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Original Research Article

Third-Trimester Obstetric Emergencies at Garoua Regional Hospital, Cameroon

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Abstract: ***Background:*** Obstetric emergencies represent a leading cause of maternal and fetal morbidity and mortality worldwide, particularly in sub-Saharan Africa. Data from northern Cameroon remain scarce, motivating the present study. ***Objective:*** To describe the epidemiological, clinical, therapeutic, and prognostic profile of third-trimester obstetric emergencies at the Garoua Regional Hospital (GRH), Cameroon. ***Methods:*** A descriptive cross-sectional study with retrospective data collection was conducted in the Gynecology-Obstetrics department of the GRH from January 1 to December 31, 2023. All pregnant women in the third trimester or in the immediate postpartum period with a confirmed obstetric emergency were included. Data were analyzed using IBM SPSS version 23.0. ***Results:*** A total of 336 obstetric emergencies were recorded out of 2,557 pregnant women (frequency: 13.14%). The mean age was 25.30 ± 6.68 years. The most common emergencies were dystocia (36.6%), hemorrhagic emergencies (30.9%), acute fetal distress (29.7%), hypertensive emergencies (22.7%), and infectious emergencies (6.3%). Surgical treatment was performed in 68.5% of cases. Maternal mortality was 3.7% and fetal/neonatal mortality was 25.5%. ***Conclusion:*** Third-trimester obstetric emergencies are frequent at the GRH. Dystocia, hemorrhage, and acute fetal distress are the leading types. Fetal/neonatal lethality remains high, underscoring the need for strengthened antenatal care and emergency obstetric services in this region.

Keywords: obstetric emergencies, third trimester, maternal mortality, fetal prognosis, Cameroon.

1. INTRODUCTION

Pregnancy encompasses all physiological events from fertilization to delivery. Although most pregnancies progress uneventfully, obstetric emergencies can arise suddenly, endangering both mother and unborn child [1]. Such emergencies are classified as hemorrhagic, hypertensive, infectious, thromboembolic, or mechanical the latter including dystocia and acute fetal distress (AFD) [2].

Globally, obstetric emergencies account for approximately 75% of maternal deaths, with hemorrhage alone responsible for one-quarter of all cases [3]. An estimated 800 preventable maternal deaths occur every day worldwide, 95% of which occur in low-income countries [4]. Sub-Saharan Africa carries a disproportionate burden: Cameroon recorded 467 maternal deaths per 100,000 live births between 2011 and 2018, far above the Sustainable Development Goal target [5, 6]. Reported prevalences of obstetric emergencies in West and Central Africa vary: 6.03% in the Democratic Republic of Congo [8], 31.8% in Benin [9], and 6.1% in Cameroon [10]. Data from northern Cameroon specifically from the Garoua Regional Hospital (GRH), the sole third-level referral center for over 2.6 million inhabitants remain particularly scarce, motivating the present study.

2. MATERIALS AND METHODS

2.1 Study Design and Setting

This was a descriptive cross-sectional study with retrospective data collection, conducted in the Gynecology-Obstetrics department of the GRH from January 1 to December 31, 2023. The GRH is a public, third-category teaching hospital established in 1932, operating 290 functional beds and equipped with a blood

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bank, operating theater, laboratory, radiology unit, and neonatal care unit.

2.2 Study Population

The study population comprised all pregnant women in the third trimester (from 28 weeks of gestational age) and those in the immediate postpartum period (up to 5 days post-delivery) admitted with a diagnosed obstetric emergency.

Inclusion Criteria: All pregnant women in the third trimester or immediate postpartum with a confirmed obstetric emergency diagnosed and managed at the GRH.

Exclusion Criteria: Patients with incomplete medical records; non-obstetric conditions; planned obstetric procedures; first- or second-trimester emergencies; and patients transferred to another facility before completion of management.

2.3 Data Collection

Data were extracted using a structured form from delivery registers, operative reports, hospitalization files, and postoperative records. Variables included sociodemographic characteristics, obstetric history, clinical features, type of emergency, treatment modality, hospitalization duration, and maternal and fetal/neonatal outcomes.

2.4 Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 23.0. Descriptive statistics included frequencies, percentages, means, and standard deviations.

2.5 Ethical Considerations

Ethical clearance was obtained from the Ethics Committee of the FMSB of Garoua and administrative authorization from the GRH directorate. Patient anonymity and confidentiality were strictly maintained.

3. RESULTS

3.1 Frequency of Obstetric Emergencies

During the study period, 336 cases of obstetric emergencies were identified out of 2,557 pregnant women attending the GRH, yielding a frequency of 13.14%. After applying exclusion criteria, 317 cases were retained for analysis. The overall frequency was calculated using all identified cases.

3.2 Sociodemographic Characteristics

The mean age was 25.30 ± 6.68 years (range: 15–47 years). The age group 15–24 years was most represented (56.9%). The majority of patients were married (63.4%), identified as homemakers (51.1%), and resided in urban areas (55.2%) (Table 1).

Table 1: Sociodemographic characteristics of patients with third-trimester obstetric emergencies (N=317)

Variable	n	%
Age group (years)		
15–24 years	195	56.9
25–34 years	92	33.9
35–44 years	15	5.5
45–50 years	10	3.7
Marital Status		
Married	201	63.4
Single	47	14.8
Not specified	69	21.8
Occupation		
Homemaker	162	51.1
Student	9	2.8
Private sector	2	0.6
Civil servant	4	1.3
Not specified	140	44.2
Residence		
Urban	175	55.2
Rural	108	39.1
Not specified	18	5.7
Total	317	100.0

3.3 Clinical Characteristics

Mode of admission: 89% were admitted via referral; 11% presented spontaneously.

Obstetric history: Nulliparity was the most common parity status (32.2%), followed by multiparity (30.6%), primiparity (22.1%), and grand multiparity (14.2%). ANC had been performed by 69.1% of patients; 20.5% reported no ANC visits.

Clinical status on admission: Maternal general condition was good in 68.4%, fair in 25.6%, and poor in 6.0% of cases. Consciousness was normal in 94.3%.

Fetal heart sounds were normal in 42.3%, pathological in 26.8%, and absent in 13.6%.

3.4 Types of Obstetric Emergency

The distribution of emergency types is shown in Table 2. Other emergencies (dystocia, AFD, IUFD, cord prolapse) were collectively the most common category (55.5%), followed by hemorrhagic (30.9%), hypertensive (22.7%), and infectious emergencies (6.3%). No thromboembolic event was recorded. Patients could present with more than one obstetric emergency; percentages may exceed 100%

Table 2: Distribution of obstetric emergency types (N=317) — note: patients could have more than one emergency

Category / Type of Emergency	n	% (of 317)
Hemorrhagic Emergencies — 98 cases (30.9%)		
Postpartum hemorrhage (PPH)	42	13.2
Uterine rupture	35	11.0
Placenta previa	15	4.7
Retroplacental hematoma	10	3.2
Hypertensive Emergencies — 72 cases (22.7%)		
Severe pre-eclampsia	49	15.5
Eclampsia	23	7.3
Infectious Emergencies — 20 cases (6.3%)		
Severe malaria	16	5.0
Acute pyelonephritis	2	0.6
Chorioamnionitis	2	0.6
Other Emergencies — 176 cases (55.5%)		
Dystocia	116	36.6
Acute fetal distress (AFD)	94	29.7
Intrauterine fetal death (IUFD)	20	6.3
Cord prolapse	3	0.9
Thromboembolic pathologies		
None recorded	0	0

3.5 Management

Surgical treatment was performed in 68.5% of cases; non-surgical treatment in 55.5% (some patients received both). Treatment modalities by emergency type are detailed in Table 3.

Table 3: Treatment modalities by emergency type

Emergency Type	Primary Treatment	%
Dystocia	Cesarean section	27.4
Dystocia	Laparotomy	6.7
Acute fetal distress	Cesarean section	23.4
Hemorrhagic emergencies	Blood transfusion	14.5
Hemorrhagic emergencies	Uterine revision/massage	13.2
Hemorrhagic emergencies	Laparotomy	11.7
Hypertensive emergencies	Magnesium sulfate	22.4
Hypertensive emergencies	Antihypertensives	22.1
Hypertensive emergencies	Cesarean section	12.3
Infectious emergencies	Antimalarials	5.0
Infectious emergencies	Antibiotics (ceftriaxone regimen)	1.3
IUFD	Vaginal delivery	3.5

3.6 Prognosis

The mean hospitalization duration was 5.41 days (range: 0–23 days); 67.6% were discharged within 5 days. Maternal morbidity was recorded in 30.6% of cases. Maternal mortality was 3.7% (12 deaths), predominantly due to hemorrhagic shock and eclamptic complications. Normal neonatal outcome was observed in 60.6% of cases; neonatal complications in 9.8%; and fetal/neonatal death in 25.5% (Table 4).

Table 4: Maternal and fetal/neonatal outcomes (N=317)

Outcome	n	% (of 317)
Maternal Outcome		
Alive — normal recovery	208	65.6
Alive — with morbidity	97	30.6
Maternal death	12	3.7
Fetal / Neonatal Outcome		
Alive — normal	192	60.6
Alive — with complications	31	9.8
Fetal/neonatal death	81	25.5

4. DISCUSSION

4.1 Frequency

The frequency of third-trimester obstetric emergencies at the GRH was 13.14%, higher than the 6.03% reported at the Bonzola hospital in DRC [8], the 6.1% from a Cameroonian intensive care series [10], and the 11.40% from a multicenter Cameroonian study [11], but lower than the 31.8% described in Benin where a broader case definition was used [9]. This elevated rate primarily reflects the GRH's status as the sole tertiary referral hospital for over 2.6 million people in the North Region, concentrating the most complex obstetric cases from peripheral facilities.

4.2 Sociodemographic Profile

The mean patient age (25.30 ± 6.68 years) is consistent with sub-Saharan African series [12, 13], reflecting peak reproductive activity. Young maternal age carries established biological and socioeconomic risk for obstetric complications [14]. The predominance of urban residents (55.2%) contrasts with the rural majority reported by Etoundi *et al.,*[10], and likely reflects better transport access to the GRH for urban dwellers rather than a true difference in complication risk.

4.3 Clinical Characteristics

The high referral rate (89%) confirms the GRH's pivotal role in the regional referral pyramid, exceeding the 77.8% reported in Uganda [15] and 44% in Guinea [12]. While this reflects a functional referral network, it also implies that many patients arrive after delays, with already compromised clinical status. Nulliparity (32.2%) was the most frequent parity, consistent with the well-known risk associated with first deliveries [16]. ANC attendance of 69.1% above rates reported in comparable series likely reflects the positive impact of the health voucher ("chèque santé") program in northern Cameroon, though the continued occurrence of severe emergencies highlights that attendance quality, not merely frequency, needs improvement.

4.4 Types of Emergency

Dystocia (36.6%), hemorrhage (30.9%), AFD (29.7%), hypertensive disorders (22.7%), and infectious emergencies (6.3%) constituted the dominant categories a distribution closely mirroring findings from Uganda [16] and Tanzania [17], suggesting a fairly homogeneous regional epidemiological pattern. Hemorrhagic emergencies were led by PPH (13.2%) and uterine rupture (11%), the latter characteristic of settings with high rates of obstructed labor [3]. Hypertensive emergencies exceeded the 9.6% reported by Tchaou *et al.,*[9], consistent with persisting under-control of hypertensive disorders in low-income settings [4, 18]. Infectious emergencies were dominated by severe malaria (5%), reflecting the holoendemic transmission in northern Cameroon [17].

4.5 Management

Surgical management predominated (68.5%), with cesarean section as the most frequent intervention (48.9%), driven by the high rates of dystocia and AFD consistent with comparable African series [16, 20]. For hemorrhagic emergencies, blood transfusion (14.5%) was the primary treatment, supported by the GRH's blood bank. Magnesium sulfate was administered universally for hypertensive cases, in line with WHO recommendations [19].

4.6 Prognosis

Maternal mortality of 3.7% is comparable to the 4.0% reported by Diallo *et al.,*[12] and lower than the 9.6% from Etoundi *et al.,*[10], with hemorrhagic shock and eclampsia as the principal causes [3, 4]. Despite 89% of patients arriving via referral and 31% in fair or poor condition, 65.6% achieved a favorable outcome reflecting the GRH's functional emergency obstetric capacity. Maternal morbidity (30.6%) was nonetheless substantial, explained by the severity of referred cases. Fetal/neonatal mortality of 25.5% is consistent with comparable tertiary-level African data [17, 22, 23], and reflects late referral, limited intrapartum monitoring, and restricted neonatal resuscitation capacity. Reducing it will require upstream interventions specifically, reinforced intrapartum surveillance and systematic partograph use at peripheral facilities [7].

4.7 Strengths and Limitations

This study provides valuable epidemiological data from an underrepresented region of Cameroon over a consistent one-year window. Limitations include the retrospective design, potential for incomplete records, cross-sectional nature precluding causal inference, and absence of cause-specific mortality data for all fatal cases. Prospective analytical studies are needed to identify independent predictors of adverse outcomes.

5. CONCLUSION

Third-trimester obstetric emergencies are frequent at the Garoua Regional Hospital, with dystocia, hemorrhage, and acute fetal distress as the leading causes. Despite the hospital's capacity to manage severe cases, maternal and especially fetal/neonatal mortality remain high.

These findings point to several priority interventions: (1) strengthening quality antenatal care not merely coverage to detect at-risk pregnancies early; (2) reinforcing intrapartum surveillance and partograph use at all peripheral facilities to reduce referral delays; (3) continuous training of midwives and physicians in evidence-based obstetric emergency management; (4) expanding neonatal resuscitation capacity at the GRH; and (5) ensuring consistent availability of essential medicines, blood products, and operative capacity. Prospective analytical studies are warranted to identify independent determinants of maternal and fetal outcomes in this setting.

Recommendations

- Improve quality of antenatal care through structured provider training, with emphasis on risk stratification and early identification of pregnancy complications.
- Systematize partograph use and intrapartum fetal monitoring across the referral network to enable earlier detection and timely transfer of complicated cases.
- Strengthen emergency obstetric care (EmOC) at peripheral facilities to reduce the burden of advanced presentations arriving at the GRH after long delays.
- Invest in neonatal resuscitation equipment and trained personnel at the GRH to address the high fetal/neonatal mortality rate.
- Conduct a prospective, analytically designed study at the GRH to identify independent risk factors for maternal and perinatal mortality.

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