

Eclampsia in N'Djamena Mother and Child University Hospital Center: Epidemiology and Prognosis

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Abstract

Background: Eclampsia, a major complication of severe preeclampsia is a serious medical and obstetric emergency, threatening maternal and fetal lives.

Objective: improve the management of eclampsia.

Patients and method: This was an analytic and prospective study, performed in the Maternity of N'Djamena Mother and Child University about the prognosis and epidemiological aspects of eclampsia, covering one year period from July 1st, 2016 till June 30th, 2017. All pregnant woman or parturient admitted in the service for a convulsive crisis or a loss of consciousness associated with a blood pressure $\geq 140/90$ mmHg, a significant proteinuria (≥ 300 mg / 24 hours), with gestational term ≥ 20 weeks of amenorrhea were recorded after getting consent

Results: We recorded 154 patients admitted for eclampsia among 8,282 deliveries giving a prevalence of 1.8 %. The average age was 21.3 years with extremes going of 13 and 43 years. The caesarian section was realized in 67.5 % cases. Complications were noted in 72 cases (46.7 %) mainly represented the renal failure in 24.6 % for the mothers and fetal hypotrophy (16.2 %) for baby. We registered 13 deaths giving a maternal lethality of 8.4 %. The perinatal mortality was 16.2 %.

Conclusion: Eclampsia is a disease that provides complications among mother and child. The management is linked with the implementation of protocol that can reduce the occurrence of these complications. The prevention must lead to adequate prenatal cares.

Keywords: eclampsia complications, epidemiological, prognosis, N'Djamena, Chad.

1. INTRODUCTION

Eclampsia, a major complication of severe preeclampsia is a serious medical and obstetric emergency, threatening maternal and fetal lives [1, 2]. Its frequency is lower in industrialized countries [3] compared with developing countries where the frequency is high varying from 9.4 to 10.8 % [4, 5]. It is a major cause of maternal and foetal morbidity, especially in developing countries [6]. It is recognized to be the cause of 50,000 maternal deaths among the 500.000 maternal deaths recorded yearly in the world with a lethality rate of 10 % [1]. In Chad it is responsible for 15 % of the maternal deaths (860 maternal

deaths for 100.000 live births) [7]. Objective: improve the management of the eclampsia to avoid the arisen of the complications.

2. PATIENTS AND METHOD

This was a prospective and analytical survey covering one year period from July 31th, 2016 to June 30th 2017 about eclampsia epidemiology and prognosis performed in N'Djamena mother and Child University Hospital.

All pregnant woman or parturient admitted in the service for a convulsive crisis or a loss of consciousness associated with a blood pressure $\geq 140/90$ mmHg, a significant proteinuria

(≥300 mg / 24 hours), with gestational term ≥ 20 weeks of amenorrhea were recorded after getting consent. Those whose eclampsia occurred after delivery were not recorded

Studied variables were: age, educational level, profession, parity, mode of admission, number of prenatal care, period of arisen convulsive crisis, blood pressure, proteinuria, and mode of delivery, type of complication, management, maternal and fetal prognosis.

Data were analyzed using SPSS18.0. Chi-square (X²) test (p<0.05) were used to compare variables.

3. RESULTS

3.1. Frequency

We have recorded 154 pregnant patients admitted for eclampsia among 8,282 deliveries, giving a frequency of 1.8%.

3.1.1. Complications

Seventy two patients among the 154 patients recorded had presented complication giving a rate of 46.7%. Main maternal complications

were: acute kidney failure (24.6%) and Abruptio placental (7.1%).

For fetal, mains complications were: fetal hypotrophy (16.2%) and fetal asphyxia (7.1%).

Table 1. Type of complications

Complication	n = 154	%
Maternal Complication	38	24.6
Acute kidney failure	11	7.1
Abruptio placental		
HELLP syndrom	9	5.9
disseminated intravascular coagulation	7	4.5
Acute pulmonary oedema	3	2
Cerebro vascular accident	4	2.6
Total	72	46.7
Fetal complications		
Fetal hypotrophy	25	16.2
fetal Asphyxia	11	7.1
Prematurity	8	5.2
Small for term	8	5.2
Total	52	33.7

Table II. link between complications and socio-demographic characteristics

Socio-demographic characteristics	Complications				Khi ²	p
	Yes		No			
	n	%	n	%		
Age					10.43	0.001
≤ 19 ans	46	59.8	31	40.2		
≥ 20 ans	26	33.8	51	66.2		
Parity	48	51	46	49	9.34	0.002
Primipara	24	40	36	60		
Parity ≥ 2						
Pregnancy follow up					27.23	0.000
Attended prenatal cares	14	21.8	50	78.2		
No Attended prenatal cares	58	64.4	32	35.6		
Schooling					15.04	0.000
Unschoolled	60	53.6	52	46.4		
Schooled	12	28.5	30	71.5		

Patients aged less than 20 years had developed more complications than those aged above 20 years. The difference was statistically significant (p=0.001).

Primiparous women had developed more complications than other parities .The difference was statistically significant (p = 0.002)

Patients who had not attended prenatal consultations developed more complications. The difference was statistically significant (p=0.000)

Unschoolled patients had had more complications (p = 0.000).

3.1.2. Relation between number of convulsion and the occurrence of complications

Patients that had had more than 3 convulsions presented complications (43 cases/72 giving 59.7%) (p= 0.001).

3.1.3. Mode of delivery and maternal complications

The majority (104 patients i.e. 67.6%) had delivered by cesarean section, the 50 remaining had delivered by vaginal route (32.4%).

Forty seven (45.1%) among patients delivered by cesarean had presented complications compared with 25 women who had given birth by cesarean section. Twenty five (50%) in the group of patients delivered by vaginal had presented complications. The difference was not statistically significant between the mode of delivery and maternal complications ($p=0.09$).

3.1.4. Management of maternal complications

The commonest drugs used in management were: (Nicardipine, Clonidine) in 90% for the treatment of hypertension

Diazepam and the magnesium sulfate were used for the management of convulsion respectively in 13% and in 87%

Eighteen patents had received a blood transfusion, of at least one bag. Blood product like plasma had been administrated in 13 patients.

Seventy patients (11, 1%) had undergone dialysis cure.

3.1.5. Causes of maternal deaths

Table III. Causes of maternal deaths

Causes of maternal deaths	n	%
Acute kidney failure	5	3,2
Disseminated intravascular coagulation	4	2,6
Hellp syndrome	3	2
Acute pulmonary oedema	1	0,6
Total	13	8,4

We had recorded thirteen maternal deaths, giving a maternal lethality of 8.4%. The mains causes of maternal death were acute renal failure (3.2%) disseminated intravascular coagulation (2.6%).

3.1.6. Fetal prognosis

Twenty five fetal deaths were noted giving a perinatal mortality of 16.2%. The analyze of fetal death had shown that 13 were delivered vaginal route ant the 12 remaining by cesarean section The difference was statistically significant ($p= 0.022$). Caesarean section seemed to be a factor of good fetal prognostic.

4. DISCUSSION

4.1. Epidemiological Aspects

4.1.1. Frequency

The frequency of eclampsia in this survey was 1.8%. This rate is comparable to Abdoul-Aziz's [11] findings in 2013 in Dakar, Senegal, that reported a rate of 1.35%. Therefore it is higher

than those of Belley et al [12] in 2009 in Douala in Cameroon and Lankoande et al [9] in 1998 in Ouagadougou in Burkina Faso, which respectively 0.95% and 0.89%.

4.2. Maternal and Fetal Complications

4.2.1. Maternal complications

Seventy two patients (46.7%) had represented complications. Main maternal complications were represented by acute kidney failure (24.6%) followed by abruption placentar (7.1%). Our findings confirm the literature data [9, 10, 11, and 13] that reported renal failure as the first complication of eclampsia. This may be explained by the fact that eclampsia induced kidney lesions which cause an acute tubular nephropathies associated with glomerular endotheliosis lesions.

4.3. Fetal Complications

Hypotrophy (16.2%) and birth asphyxia (7.1%) were the most commonest noted fetal complications. Our results are comparable to those reported by Abdul Aziz [11] and Saleh [4] who found respectively 16% and 15.7% a rate of fetal hypotrophy due to eclampsia. This seems to be linked at e low proportion of patients that attended prenatal cares. Without screening during pregnancy surveillance, pre-eclampsia/eclampsia can lead to complication like small for term.

4.4. Sociodemographic Characteristics and Complications

Eclampsia is common in teenagers and young women. The majority of women that had presented complication were age less than 20 years ($n= 46/72$) with a statistically significant difference ($p=0.001$). Ours result confirm previous findings that showing this age group as a group of risk factor for preeclampsia/eclampsia and therefore likely to develop complications [8, 10]

Unschooler patients had represented 76.6%. According to Akpadza[13] in 1996 in Lomé, Togo, schooling is a major determinant of the onset of eclampsia. Unschooler patients do not know the virtues of prenatal consultation. They rarely attend prenatal cares because they do not know the danger signs advocated during this prenatal consultation.

Primiparous women were the most exposed group, representing 61.3% of the patients in this series ($p= 0.002$). Our result confirms previous Africans series that reported a proportion of

primiparous varying from 59.6% to 66.6% among patients admitted for eclampsia [6, 7, 9].

Lack of prenatal cares seems to be a factor allowing the occurrence of complication. This was confirmed in our series with 58 patients that haven't attended prenatal cares among this 72 that presented the complications ($p = 0.000$). This situation is reported by many African authors in south of the Sahara [7, 13, 14]. For these authors, prenatal surveillance plays an important role in the occurrence of eclampsia. A high rate of prenatal cares is followed with a low incidence of eclampsia. This observation was made by Mayi-Tsonga[15] in 2006 in Libreville, Gabon and Mohamed[39] in 2013 in Nouakchott, Mauritania, who reported in their series a low prevalence of eclampsia among pregnant women that attended to prenatal cares.

4.5. Clinical and Therapeutic Aspects

4.5.1. Relation between number of convulsion and the occurrence of complications

Patients that had had more than 3 convulsions presented complications (43 cases/72 giving 59.7%) ($p= 0.001$). This could be explained by the delay for decision to look for care due to patient and their families.

4.6. The mode of delivery

The most common mode of delivery in this study was cesarean section (104 cases or 67.5%). Vaginal route was used in 50 cases (32.5%). Several authors reported a proportion of cesarean section rates ranging from 48.8 to 97% for eclampsia [2, 4, 7, 13, and 15]. This high rate of cesarean section could be explained by the severity of the pathology that can lead to maternal and fetal prognosis.

4.7. Prognosis Aspects

4.7.1. Maternal prognosis

We recorded 13 maternal deaths giving a lethality rate of 8.4%. Maternal mortality due to eclampsia is very high in Africa [7]. Several African authors found higher rates than ours ranging from 10% to 21% [3, 4, 9, 12]. This high rate is due to the ignorance of this pathology by the population. Factors like lack of health facilities and good management of eclampsia in some African areas can explained these results.

4.7.2. Fetal prognosis

Perinatal mortality in this study was 16.2%. This finding is like the reported data of African

authors ranging from 14.6 to 27.9% [4, 5, 6, 12, 13]. This rate can be explained by the delay to receive adequate cares.

5. CONCLUSION

Eclampsia remains a major public health problem in Chad. Maternal and perinatal mortality related to complications of eclampsia in this study is high. The management is linked with the implementation of protocol that can reduce the occurrence of these complications. The prevention must lead to adequate prenatal cares.

CONSENT

For this survey we have obtained the agreement of the national Ethics Committee, Director of N'Djamena Mother and Child University hospital.

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