	2	66,67	1	20
Slit labio palentine	0	0	3	60
Hydrocephalus	1	33,33	1	20
Calcification of the placenta	Actual	%		
This	11	12,94		
Absent	74	87,06		

**Aspects on Maternal Prognosis**

Endometritis was observed in 10.6% of cases compared to 4.1% of controls. Death was observed in 4.7% of cases. About 75% of deaths were related to postpartum hemorrhage complicated by bleeding

disorders. About 21.2% had immediate postpartum hemorrhage for the cases compared to 11.8% for the controls. This maternal prognosis is summarized in Table 8.

**Table 8: Aspects of maternal prognosis: fetal death in utero at the Koutiala maternity hospital from June 2021 to May 2022 in Mali**

Endometritis	Case		Witnesses	
	Actual	%	Actual	%
Yes	9	10,6	7	4,1
No	76	89,4	163	93,7
<b>Khi2=4.034 ddl=1 P=0.045</b>				
PPI hemorrhage	Case		Witnesses	
	Actual	%	Actual	%
Yes	18	21,2	20	11,8
No	67	78,8	150	88,2
<b>Khi2=3.958 ddl=1 P=0.047</b>				
Maternal death	Case		Witnesses	
	Actual	%	Actual	%
Yes	4	4,7	0	0
No	81	95,3	170	100
<b>F test=8.096 ddl=1 P=0.004</b>				
Cause of death	Case			
	Actual		%	
IPH complicated by bleeding disorder	3		75	
Septic shock	1		25	

**DISCUSSION**

An exhaustive sample of 255 cases was collected that met our study criteria. However, biases may exist due to the fact that: We estimated the gestational age in some pregnant women, Etiological and therapeutic assessments were not carried out due to lack of financial means. The department did not have the capacity to carry out blood culture, nor to search for germs and antibiograms for the ECBU. The results thus found are commented and discussed as below.

**Epidemiological aspects**

During our study period, we recorded 3024 deliveries, including 85 cases of fetal death in utero, i.e. a frequency of 2.81%. This frequency is higher than those of KEITA M Y [3] and Niaré B [4] which found 1.09% and 1.43% respectively. Our rate could be explained by the fact that the CSREF is the only referral structure that takes care of pregnancy complications, particularly MFUI in the Koutiala region. The mean age of the patients was 29.5 years with extremes 16 years and 43 years. This study by MFUI shows that the highest

incidence was recorded in women aged 25-29 years ( $P=0.311$ ) with a frequency of 31.8% ( $P=0.311$ ). The difference was not statistically significant. The same finding was found in N'Diaye M [5] and Guindo D O [6] who found 64% and 61% respectively in the 20-30 age group. This may be due to the fact that this age group corresponds to the period of full genital activity and not the most exposed age group. According to our study, the majority of our patients were not in school, i.e. a rate of 62.4% of cases and 65.3% of controls ( $P=0.098$ ). The difference was not statistically significant; this result was higher than that of Traoré MM [7] who found 56.96% of cases. Our rate could be explained by the low level of schooling in Mali, particularly for girls. In our study, minianka were the most numerous with 45.9% of cases compared to 42.4% in controls. This is due to the fact that the study population was predominantly made up of minianka and not the most exposed ethnic group. In our study, 91.8% of the patients were married. Our result is similar to those of Traoré MM [7] and N'Diaye M [5] which found 98.2% and 88.7% of married women respectively. This trend is hardly surprising when compared to the result of the DHS VI, about eight out of ten women were married: 81%.

Housewives were more frequent with 82.4% of cases ( $P=0.740$ ). Our results were higher than that of Souhila A *et al.*, [8] with 53% and similar to those of Moutongo Fae [9] with 81.11%. Even if the qualification (housewife) does not in itself constitute a risk factor for fetal death in utero, it can have an influence on the management of pregnancy. The most represented gestational age range was (28-33) WA of IUD cases with 65.9% of cases, Traore M had found 65.55% of IUD cases between 28 and 37 weeks of age. This explains the fact that we are dealing here with very prematurity and that in some cases therapeutic abstention is most often the rule even if an imminent fetal death has been established. During our study, the rate of antepartum fetal death in parturients who did not have any ANC represented 51.8% of cases compared to 5.3% of controls ( $p=0.000$ ). Our result is higher than those of Moutongo Fae [9], N'Diaye M [5] who found in their study 31% and 34.4% respectively. The increase in our rate could be explained by a defect or lack of information when performing ANCs. In our study, 64.7% of the cases against 57.1% of the controls came on their own, 35.3% of the cases against 42.9% of the controls were referred. This result is higher than those of Souhila A *et al.*, [8] and Traoré MM [7] who had found respectively 53% and 52.7% of the parturients who came on their own compared to 47% who were referred and lower than those of N'Diaye M [5] whose 71.7% of the patients had come on their own. In our study, 24.7% of our patients had a history of IUFD; this result is higher than those of N'Diaye M [5] and Diarra I [10] with rates of 20.8% and 12.2% of cases of antecedent MFIU respectively. The risk of UFD is higher when there has been fetal death in the previous pregnancy. MFUI was more common in patients with poor procedures in our study with 37.6%

for cases compared to 37.1% for controls ( $p=0.524$ ). Pauci pares accounted for 40% of cases compared to 42.9% for controls ( $p=0.982$ ) and nulliparous 18.8% of MFIU cases. Pregnancy and parity were not statistically significant in our study.

### Associated pathologies or risk factors

Chronic hypertension was the most common medical history with 22.4% of cases. This result was higher than those reported by Traoré MM [7], Moutongo Fae [9], Guindo D O [6] and Mounzer Issam [11] with 18.89%, 8.89%, 12.7%, and 7.14%. Hypertension remains a common cause of IUD. Our rate could be explained by the inappropriate management of hypertension and pregnancy. In utero fetal death occurred in 8.2% of malaria patients. This result is lower than those of Moutongo Fae [9] and Guindo D O [6] which found 20% and 17.99% respectively. These rates are thought to be due to the application of antimalarial prophylaxis in pregnancy to all women receiving ANC. HRP was the cause in 4.7% of MFIU cases in our study. This result is lower than that of Souhila A *et al.*, who found 19% of cases and that of Moutongo Fae [9] who found 13.3% of cases. Niaré M [4] and Guindo D O [6] have the rates of 15.2% and 23.6% respectively. In our study, 8.2% of MFIU was due to diabetes. This result was higher than those of Moutongo Fae [9] and Guindo D O [6] with 2.78% and 3.28% and is close to that of Mounzer I [11] i.e. 7.14% of cases. Our rate could be explained by poor follow-up of diabetes cases and pregnancy and insufficient screening for diabetes during pregnancy. In our study, 2.4% of MFIU was due to a knot or prolapse in the cord. This result is similar to that of Moutongo Fae [9] and Mounzer Issam [10] who found 2.22% and 4.7% of MFIU respectively. These deaths are almost always of late and unpredictable diagnosis. During our study, we found 11.8% of cases of unexplained UFD. Our result approaches those of Moutongo Fae [9]; Mounzer Issam [11] who found 8.8% and 14% of cases respectively. Our result differed from those of Souhila A *et al.*, [8] and Guindo D O [6] who accounted for 31% and 21.8% respectively. Our rate could be explained by the inability to carry out more in-depth assessments on the technical and financial level. According to Lansac J *et al.*, [12], 20 to 50% of cases the cause of IUD remains mostly unknown despite current diagnostic means. During our study, we found 4.7% snakebite envenomation of cases compared to 1.2% of controls. The occurrence of viper's envenomation during pregnancy is a rare event that is little described in the medical literature. It is a serious condition and is responsible for maternal mortality and fetal loss [12].

### Therapeutic Aspects

In our study, the induction of labour was artificial in 67.1% of cases. This result is similar to those of Diarra I [10] and Traoré S [13] who found 69.4% and 58.2% of cases respectively and lower than that of Traoré MM [7] who found 46.48%. This difference is explained by the fact that when the diagnosis of IUD is made and

the conditions for uterine evacuation are met, artificial induction is the obstetric treatment that reduces the risk of bleeding disorders. The methods used in our study were exclusively pharmacological. Misoprostol 200mg and oxytocin. Misoprostol was used in 68.7% versus a rate of 64.9% ( $p=0.129$ ), the value was not statistically significant and 61.6% cervical ripening by misoprostol reported by Traoré MM [7] and Diarra I [10] respectively. In our study, 89.4% of our patients had delivered vaginally ( $p=0.680$ ). Ongoiba O [14] and N'Diaye M [5] found a rate of 74% and 86.8% of cases of vaginal delivery respectively. This is understandable because when the fetus is dead, this is the preferable route. The upper route was indicated in 10.6% of cases, either by contraindication of the base route and/or induction or in case of maternal emergency. In the study, 65.98% of the stillbirths in the cases had a weight of less than 2400 g ( $p=0.000$ ). Our result is similar to those of Sidibé AK [15] and Diarra I [10] who respectively found 63.6% and 72.6% of stillbirths with a weight of less than 2500 g and lower than the result of Traoré MM [7] who found 53.16%. The female sex accounted for 62.4% of the cases of fetal death in utero compared to 37.6% of the male sex, contrary to the result of Guindo D O [6] and N'Diaye M [5] who had found respectively 58.5% and 61.8% of the male sex against 41.5% and 38.2% of the female cases ( $p=0.017$ ). We have not found a particular explanation for this situation. In our study, 72.9% of stillbirths were macerated, our results are similar to those of Diarra I [10] and Traoré MM [7] which found 67.7% and 83.54% of cases respectively.

### Aspects of Maternal Prognosis

The maternal complication is explained by the duration of the retention of the dead fetus. When the fetus dies, maceration begins about 48 hours later. Apart from bleeding disorders, fetal death in utero itself causes very few maternal complications. These complications are the consequence of either the pathology responsible for the fetal death or obstetric treatment. We recorded the aftermath of pathological childbirth, including endometritis in 10.6% and PPI hemorrhage in 21.2%. This is explained by the duration of PMR, malaria and upper urinary tract infection. Our results differ from that of Traoré MM [7] who found endometritis in 33.33% and PPI hemorrhage in 16.66% of cases and significantly higher than those of Amrouche S who found 25% of pathological postpartums. They were dominated by maternal infection in 19% of cases; followed by haemorrhage during delivery (6% of cases).

### CONCLUSION

The maternal prognosis was relatively good, the most frequent postpartum complications were: postpartum hemorrhage and maternal infection. It can be avoided in certain cases where an etiology is found justifying a preventive attitude of risk factors.

**Conflict of Interest:** None

### REFERENCES

1. Stanton, C., Lawn, J. E., Rahman, H., Wilczynska-Ketende, K., & Hill, K. (2006). Stillbirth rates: delivering estimates in 190 countries. *The Lancet*, 367(9521), 1487-1494.
2. Nizard, J., Guettrot-Imbert, G., Plu-Bureau, G., Ciangura, C., Jacqueminet, S., & Leenhardt, L. Chronic maternal pathologies and pregnancy losses. French recommendations [Internet]. EM-Consulte. Available on: <https://www.em-consulte.com/article/942056/chronic-maternal-pathologies-and-losses-of-gr>
3. Keita, M. Y. (2020). Stillbirth study of the health center of commune I of the district of Bamako. Thesis of Med. USTTB/FMOS, P37.
4. Niare, B. (2021). Study of fetal death in utero at the CSREF of commune IV of the district of Bamako. Thesis of Med. USTTB/FMOS; p40.
5. N'Diaye, M. (2003). Fetal death in utero at the RENE Cisse maternity hospital in Hamdalaye: Clinical and epidemiological aspects and management. Thèse Méd., Bamako, n°49.
6. Guindo, D. O. (2005). Antepartum fetal death in the gynaecology and obstetrics department of the reference health centre of commune V of the district of Bamako from January to December 2005.
7. Mohamed, M. M. (2014). Study of fetal death in utero in the maternity ward of the CSRef CII of the district of BKO, 94.
8. Amrouche, S., & Ait, R. N. (2017). Fetal death in utero. Thesis in Medicine. Algeria, p142.
9. Moutongo, F. Fetal death in utero in the obstetrics and gynaecologist department of the national hospital of point G from 1992-1990; medical thesis Bamako 2000 9 PM113.
10. Diarra, I. (2008). Study of fetal death in utero at the maternity ward of the Gabriel Touré University Hospital in Bamako. Mémoire Méd., Bamako, 11p
11. Mounzer, I. (1989). Fetal death in utero: etiological aspect of 42 cases. Thesis in Medicine at the University of Lille II.
12. Lansac, J., & Body, G. (2001). Pratique de l'accouchement 3rd edition Masson, Paris, n°237.
13. Traoré, S. (2008). Stillbirth in the Gynecology and Obstetrics Department of the Reference Health Center of the Commune V. Thesis Med., Bamako.
14. Ongoiba, O. (2010). Neonatal mortality at the Hassan II University Hospital of FES. Thèse Med., Maroc, n°40.
15. Sidibé, S. D. (2017). Epidemio-clinical approach to fetal death in utero about 274 cases at the health center of the commune V. Thèse Med., Bamako, 2006, n°296, 6(3), 1061-1067.