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Major Complications of Preeclampsia in ICU at CHME (Mauritania): A Retrospective Study of 173 Cases

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1. Abstract

Objective. To describe the frequency, nature and outcomes of severe preeclampsia complications managed in the ICU of CHME. Methods. Retrospective descriptive and analytical study (01/01/2023–12/31/2023) including all women with ≥1 complication of preeclampsia admitted to ICU (n=173). Variables: socio-demographic, clinical, paraclinical, obstetric and outcome data; analysis with SPSS 27 / Excel 2021. Results. Mean age 28.54 years (16–46); 81.4% Black; 79.3% urban origin. On admission: SBP 170 mmHg, DBP 117 mmHg; proteinuria ≥3+ in 73%; anemia 71.6%. Main complications: abruptio placentae (HRP) 34%, eclampsia 28%, HELLP 15%, acute kidney injury 8%, postpartum hemorrhage 6%, pulmonary edema 4%; maternal mortality 3%. Cesarean rate 92.5%; Intrauterine Fetal Death (IUFD) 18.5% (87.5% linked to HRP). Median ICU stay 2 days. Conclusion. Abruptio and eclampsia concentrate morbidity and mortality. Strengthening antenatal care, standardizing emergency protocols (BP control, magnesium sulfate) and optimizing referral pathways are priorities [2,5,25].

2. Introduction

Preeclampsia is defined by hypertension (≥140/90 mmHg after 20 weeks) classically associated with proteinuria >300 mg/24 h, with additional organ-specific severity criteria (liver, kidney, hemostasis, CNS) now recognized [25]. It complicates 2–8% of pregnancies worldwide and remains a leading cause of maternal and perinatal morbidity and mortality [2,3]. The main severe complications are abruptio placentae (HRP), eclampsia, HELLP syndrome and acute kidney injury [2]. We aimed to map the burden of major complications, their frequencies and outcomes in the ICU context of CHME (Mauritania).

3. Methods

Design and setting. Retrospective descriptive and analytical study conducted in the ICU of CHME (Nouakchott) from 01/01/2023 to 12/31/2023. Population. All women with complicated preeclampsia (complete charts), irrespective of timing relative to delivery; exclusion: incomplete files. Data collection. Structured case form digitized with FormsApp (SurveyHeart LLP); exported to Excel; analysis in IBM SPSS 27 and Excel 2021. Variables: socio-demographics; clinical status (BP, RR, SpO_2, proteinuria, diuresis, consciousness); labs (CBC, platelets, urea/creatinine, transaminases, prothrombin time); obstetric variables (mode of delivery); complications; ICU length of stay and death. Definitions. Dipstick proteinuria was used where quantitative methods were unavailable, per ACOG guidance [25]. Anemia severity followed WHO categories [28].

4. Results

1) Population and recruitment

Admissions. 232 severe preeclampsia cases admitted to ICU; 173 complicated cases analyzed (31% of obstetric ICU admissions). Mean age 28.54 years (16–46). Race: 81.4% Black; 18.6% White. Origin: 79.3% urban (mostly Nouakchott).

2) Clinical status on admission

Blood pressure: mean SBP 170 mmHg (≥160: 54.91%), mean DBP 117 mmHg (≥110: 46.24%). RR/SpO_2: tachypnea 5.89%; SpO_2 <94%: 1.16%. Proteinuria: ≥3+ 73%; 2+ 21%; negative 6%. Diuresis: preserved 76.3%; polyuria 21.39%; oligo-/anuria 2.31%. Consciousness: impaired 19.08%.

3) Laboratzry findings

Anemia: 71.59% (moderate 39.05%; mild 16.56%; severe 15.98%). Platelets: ≥150×10⁹/L 72%; 100–150: 18%; 50–99: 8%; <50: 2%. Renal function: elevated creatinine 20.9%; elevated urea 11.6%. Transaminases: AST ↑ 31.16% (≥2×ULN: 18.5%); ALT ↑ 18.7% (≥2×ULN: 13.3%). Low prothrombin time: 10.88%.

4) Obstetric outcomes

Mode of delivery: cesarean 92.49% (160/173); vaginal 7.51% (13/173). IUFD: 18.49% (32/173) 87.5% associated with HRP. Prematurity: 17.34% (30/173), of which 86.67% were iatrogenic.

5) Complications and ICU course

Dominant complications: abruptio 34%, eclampsia 28%, HELLP 15%, acute kidney injury 8%, PPH 6%, pulmonary edema 4%, death 3%, stroke 2%. Mean ICU stay 2.12 days (median 2; range 1–12). Maternal mortality: 3%.

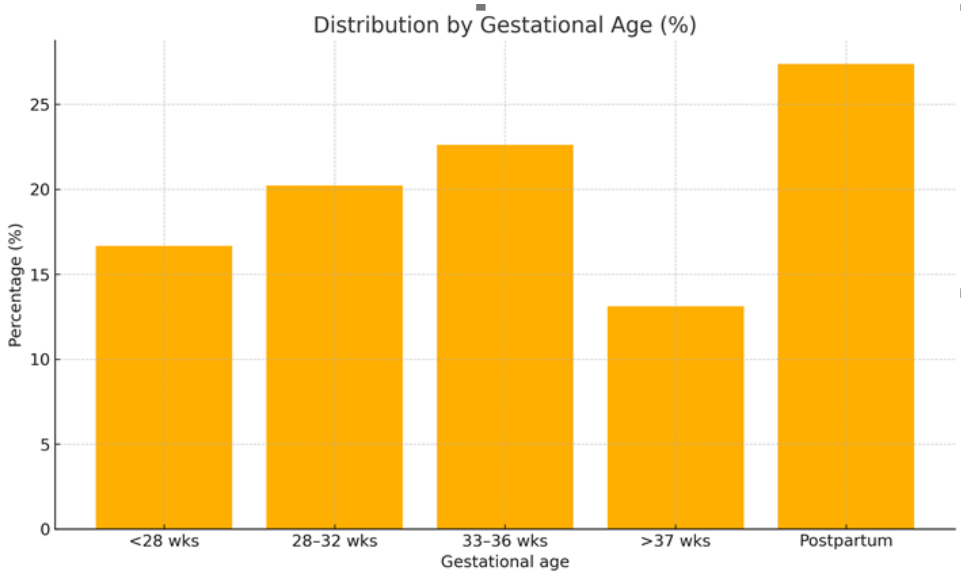

Figure 1: Distribution by gestational age.

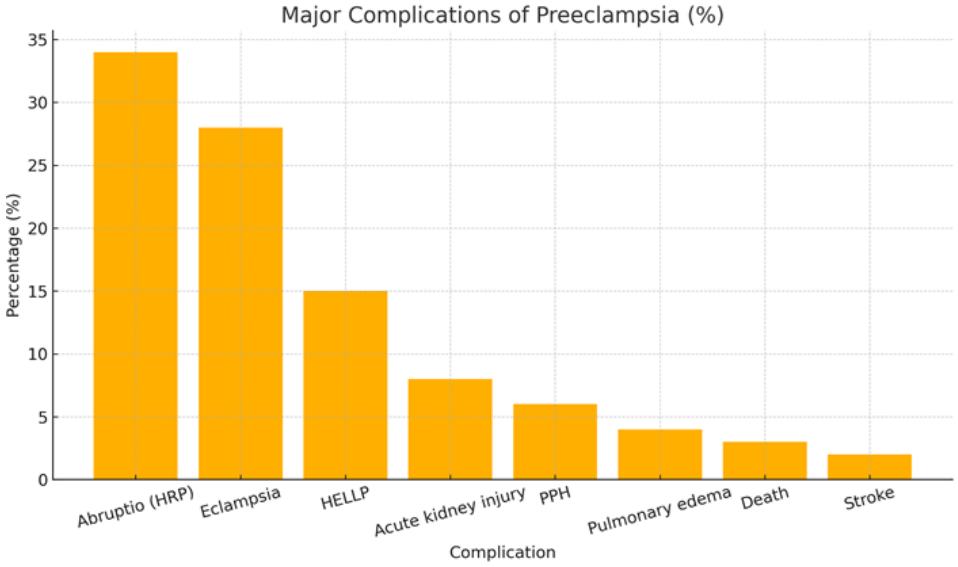

Figure 2: Major complications of preeclampsia.

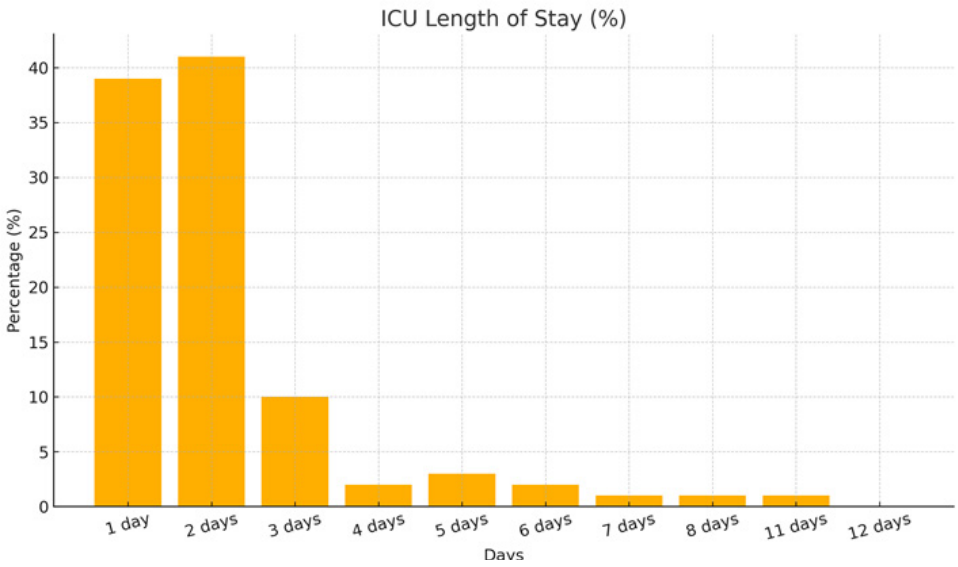

Figure 3: ICU length of stay.

Table 1: Age distribution (n=173)

Age group	n	%
≤18 years	14	8.09
19–24 years	42	24.28
25–35 years	85	49.13
>35 years	32	18.5

Table 2: Geographical origin (main wilayas)

Wilaya	n	%
Nouakchott Nord	104	60.12
Nouakchott Sud	20	11.56
Trarza	19	10.98
Nouakchott Est	12	6.94
Brakna	5	2.88
Gorgol	4	2.31
Guidi Magha	3	1.73
Inchiri	2	1.16
Adrar	2	1.16
Hodh Ech Chargui	2	1.16

Gestational age: postpartum 27.38%; 33–36 weeks 22.61%; 28–32 weeks 20.23%; <28 weeks 16.67%; >37 weeks 13.11%.

Table 3: Clinical summary at admission

Parameter	Category / Measure	%
SBP	≥160 mmHg	54.91
DBP	≥110 mmHg	46.24
SpO_2	<94%	1.16
Tachypnea	Elevated RR	5.89
Proteinuria	≥3 crosses	73
Diuresis	Polyuria / Oligo-anuria	21.39 / 2.31
Consciousness	Altered (coma–obtundation)	19.08

Table 4: Key laboratory results (WHO anemia categories) [28]

Test	Categories	%
Hemoglobin	Mild / Moderate / Severe anemia	16.56 / 39.05 / 15.98
Platelets (×10⁹/L)	≥150 / 100–150 / 50–99 / <50	72 / 18 / 8 / 2
Creatinine	Elevated	20.9
Urea	Elevated	11.6
AST / ALT ≥2×ULN	—	18.5 / 13.3
Prothrombin time	Low	10.88

Table 5: Main obstetric outcomes

Outcome	Value	Details
Cesarean	92.49% (160/173)	General anesthesia 23.12% (28 HRP, 8 eclampsia, 1 PPH)
IUFD	18.49% (32/173)	87.5% linked to HRP
Prematurity	17.34% (30/173)	86.67% iatrogenic

Table 6: Major complications (n=173)

Complication	% (and n when available)	Key points
Abruptio placentae (HRP)	34% (59)	5 hemorrhagic shocks; 1 hemostatic hysterectomy; 47.5% IUFD; 0 direct maternal deaths
Eclampsia	28% (48)	67% before delivery; 3 strokes; 4 comas; 1 death
HELLP	15% (26)	84.6% cesarean; 0 DIC; 0 maternal deaths; 2 stillbirths
Acute kidney injury	8% (14)	2 anurias; 1 dialysis; 2 deaths (hemorrhagic shock)
Postpartum hemorrhage	6%	—
Pulmonary edema	4% (7)	Cause of death in 2 cases
Stroke	2%	—
Maternal deaths	3% (5)	Pulmonary edema (2), eclampsia (1), shock (1), DIC (1)

5. Discussion

Profile and severity. Patients are young and predominantly urban; nearly half arrive with severe hypertension and marked proteinuria, consistent with low-resource series [17,21,22]. The 3% mortality is lower than several African cohorts (≈6–7%) [10,23] and higher than some Maghreb series [3]. Abruptio and eclampsia. HRP (34%) exceeds rates in many reports (≈9–22%) [3,9,10] yet remains below very high-risk contexts [18]. Eclampsia (28%) is comparable to Taleb [9], though literature varies widely (6–70%) depending on case mix and practices [3,10,18,23]. Implication: early detection of prodromal signs and timely obstetric decision-making. HELLP and organ dysfunction. HELLP (15%) is intermediate within the published range (2–25%) [3,10,18,23]. The pattern AST>ALT is typical of hypertensive disorders of pregnancy [25]. Fetal outcomes. IUFD 18.5%, largely driven by abruptio (87.5%), underlines the need for rapid fetal extraction pathways and aggressive hemodynamic management [19,29]. Strengths and limitations. Strength: continuous one-year ICU cohort capturing severe complications. Limitations: retrospective design; reliance on dipstick proteinuria when quantitative methods unavailable [25]; no long-term follow-up.

6. Conclusion

At CHME in 2023, severe preeclampsia complications accounted for 31% of obstetric ICU admissions; abruptio (34%) and eclampsia (28%) predominated, with 3% maternal mortality and 18.5% IUFD. Priorities: strengthened antenatal care, standardized emergency algorithms (BP control, magnesium sulfate), and optimized referral/evacuation pathways [2,5,25].

7. Practice Recommendations

1) Early screening for severe hypertension and signs of HRP/HELLP; 2) Standard protocols for eclampsia ($MgSO_4$ + antihypertensives) and HRP (resuscitation + timely delivery); 3) Strengthen referrals and blood product availability; 4) Case reviews and continuous training [5,16,22,25].

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