Magnitude and factors associated with preeclampsia and other obstetric morbidities in the central region of Mozambique

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INTRODUCCIÓN

Preeclampsia is still one of the most challenging and enigmatic complications that can happen during pregnancy.
It is defined as the discovery of arterial hypertension after the 20th week of gestation together with the find of proteinuria[1] or the occurrence of one of the followings:

- Thrombocytopenia < 100,000 platelets/mL
- A plasmatic elevation of hepatic transaminases that doubles its normal range
- Renal failure with an elevation of creatinine > 1.1 mg/dL
- Pulmonar oedema
- Visual or neurological disturbs[2].

The occurance of convulsions in a patient with preeclampsia that cannot be attributable to other causes is named eclampsia[1], and can be preceded by premonitory events, such as severe headache, hypereflexia or epigastralgia[2].

Nowadays, it is accepted that its ethiology is multifactorial, and depends on placental and maternal factors[1], for example, having more than 40 years, familiar history of preeclampsia, chronic hypertension, diabetes *mellitus*, chronic renal disease, black ethnicity[1]…
The prevalence of preeclampsia all over the world oscillates from 2 to 10 %, depending on the social and economical conditions on each country[3].
In Mozambique (Figure 1), preeclampsia is responsible to 8.7 % of maternal deaths caused by obstetric problems, been this more important in women with less than 20 years (12.5 %)[4], and rising as far as 21.2 % in adolescent5[6]. Moreover, it is the main diagnosed cause of intrauterine fetal death, representing 14 % of the total of fetal loss[6].

AIMS

The main goal is to study the prevalence of preeclampsia and eclampsia in the Provincial Hospital of Tete (Mozambique), its clinical presentation and its perinatal complications during labour and in the immediate postpartum period.
A secondary objective is to know the profile of the pregnant woman and the prevalence of other obstetric morbidities.

METHODS

Design of the study

Cross-sectional study by the acquisition of data in the immediate postpartum period of women who had been admitted to the Maternity Ward of Provincial Hospital of Tete (Mozambique) between August and October of 2016.

Studied population

The sample included 485 pregnant women that consulted in the Maternity Ward of the Provincial Hospital of Tete (Mozambique) and gave birth to their children.
The exclusion criteria established were: women that did not want to participate in the study, those where the data acquisition was not possible or those who consulted but were not in labour work.

Data Acquisition

Data were adquired by filling out a questionnaire, which includes demographic and socio-sanitary data and medical and gyneco-obstetric history. Information about the current pregnancy, the birth and the newborn was also gathered.

Fig. 1. Mozambique[7].

Analytical study

The statistical analysis was done using the statistical package SPSS® version 24. Simple statistical test were performed.

Fig. 2. Districts of Tete[8].

ABSTRACT

Introduction. Preeclampsia is one of the most challenging and enigmatic obstetric complications. Its prevalence all over the world oscillates from 2 to 10 %, depending on the social and economical conditions on each country. In Mozambique, preeclampsia is responsible for an 8.7 % of maternal deaths by obstetric reasons, and it is the main diagnosed cause of intrauterine fetal death.

Aims. The main goal is to study the prevalence of preeclampsia and eclampsia in the Provincial Hospital of Tete (Mozambique), its clinical presentation and its perinatal complications during labour and in the immediate postpartum period. A secondary objective is to know the profile of the pregnant woman and the prevalence of other obstetric morbidities.

Methods. Cross-sectional study by the acquisition of data in the immediate postpartum period of women who had been admitted to the Maternity Ward of Provincial Hospital of Tete between august and october of 2016.

Results. Data were taken from 485 women. 30.9 % of them were adolescents, and 34.9 % of them were primigravidae. The prevalence of HIV infection was 12.3 %. 32 % of the women presented obstetric comorbidities, being arterial hypertension (15.9 %) and genital hemorrhage the most frequent of them. The prevalence of preeclampsia was 12 %, 96.6 % of whom met gravity criteria. 34.5 % of these developed eclampsia, which showed a signicant inversed association with age. 12.5 % of women with preeclampsia were HIV positive, and a statistically significant association between this fact and not having received antiretroviral therapy during pregnancy was observed. Preeclampsia was significantly associated with multiple pregnancy, preterm birth, elective caesarean section and the use of general anesthesia. Regarding neonatal morbidity, preeclampsia was a risk factor for intrauterine growth restriction, low birth weight, respiratory distress, hospitalization and fetal tachycardia.

Conclusions. The prevalence of preeclampsia was 12 %, 34.5 % of whom developed eclampsia. It was confirmed that it is a risk factor for perinatal complications, such as intrauterine growth restriction, preterm birth, elective caesarean section, the use of general anesthesia, low birth weight and hospitalization. It was also associated with multiple pregnancy. Almost one third of the women were adolescents, and 35 % of them were primigravidae. 32 % of them presented one or more complications during their stay.

RESULTS

- 77.1 % (n = 357) of the pregnant women lived in urban districts, whereas a 22.9 % (n = 107) inhabited the peripheral ones (Figure 2).
- The mean ± SD for age at the moment of hospitalization was 23.79 ± 6.47 years.
- The mean ± SD for the number of gestations was 2.68 ± 1.94, with a 16.9 % of women (n = 82) referring previous miscarriages.

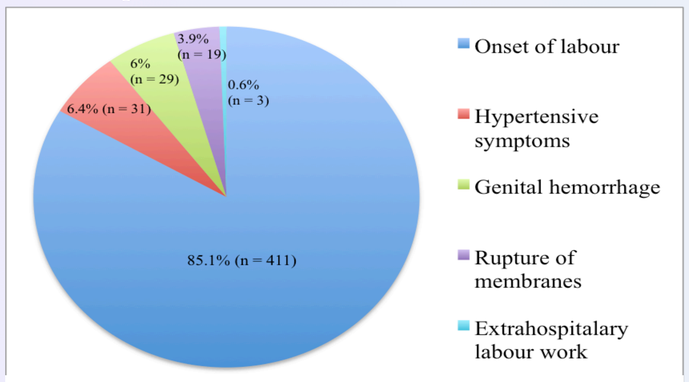

Fig. 3. Reason for consultation.

- 32 % (n = 154) of the pregnancies presented one or more complications (Figure 4).
- 12% of the pregnant women had preeclampsia, and 96.6 % (n = 56) of them met gravity criteria (Figure 5).

Eclampsia was observed in 4.1 % (n = 20) of the women, and constituted 34.5 % of those with preeclampsia. 50 % (n = 10) were primigravidae, and their average age was significantly lower (p <0.05) than in those who did not present convulsions (21.45 ± 6.108 and 25.95 ± 7.99, respectively).

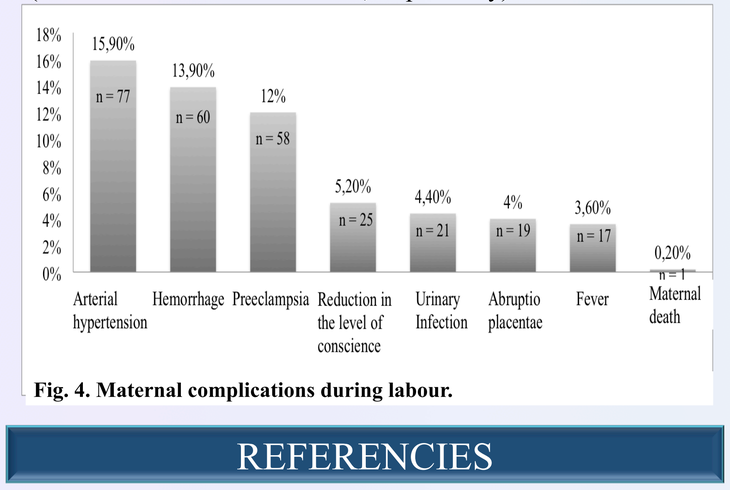

Fig. 4. Maternal complications during labour.

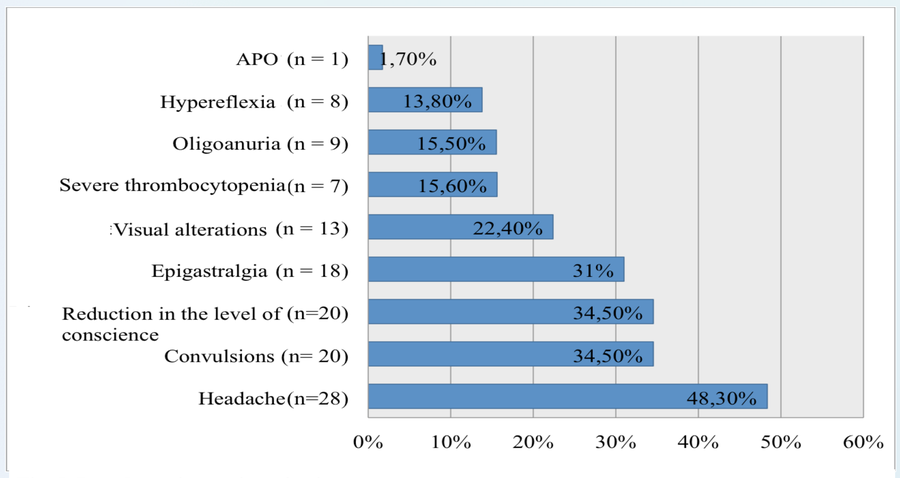

Fig. 5. Preeclampsia gravity criteria.
APO: Acute Pulmonar Oedema

Table 1. Distribution of proportion of adolescents, primigravidae and variables of HIV.

	N	%	No preeclampsia	Preeclampsia	Raw Odds Ratio	*p*
			n (%)	n (%)	CI 95%	
Adolescents	148	30.9	126 (29.9)	22 (37.9)		0.830
Primigravidae	169	34.9	145 (34)	24 (41.4)		0.271
HIV						
Serology	471	97.9	415 (98.1)	56 (96.6)		0.436
Positive serology	58	12.3	51 (12.3)	7 (12.5)		0.969
Antiretroviral drugs during gestation	38	90.5	36 (94.7)	2 (28.6)	18 (1.59; 202.95)	*<0.05*

Table 2. Distribution of multigravidae and primigravidae HIV+.

	N	%	Raw Odds Ratio	*p*
			CI 95%	
HIV +				
Multigravidae	50	86.2		
Primigravidae	8	13.8	0.267 (0.123; 0.578)	*<0.001*

Table 3. Distribution of the type of gestation, gestational age and type of labour with and without preeclampsia.

	N	%	No preeclampsia	Preeclampsia	Crude Odds Ratio	*p*
			n (%)	n (%)	CI 95%	
Gestation						
Unique	470	97.3	416 (97.9)	54 (93.1)		
Multiple	13	2.7	9 (2.1)	4 (6.9)	3.42 (1.02 ; 11.5)	*<0.05*
Gestational age						
At term	415	86.5	372 (88.2)	43 (74.1)		
Preterm	64	13.3	49 (11.6)	15 (25.9)	2.65 (1.37 ; 5.12)	*<0.005*
Posterm	1	0.2	1 (0.2)	0 (0.0)		
Type of labour						
Eutocic	319	66.3	297 (69.8)	22 (39.3)		
Caesarean section	142	29.5	113 (26.6)	29 (51.8)	2.97 (1.68 ; 5.23)	*<0.001*
Ventouse	20	4.2	15 (3.9)	5 (8.9)		
Reason for elective caesarean section						
Acute fetal suffering	32	26.9	31 (34.1)	1 (3.6)	0.072 (0.009 ; 0.553	*<0.05*
Preeclampsia	25	21	0 (0.0)	25 (89.3)	31.33 (10.29 ; 95.4)	*<0.05*
Abnormal fetal presentation	21	17.6	20 (22)	1 (3.6)		

Table 4. Type of anesthesia used in caesarean sections and difficulty of intubation.

	No preeclampsia	Preeclampsia	Raw Odds Ratio	*p*
	n (%)	n (%)	CI 95 %	
Anesthesia				
General	4 (4.7)	6 (27.3)	7.68 (1.95 ; 30.37)	*<0'001*
Epidural	82 (95.3)	16 (72.7)		
Intubation				
Difficult	2 (5.3)	4 (30.8)	8 (1.26 ; 50.77)	*<0'05*
Easy	36 (94.7)	9 (69.2)		

The mean ± SD for the newborns' weight was 2680.2 ± 497.27 (n = 51) in case of women with preeclampsia, and of 3061.3 ± 476.75 in those women who did not present the condition (p < 0.001).

There was a total of 10.1% of deaths (n = 49).

Table 5. Neonatal complications.

	No preeclampsia	Preeclampsia	Raw Odds Ratio	*p*
	n (%)	n (%)	CI 95 %	
IUGR	2 (0.5)	3 (5.2)	11.54 (1.89 ; 70.57	*<0.001*
Low birth weight	47 (11.3 %)	14 (25 %)	2.62 (1.33 ; 5.15)	*< 0.005*
Reanimation	39 (9.4 %)	9 (15.8 %)		0.136
Death	42 (9.8 %)	7 (12.1 %)		0.596
Apgar < 7 at min 5.	54 (13.1 %)	12 (21.1 %)		0.106
Apgar < 3 at min 5.	38 (9.2 %)	8 (14 %)		0.252
Respiratory distress	31 (8 %)	10 (19.2 %)	2.73 (1.25 ; 5.95)	*< 0.05*
Fetal tachycardia	3 (0.8 %)	3 (6.1 %)	8.15 (1.6 ; 41.58)	*< 0.005*
Hospitalization	17 (4.5 %)	10 (20 %)	5.35 (2.29 ; 12.48)	*< 0.001*
Sepsis	4 (1 %)	0 (0 %)		1.00
Fever	10 (2.6 %)	1 (2 %)		0.813

IUGR: Intrauterine Growth Restriction

CONCLUSIONS

- The prevalence of preeclampsia was of 12 %, and as far as a 96.6 % of these met gravity criteria – the most frequent of these was headache (48.3 %). 34.5 % developed eclampsia, which was significantly associated to a lower mean age.
- 12.5 % of the women with preeclampsia were HIV positive, and an statistically significant association with not having received antiretroviral treatment during pregnancy was found.
- It is confirmed that preeclampsia is a risk factor for perinatal complications, such as IUGR, preterm birth, elective caesarean section and the use of general anesthesia. It was also associated with multiple gestation.
- A higher rate of neonatal mobidity was observed when preeclampsia occured. It was a risk factor for low birth weight, respiratory distress, hospitalisation and fetal tachycardia.
- Up to a third of the women had less than 20 years, and 35 % were primigravidae.
- More than a 16 % of the women had had at least one miscarriage.
- The prevalence of HIV reached a 12.3 %, and being primigravida was identificated as a protector factor.
- 32 % of the pregnant women presented one or more comorbidities during their hospitalisation. The most frequent of these was the finding of arterial hypertension during labour (15.9 %), followed by genital hemorrhage (13.9 %).

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