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Original Research Article

## Fetal death in utero: epidemiological aspects, management and maternal prognosis in the obstetrics and gynecology department of the community medical centre of Ratoma

Boubacar Alpha Diallo\*, Boubacar Siddy Diallo, Ibrahima Sory Sow, Ibrahima Koussy Bah, Ibrahima Sory Baldé, Abdrahmane Diallo, Telly S. Y., N. Keita

University Gmal Agdel Nasser, Chair of Gynaecology and Obstetrics, Conakry, Guinée

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### \*Correspondence:

Dr. Boubacar Alpha Diallo,

E-mail: [boubacardiallo2026@gmail.com](mailto:boubacardiallo2026@gmail.com)

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### ABSTRACT

**Background:** Fetal death in utero (FDIU) often represents a tragedy badly lived, sometimes incomprehensible. It is considered as a failure of pregnancy's progress and monitoring. It is a frequent problem in obstetrical practice. Objective of study was to contribute to the study of FDIU in the maternity ward of the Ratoma municipal medical center.

**Methods:** This was a prospective study of analytical type conducted over a period of 6 months from 1 January to 30 June 2017.

**Results:** During this study period, we recorded 54 cases of FDIU out of a total of 1256 deliveries, or a frequency of 4.3%. The average age of our patients was 28.5 years with extremes of 16 to 39 years, the most represented age group was 25 to 34 years, with a frequency of 44.4%. The absence of active fetal movement was the main reason for consultation, with a frequency of 51.9%, and housewives were the most affected, with a frequency of 61.1%. The 70.4% of our patients gave birth by vaginal delivery and oxytocin was the most commonly used drug for induction of labor, i.e., 77.8%. The immediate maternal prognosis was 100% favorable and no case of maternal death was recorded

**Conclusions:** In-utero fetal death is a frequent obstetrical pathology, the awareness of women for the realization of ANC as well as the early management of risk factors detected during ANC constitutes an element of great importance. Therefore, a regular follow-up of all pregnant women even in the absence of risk factors proves necessary.

**Keywords:** FDIU, Management, Ratoma municipal medical center

### INTRODUCTION

Fetal death in utero (FDIU) is defined as any fetal death prior to going into labor, occurring after the limit of fetal viability as set by WHO, namely, 22 weeks of amenorrhea (SA)/ a birth weight of over 500 gm.<sup>1</sup> It often represents a tragedy that is not well experienced and sometimes incomprehensible. It is a frequent problem in obstetrical practice. It affects 4 to 10% of pregnancies in developed countries, compared to 15 to 50% in developing countries.<sup>2</sup> The prevalence of in utero fetal death is 2% worldwide, with consistent data for high-income countries around 4 to 5/1000 births, and disparate data for low-income countries. The global rate of FDIU decreased by 14.5% between

1995 and 2009, from 22.1/1000 to 18.9/1000, with 76.2% of FDIU occurring in South Asia and Sub-Saharan Africa in 2009.<sup>3</sup> In Guinea, proportion remains high: 2.96% in 2008 at the Ignace Deen hospital and university center, and 3.98% in 2010 at Donka hospital and university center.<sup>4,5</sup> We conducted this study because of high frequency of this pathology, multiplicity of etiological factors and severity of complications that can compromise maternal prognosis.

### General objective

General objectives of the study were to contribute to the study of FDIU in the maternity ward of the Ratoma communal medical center.

### Specifics objectives

The specific objectives were to determine the frequency of in utero deaths in the service, to describe the socio-demographic profile of the patients, to identify the etiological factors of this pathology and to describe the management and describe the maternal prognosis.

### METHODS

The study was conducted in the gynecology-obstetrics department of the Ratoma community medical center, a level II referral center within the Guinean health pyramid. An average of 1,500 to 2,000 deliveries per year are performed there.

#### Type of study

This was a quantitative, descriptive and analytical study of a 6-month period, from January 1 to June 30, 2017. The target population: consisted of all pregnant women admitted to the service during the study period.

#### Inclusion criteria

The study included all pregnant women who were received for confirmed fetal death and delivered in the department during the study period and whose gestational age was greater than or equal to 22 seamen of amenorrhea managed in the department.

#### Exclusion criteria

All cases of in-utero fetal death not managed in the department, and those who did not agree to participate in the study were not excluded.

#### Statistical analysis

The data were entered and analyzed using EPI INFO software version 6. The data were then transferred to SPSS 21.0 software for analysis. The statistical test used was the Chi<sup>2</sup>, with a significance alone set at  $p < 0.05$ .

#### Ethical considerations

The study was approved by health officials at the Ratoma CMC. Verbal consent was obtained from the participants and the cards were anonymous.

### RESULTS

#### Frequency

We collected a total of 1256 women who came to the consultation and among them 54 had an IUFD, that is to say a proportion of 4.30% and socio-demographic aspect of the participants.

**Table 1: In-utero death and age of patients.**

Age group (Years)	In-utero death		Total (%)
	No (%)	Yes (%)	
15-24	148 (12.3)	13 (24)	161 (12.8)
25-34	527 (43.8)	24 (44.4)	551 (43.8)
35 and plus	527 (43.8)	17 (31.5)	544 (43.4)
<b>Total</b>	1202 (95.71)	54 (4.29)	1256 (100)

ddl=3, X<sup>2</sup>=8,  $p < 0.0004$

#### Age

The results show that in utero fetal death can occur at any age of the genital life. However, in this study we found that the age group with the highest incidence of DIU was 25-34 years followed by 35 years and older with proportions of 44.4% and 31.5% respectively. The average age of our patients was 28.5 years with extremes of 15 and 39 years. However, we found a statistically significant association between young age and the risk of DIU. Thus, patients in the 15–24-year age range had a 3-fold increased risk of DIU compared with those 35 years and older ( $p < 0.0004$ ). The increase in this risk at this age is explained by the fact that they are often young women who do not have sufficient experience in pregnancy monitoring and respect of the instructions given by health workers, but also by the predilection of vasculo-renal syndromes and their complications at this age.

**Table 2: Cross-tabulation of DIU by parity of parturient.**

Parity	DIU		Total (%)
	No (%)	Yes (%)	
Nulliparous	240 (89.6)	28 (10.4)	268 (21.33)
Primipare	343 (97.2)	10 (2.8)	353 (28.12)
Pauci pare	433 (98.6)	6 (1.4)	439 (34.95)
Multipare	123 (95.3)	6 (4.7)	129 (10.27)
Large multiparous	63 (94.0)	4 (6.0)	67 (5.33)
<b>Total</b>	1202 (95.7)	54 (4.3)	1256 (100)

ddl=4, X<sup>2</sup>=36.14,  $p < 0.001$ .

#### Parity

**Table 3: Cross-tabulation of FDIU according to the number of PNC.**

Number of ANC	FDIU		Total
	No (%)	Yes (%)	
Not ANC	8 (47.05)	9 (52.94)	17
1-2 ANC	33 (16.4)	168 (83.6)	201
≥3 ANC	13 (1.3)	1025 (98.7)	1038
<b>Total</b>	54 (4.30)	1202 (95.7)	1256

ddl=2, X<sup>2</sup>=198.08,  $p < 0.001$ .

It was found that most of our patients were pauciparous with 34.95% of UFIs followed by primiparous, 28.10%.

However, we found a statically significant association ( $p < 0.001$ ) between nulliparity and the occurrence of FDIU. Thus, 28 of the 54 patients who had an FDIU were nulliparous, or 51.8%. This makes nulliparity a major risk factor in the occurrence of FDIU.

### **Antenatal consultations**

Almost all of our parturients had undergone ANC, and in different ways. However, the majority had undergone between 1 and 2 ANCs (61.1%) with an average of 2.6 ANCs. It was found that not performing ANC is a factor that favours the occurrence of UFM when linking ANC and UFM. Thus, 47.1% of patients who died in utero had not attended antenatal care. This increases the risk of IUFD in patients who did not attend ANC. We found a statistically significant association between ANC and the risk of IUFD  $p < 0.001$ . This could be explained by the fact that these patients lose the benefits of performing ANC, including the risk of developing anaemia.

### **Etiology**

**Table 4: Presumed etiologies.**

Presumed etiologies	Staffing	Percentage (%)
<b>Pre-eclampsia</b>	11	20.4
<b>Retroplacental hematoma</b>	10	18.5
<b>Unknown causes</b>	8	14.8
<b>Urogenital infection</b>	5	9.3
<b>high blood pressure</b>	5	9.3
<b>Malaria</b>	2	3.2
<b>Fetal malformation</b>	2	3.2
<b>Trauma</b>	1	1.9

**Table 5: Distribution of parturient with DIU according to the course of action.**

How to proceed	Effective	Percentage (%)
<b>Hospitalization</b>		
Yes	29	53.7
Not	25	46.3
<b>Trigger</b>		
Spontaneous	29	53.7
Artificial	25	46.3
<b>Drugs used</b>		
Oxytocin	42	77.8
Antibiotics	53	98.1
Prostaglandin	12	22.2
<b>Way of delivery</b>		
Lower track	38	70.4
Cesarean section	16	29.6
<b>Uterine revision</b>		
Yes	19	35.2
Not	35	64.8

Several factors were identified as causes. They were dominated by pre-eclampsia (20.4%), retro placental haematoma (18.5%) and unexplained causes (14.8%). As found in our study, the majority of parturients had pre-eclampsia, and the occurrence of FDIU could be related to the progressive or abrupt decrease in placental perfusion due to the defect in remodeling of the spiral arteries.

To proceed with the expulsion of the uterine contents, several gestures were performed.

### **Hospitalization**

In most cases, the treatment required hospitalization for a few days (53.7%), while for the others, the treatment did not exceed 24 hours, after which the patient was released.

### **Induction of labor**

The 53.7% of the parturients went into labor spontaneously. On the other hand, it was artificial in 46.3% with the use of oxytocin (77.8%) and prostaglandins (22.2%). The purpose of induction is to shorten the duration of retention of the dead fetus and to facilitate expulsion through the natural route, in order to reduce complications and make the termination less traumatic both physically and psychologically for the patients. Intravenous oxytocin infusion is the most commonly used technique. The remaining patients were induced with prostaglandins.

### **Routes of delivery**

The 70.4% of the patients had a natural delivery, the rest had a cesarean delivery.

### **Uterine revision**

After delivery, uterine revision was necessary in 35.2% of cases to complete expulsion and reduce the risk of bleeding.

## **DISCUSSION**

### **Frequency**

We collected a total of 1256 women who came for consultation and among them 54 had suffered an in-utero fetal death, a proportion of 4.30%. this result is identical to the 4.41% found in Madagascar by Andriamandimbison et al.<sup>4</sup> However, in Congo in 2016, Kangulu et al found a significantly higher frequency of 13.98%.<sup>1</sup>

### **Socio-demographic aspect of the participants**

#### **Age**

The results show that in utero fetal death can occur at any age of the genital life. However, in this study we found that the age group with the highest incidence of DIU was 25-

34 years followed by 35 years and older with proportions of 44.4% and 31.5% respectively. The average age of our patients was 28.5 years with extremes of 15 and 39 years. However, we found a statistically significant association between young age and the risk of DIU. Thus, patients in the 15–24-year age range had a 3-fold increased risk of DIU compared with those 35 years and older ( $p < 0.0004$ ). Our mean age of 28.5 years is superposable to that found by Quibel et al in Switzerland in 2015, who reported a mean age of 28.7.<sup>7</sup> On the other hand, some data in the literature suggest that maternal age over 35 years is a risk factor.<sup>8</sup> The high frequency of IUGR in this age group in our study could be due to the fact that it is a period of low genital activity, but also to the predilection of vasculo-renal syndromes and their complications in our context.

### *Parity*

It was found that most of our patients were pauciparous with 34.95% of UFIs followed by primiparous, 28.10%. However, we found a statically significant association ( $p < 0.001$ ) between multiparity and the occurrence of FDIU. Thus, 28 of the 54 patients who had an FDIU were nulliparous, or 51.8%. This makes nulliparity a major risk factor in the occurrence of FDIU. This high risk in primigravida has also been found by other authors as this population group is often exposed to certain pathologies such as vasculo-renal syndromes.<sup>9</sup>

### *Antenatal consultations*

With an average of 2.6 ANC per woman, our study showed that not having ANCs is a factor favouring the occurrence of EIM. Thus, 47.05% of the patients who died in utero had not attended antenatal care. Several studies have shown that inadequate pregnancy monitoring puts pregnant women at risk of in-utero fetal death.<sup>7</sup>

### *Etiology*

Several factors were identified as causes. They were dominated by pre-eclampsia (20.4%), retro placental haematoma (18.5%) and unexplained causes (14.8%). As found in our study, the majority of parturients had pre-eclampsia, and the occurrence of FDIU could be related to the progressive or abrupt decrease in placental perfusion due to the defect in remodeling of the spiral arteries. In a study conducted in Madagascar, Andriamandimbison et al (15=10), also reported that the causes were dominated by hypertensive pathologies (20.66%), antepartum haemorrhage (18.18%), and intrauterine growth retardation (14.87).

According to the literature, the incidence of death in utero is twice as high in a hypertensive patient as in a normal pregnancy. This risk increases when a complication (pre-eclampsia, retroplacental haematoma, eclampsia etc.) sets in. As stated in our study where the majority of parturients had pre-eclampsia, the occurrence of death in utero is in this case related to the progressive or abrupt decrease in

placental perfusion due to the defect of remodeling of the spiral arteries.

### *Management of in utero death*

For the management of in utero death, we used several approaches to deliver the patients.

### *Hospitalization*

In most cases, the treatment required hospitalization for a few days (53.7%), while for the others, the treatment did not exceed 24 hours, after which the patient was released.

### *Induction of labor*

The 53.7% of the parturients went into labor spontaneously. On the other hand, it was artificial in 46.3% with the use of oxytocin (77.8%) and prostaglandins (22.2%). The purpose of induction is to shorten the duration of retention of the dead fetus and to facilitate expulsion through the natural route, in order to reduce complications and make the termination less traumatic both physically and psychologically for the patients. Intravenous oxytocin infusion is the most commonly used technique. The remaining patients were induced with prostaglandins.

### *Routes of delivery*

The 70.4% of the patients had a natural delivery, the rest had a cesarean delivery.

### *Uterine revision*

After delivery, uterine revision was necessary in 35.2% of cases to complete expulsion and reduce the risk of bleeding.

We systematically admitted patients to hospital and initiated a process that allowed the woman to expel her fetus either by infusing utero-tonics or we performed a cervical ripening first using prostaglandin before infusing utero-tonics. Several studies have shown that prostaglandins E and F have a stimulating effect on the myometrium of the pregnant woman and have a role in cervical preparation for delivery.<sup>11</sup> This allowed us to obtain a natural delivery, but others gave birth by caesarean section, either due to the failure of the induction or the clinical and paraclinical picture on reception requiring immediate care. In addition, for all of our patients we performed a blood count and a blood test.

### *Limitations*

Incomplete information in some records. The not computerization of the patients' data and the not realization of certain examinations due to the lack of means of the patients.

## CONCLUSION

In-utero fetal death is a frequent obstetric pathology. Raising women's awareness of ANC and early management of risk factors detected during ANC could reduce its frequency and complications.

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