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Maternal and perinatal Management and prognosis of obstetric evacuations in a referral maternity hospital in Conakry

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ABSTRACT

Introduction: *The objective of this study was to evaluate the management and maternal and perinatal prognosis of obstetric evacuations in the Gynecology-Obstetrics department of the Ignace Deen National Hospital.*

Materials and Methods: *This was a prospective descriptive study of 6 months, from March 1 to August 31, 2023 , focusing on pregnant women, women in labor and postpartum women evacuated to the department.*

Results: *The frequency of obstetric evacuations was 7.70%. The mean age was 24.69 years. Evacuations were provided by taxi (87.33%). Private clinics (36.45%) and community medical centers (35.33%) were the most frequent referral facilities. Vasculorenal syndrome (21.56%), acute fetal asphyxia (12.44%), and dystocia (8.88%) were the most frequent reasons for evacuation. Management included cesarean section (80.87%), administration of antihypertensive medication (16.88%), and soft tissue suturing (18.44%). Blood transfusion was required in 6% of patients. Maternal mortality was 4.44%, and neonatal mortality was 19.58%.*

Conclusion: *Obstetric evacuation is a negative factor in maternal and perinatal prognosis.*
Reducing maternal and perinatal morbidity and mortality would require a standardization of evacuation criteria, medicalization of evacuation methods and reduction of journey time.

Keywords
Obstetric evacuations, Maternal and perinatal prognosis, Referral maternity hospital.

Introduction
Medical evacuation, in general, is characterized by the need for the rapid transfer of a patient from one medical center to another that is better equipped or more specialized [1]. Obstetric referral is a crucial element in reducing maternal and neonatal mortality [2]. It therefore refers to a referral made in an emergency situation. This is the case for emergency obstetric and neonatal care [3]. Obstetric evacuation is considered an indicator of women's socio-health status. The more complications there are during pregnancy and childbirth, the more evacuations occur [3]. It is justified when the patient's prognosis is high-risk and requires rapid care at a higher level [4]. The WHO estimates that worldwide, more than half a million women die each year from obstetric complications. This means that every minute, a woman dies from a cause related to pregnancy or childbirth. These estimates show that 30% of maternal deaths occur in Africa, with the highest rates in Central and West Africa, at approximately 700 per 100,000 live births [5]. The majority of these deaths are due to direct obstetric causes, namely hemorrhage, hypertensive disorders, miscarriage, and infections [6] and are exacerbated by the limited availability of healthcare facilities providing emergency obstetric care [7,8]. In developing countries, complications of pregnancy and childbirth

constitute the most serious threat to women's lives and health. Indeed, pregnancy and childbirth remain a significant risk for women in Africa. The risk of a woman dying during childbirth is 1 in 32 in Africa, compared to 1 in 2,900 in North America [9]. The objective of this study was to evaluate the management and maternal and perinatal prognosis of obstetric evacuations in the Gynecology-Obstetrics department of the Ignace Deen National Hospital.

Methodology

Type and duration of study

This was a longitudinal, prospective descriptive study lasting 6 months, from March 1to August 31, 2023, conducted in the Gynecology-Obstetrics department of the Ignace Deen National Hospital in Conakry.

Study framework

The Ignace Deen National Hospital, located in the Kaloum district in the heart of the capital city of Conakry, is a level III facility in the country's healthcare system. Together with the Donka National Hospital, it forms the Conakry University Hospital Center (CHU). The obstetrics and gynecology department of this hospital was the focus of our study. For the past nine years, it has been the only functioning level III referral center for maternal health, receiving obstetric emergencies from healthcare facilities in Conakry and some neighboring prefectures. The Conakry health district has six level II facilities (five community health centers and one regional hospital) and several level III health centers. The department's activity has almost doubled, increasing from approximately 3,000 to 6,000 deliveries annually.

Study population

The study focused on pregnant and postpartum women evacuated to the department for care during the study period.

Inclusion criteria

Were pregnant women, women in labor and postpartum women who were transferred to the department for care and who agreed to participate in the study during the period.

Exclusion criteria

Not included were pregnant women, women in labor and postpartum women evacuated to the department during the period mentioned above but who did not agree to participate in the study and those who were not evacuated.

Sampling

It was exhaustive, including all cases meeting the inclusion criteria defined above.

Study variables

The variables were qualitative and quantitative, distributed according to the following aspects: sociodemographic (age, profession, marital status, occupation, level of education and structures of origin), modalities of evacuation (means of transport, duration of journey and qualification of the evacuator), obstetric (gravity, parity, number of prenatal consultations , reasons for evacuation and diagnoses retained), therapeutic (mode of delivery, medical and surgical care) and prognostic (types of complications, and maternal and perinatal lethality).

Data collection

The data were collected through the review of prenatal consultation records and obstetric evacuation forms, clinical examination of patients upon admission, and the management and assessment of the clinical condition of mothers and newborns upon discharge from the hospital.

Data entry and analysis

The data was entered using Excel software from the Office 2016 suite and then exported and analyzed using Jamovi 2.3.28 software.

Ethical considerations

Consent was obtained from the participants, and confidentiality and anonymity were strictly enforced.

Results

Frequency

During the study period, we recorded 450 obstetric evacuations out of 3240 obstetric cases admitted to the service, representing a frequency of 13.89%.

Table 1: Socio-demographic characteristics of patients.

Age (year)	Number of employees (n=450)	Percentage
14 – 2 3	236	52.4 5
2 4 – 33	173	38.44
34-44 years old	41	9.11
Average age = 24.69 years; range from 14 to 44 years		
marital status		
Brides	399	88.67
Singles	51	11.33
Occupation		
Housewife	146	32.44
Liberal profession	192	42.67
Student	76	16, 89
Employee	36	8.00
Education level		
Not enrolled in school	223	49.56
Primary	67	14.89
Secondary	1 11	2 4.66
Superior	49	10.89

Reasons for evacuation

The most frequently recorded reasons for evacuation were vacuorenal syndrome (97 cases) or 21.56%, 56 cases of acute fetal asphyxia (12.44%), 40 cases of fetopelvic disproportion (8.89%), 37 cases of contracted pelvis (8.22%), 28 cases of threatened preterm labor (6.22%), 29 cases of postpartum hemorrhage (6.44%), 24 cases of malpresentation (5.33%), 22 cases of intrauterine fetal

death (4.89%), 19 cases of stationary dilation (4.22%), 17 cases of decompensated anemia (2.67%), 15 cases of failure to engage (2.67%) and 14 cases of suspected large fetus (3.11%).

Table 2: Distribution of patients according to evacuation characteristics and obstetric history.

Features	Number of employees (n=450)	Percentage
Health facilities of origin		
Health centers	114	25.33
Private clinics	164	36.45
Municipal medical centers	159	35.33
Prefectural hospitals	13	2.89
Means of transport		
Ambulance	9	2.00
Taxi	393	87.33
Personal car	48	10.67
Duration of the journey (minutes)		
< 60	143	31.78
60-120	169	37.55
121 – 181	84	18.67
182 – 242	40	8.89
243 – 303	5	1.11
≥ 304	9	2.00
Average journey time: 116.165 minutes	Extremes of 18 minutes and 440 minutes	
Obstetric history		
Gesture		
Primigest	246	54.67
Paucigete	120	26, 67
Multi-gesture	56	12.44
Large multi-gesture	28	6.22
Parity		
First-time mother	252	56.00
Paucipare	122	27.11
Multiparous	46	10.22
Large multiparous woman	30	6.67
Number of prenatal consultations		
0	51	11.33
1-3	253	56.22
≥ 4	146	32.45

Table 3: Distribution of patients according to diagnoses made upon arrival.

Diagnostics retained upon arrival	Number of employees (n=450)	Percentage
severe pre-eclampsia	49	10.89
Position s obstructed (transverse/oblique)	40	8.89
Acute fetal asphyxia	138	30.67
Retroplacental hematoma	65	1 4.44
Eclampsia	27	6.00
Placenta pr ævia	17	3.78
fetal - pelvic disproportion	90	20.00
Uterine rupture	16	3.56
Postpartum hemorrhage	11	2.44
Pre-rupture syndrome	16	3.56
Cord prolapse	5	1.11
Premature rupture of membranes	17	3.78
Neglected shoulder	3	0.67
Symphyseal relaxation	1	0.22

Table 4: Distribution of patients according to care modalities.

Procedures for coverage	Number of employees (n=450)	Percentage
Mode of delivery (n=434)		
Cesarean section	351	80.87
Vaginal route	83	19.13
Medical care		
Salt serum 0.9%	11	2.44
Ringer's lactate	80	17.78
5% Glucose Serum	152	33.78
Blood transfusion	27	6.00
Antihypertensive	76	16.8 9
Antibiotics	17	3.78
Magnesium sulfate	76	16.8 9
Surgical management		
Cesarean section	351	78.00
Laparotomy for uterine rupture	16	3.56
Suturing of soft tissues	83	18.44

Maternal and perinatal prognosis

Maternal morbidity

We recorded 85 cases of complications during the study, representing a frequency of 18.89%.

These included 27 cases of severe decompensated anemia (31.76%), 8 cases of acute pulmonary edema (9.41%), 25 cases of postpartum hemorrhage (29.41%), 12 cases of eclamptic coma (14.11%), 9 cases of surgical site infection (10.59%) and 4 cases of sepsis (4.71%).

Maternal lethality

We recorded 20 cases of maternal deaths out of the 450 women evacuated, representing a frequency of 4.44%. The causes of death were hemorrhagic shock (12 cases) or 60.00%, decompensated anemia (4 cases) or 20.00%, 2 cases of septic shock (10.00%), 1 case of renal failure (5.00%) and 5.00% of acute pulmonary edema.

Perinatal lethality

Of the 480 newborns, 94 deaths were recorded, representing a case fatality rate of 19.58%. Acute respiratory distress (70/94) or 74.47%, severe anemia (15/94) or 15.96%, and prematurity (5/94) or 5.32% were the most frequent causes of death.

Discussion

We conducted a descriptive study with prospective data collection on patients transferred to the department for obstetric reasons. In this work, we attempted to determine the frequency of obstetric transfers, the management methods used, and the maternal and fetal prognosis.

The rate of obstetric evacuations was 13.89% in this series. This is significantly lower than those reported by some African authors, namely 33.00%, 66.20%, and 71.40% [10-12]. Significantly lower rates than ours were reported by Baldé IS et al. [13] in the same department (7.50%), Théra T et al. [14] in Bamako (13.38%) and Dembelé S et al. [15] at the maternity ward of Fousseyni Daou Hospital in Kayes (8.45%). In Africa, the obstetric evacuation of patients from peripheral maternity wards to referral centers is a common practice reported by several authors [8,16,17]. The average age of the evacuees was 24.69 years. A similar result was found in the study by Dembelé S et al. (24.3 years) [15].

In this series, more than 8 out of 10 patients (88.67%) were married. A predominance of married women was reported in Senegal in 2022 [18].

This study revealed that only 2.00% of patients were transported to the ward by ambulance. A 6.10% ambulance usage rate for patient transport was reported in a 2019 study conducted in the same ward, with explanations similar to ours [19]. However, some authors reported contrasting findings, noting a higher rate of ambulance use for obstetric evacuations (63.0% and 50.6%) [14,20]. This situation could be explained by the lack of ambulances in most referring facilities, fuel shortages, or the unavailability of ambulance drivers during emergencies. This underscores the need to equip healthcare facilities with readily available means of transport.

The average travel time during the evacuation was 116.16 minutes. This result corroborates that of Dembélé S et al. [15]. The long distance separating the secondary and reference structures, as well as accessibility difficulties (traffic congestion), could explain this finding.

Vaculorenal syndrome (21.56%), acute fetal asphyxia (12.44%), fetal-pelvic disproportion (8.89%) and contracted pelvis (8.22%) were the most frequently encountered reasons for consultation. In the series by Samaké A et al. [21], the main reasons for evacuation were dystocia (60.57%), hemorrhage (17.18%), refusal to cooperate or push (7.71%) and hypertension/eclampsia (1.88%). For some authors, uterine scarring and postpartum hemorrhage were the main reasons for consultation [15].

Acute fetal asphyxia (30.67%), fetopelvic disproportion (20.00%), and placental abruption (14.44%) were the most frequently recorded diagnoses upon admission of evacuated patients. In the study by Dembelé S et al. [15], eclampsia (8.70%), severe postpartum anemia (7.50%), acute fetal asphyxia (6.90 %), and placental abruption (6.30%) were reported as the most frequently found diagnoses after examination of evacuated patients. These are common obstetric emergencies in our setting that can jeopardize maternal and fetal prognosis. In the study by Leno DWA, et al. [22], hemorrhages with 23.00%, dystocia with 22.80%, and arterial hypertension and its complications (17.90%) were the most frequently retained diagnoses upon admission of women in labor.

Cesarean section was the most frequently used mode of delivery (80.87%). A cesarean rate half that of ours was reported by some authors [22,23]. This high cesarean rate in our series could be explained, firstly, by the fact that our study site is the only functioning level 3 maternity unit receiving obstetric emergencies from peripheral maternity units in the capital and those in the surrounding prefectures, and secondly, by the non-operation of operating rooms in some peripheral maternity units at night due to a lack of on-call anesthesiologists.

Nearly 2 out of 10 patients (18.44%) underwent soft tissue suturing and 3.56% had a laparotomy for uterine rupture. Soft tissue suturing rates of 4.26% and laparotomy rates of 3.70% were reported in the study by Diallo FB et al. [24] in Guinea in 2025.

Drug treatment consisted mainly of fluid replacement solutions, antihypertensives, and anticonvulsants. These were the therapeutic approaches widely used in the management of patients with renal vasculitis and their complications.

We recorded 18.89% maternal complications. Complication rates of 10.45% and 27.10% in evacuated patients were reported in Bouaké [23] and Treichville [12], respectively. These maternal complications were dominated by severe decompensated anemia (31.76%), postpartum hemorrhage (29.41%), and eclamptic coma (14.11 %).

Obstetric evacuation remains in our countries a negative factor that can compromise the maternal and fetal prognosis.

During the study, we recorded 20 cases of maternal death (4.44%). Maternal mortality rates ranging from 0.8% to 5.2% have been reported in the literature [12,22-25]. The causes of death were predominantly direct obstetric: postpartum hemorrhage resulting in hemorrhagic shock (60.00%). This finding corroborates those of some African authors [16,19,26]. Delays in decision-making, difficulties accessing the evacuation facility, a lack of adequate means of patient transfer, and insufficient pre-evacuation care are factors that can contribute to the deterioration of patients' clinical condition upon arrival at the ward, sometimes jeopardizing the mothers' prognosis. This is further exacerbated by the very limited access to blood products in our setting. Access to quality prenatal consultations, rapid and medically supervised transfer of patients, rapid and appropriate care of patients upon arrival at referral facilities, and rapid access to blood products could reduce these maternal mortality rates related to obstetric evacuations.

Regarding perinatal prognosis, this study revealed a significant perinatal mortality rate (19.58%). A similar mortality rate was reported in the study by Léno DWA et al. in Conakry in 2012 [22]. A higher perinatal mortality rate than ours was recorded at the Treichville University Hospital Center (21.3%). Acute respiratory distress (74.47%), severe anemia (15.96%), and prematurity (5.32%) were the most frequent causes of death. A significantly lower perinatal mortality rate than ours was found in Senegal

(7.92%) in 2020 [27]. According to Samaké S et al. **[**21**],** these mortality rates are linked to inadequate prenatal care and labor monitoring due to the failure to consider risk factors, particularly the suboptimal use of the partogram or labor management guide.

Conclusion

Evacuations remain frequent in our department and affect all socioeconomic categories. They lead to a high rate of cesarean deliveries. Maternal and perinatal morbidity and mortality are significant. Reducing maternal and perinatal morbidity and mortality would require standardizing evacuation criteria, providing medicalized evacuation services, and reducing travel time.

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