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Research Article

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## Maternal and Perinatal Resulting in Pregnant With Complicated Eclampsia on Motherhood "Enrique C Sotomayor" During the Period January-December 2012

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### ABSTRACT

**Background:** Eclampsia is the most severe manifestation of hypertensive disorders that complicates pregnancy. It is a major cause of maternal and perinatal morbidity and mortality. In 2011, eclampsia with gestational hypertension was the second leading cause of maternal death in the country. **Objective:** To determine the maternal perinatal outcome and risk factors for developing complications secondary to eclampsia. **Methodology:** Descriptive and analytical cross-sectional study conducted between January and December 2012 at the maternity Enrique C. Sotomayor. A total of 133 pregnant women were included with a diagnosis of eclampsia. Data were screened by the on-base and MIS software of the maternity. Maternal, laboratory and pathological data of the mother and newborn were collected. **Results:** Eclamptic women who had complications were 40(30%). The principal was the HELLP syndrome (hemolysis, elevated liver enzymes and thrombocytopenia) in 21(21.2 %) patients. There were 2 maternal deaths one by intracerebral hemorrhage and the second by DIC (disseminated intravascular coagulation). Maternal mortality was 1.5 %. Prematurity 59 (72.8 %) was the main perinatal outcome. There were 7(6.2%) stillbirths and neonatal deaths in each case. Perinatal mortality was 12.5%. **Conclusion:** The epidemiological profile and the maternal perinatal outcome were similar to that described in the literature. Management should be directed at preventing eclampsia because no one is acquitted from developing complications.

**Keywords:** Physico-chemical traits, ash values, SEM, FT-IR spectroscopy

### ARTICLE INFO

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## 1. Introduction

Maternal mortality is a public health problem, especially in developing countries such as Ecuador. According to WHO statistics, hypertensive disorders of pregnancy are the third leading cause of maternal death worldwide, Latin America and the Caribbean is positioned as the first causal-6. Preeclampsia and eclampsia are hypertensive disorders greatest impact on maternal health and neonatal [5,6]. It is considered to eclampsia as one of the severe forms of preeclampsia, however several studies dating eclampsia can occur in the absence of premonitory signs and symptoms pre-eclampsia even be the first manifestation of the disease hypertensive [3,7]. Eclampsia is the most severe manifestation of hypertensive disease complicating pregnancy and a leading cause of maternal morbidity and mortality and perinatal [1-9].

Eclampsia is the presence of widespread and / or coma seizures in a woman with signs or symptoms of preeclampsia and in the absence of other neurological conditions. The progression of clinical complications can produce serious maternal and fetal implications. Eclampsia occurs multiple systemic disorders involving the hematologic, hepatic, renal, and cardiovascular and nervous system. The severity of symptoms resulting from persistent seizures of multiorgan involvement and activation of coagulation. The most significant complication

## 2. Methodology

This study was descriptive and analytical cross-sectional conducted in motherhood "Enrique C. Sotomayor," tertiary hospital care during the period from January 1 to December 31, 2012. The population corresponded to all pregnant women admitted to hospital because of delivering your baby vaginally or by cesarean section, or medical treatment with a total of 35297 patients. Inclusion criteria were pregnant women who were admitted with a diagnosis of hypertensive disorder of pregnancy with eclampsia rate of 138 medical records. We excluded those with other causes of seizures during pregnancy and medical records with incomplete information in your records.

By permission of the Department of Technical and statistical maternity proceeded to collect data. Obstetric and neonatal medical records department of statistics through the On-Base program were reviewed, and laboratory data of the program MIS database of motherhood, were collected through a registration form containing the variables study. Any information that would identify patients for ethical reasons I gather not.

The following variables were taken into account in the maternal medical history: age in years, number of feats,

is maternal brain damage by ischemia or hemorrhage can result in permanent neurological damage and is the most common cause of death in eclampsia. The definitive treatment is abortion, why it is associated with a large number of premature infants. The rates of perinatal morbidity and mortality secondary to eclampsia are highly correlated with gestational age and maternal condition. Prematurity, placental abruption and intrauterine asphyxia are the primary causes of perinatal death in eclamptic pregnant [7-10].

In Ecuador, according to figures from INEC in 2011, eclampsia with gestational hypertension is second to direct obstetric causes of maternal death in the country<sup>11</sup>. Because no studies were found in the country and also be a cause of increased maternal and perinatal morbidity and mortality, is of prolonged hospitalization and economic implications for the family and health facilities, it was considered appropriate to raise this study. The study is designed to evaluate maternal and perinatal complications and other associated parameters of complicated pregnancies with preeclampsia. The usefulness of the study is to have information that reflect these complications and to identify associated risk factors, which represent the reality of what is happening nationally and therefore know which aspects should be optimized.

parity and laboratory data on admission: hemoglobin (12-14g / dl), hematocrit (38-48%), platelets (150-450mm<sup>3</sup>), glutamic oxaloacetic transaminase (GOT: 10-40 u / L), glutamic pyruvic transaminase (GPT: 10-40 u / L), gamma glutamyltranspeptidase (GGT: 10-50U / L), uric acid (2.5-7.0mg / dL), urea (10-50mg / dl) and creatinine (0.2-1.3mg / dL). Qualitative variables were the period in which eclampsia (ante partum, intra partum and post partum), treatment (vaginal or cesarean) and maternal resulting happened. The resulting defined as complications that occurred secondary to eclampsia. In the neonatal history, quantitative variables were weight (grams), height (cm), gestational age according to the Ballard scale (number in weeks) and Apgar score at five and ten minutes (number 1 to 10). Qualitative variables included: (female, male) sex and perinatal outcome.

The data were tabulated through the Microsoft Excel 2013 program frequency tables, percentage, mean and standard deviation were used with confidence intervals of 95% to express the data. Statistical analyzes were performed using SPSS software v. 19. The differences between the percentages were analyzed using chi square. A p value <0.05 was considered statistically significant.

## 3. Results and Discussion

### Results

During the period from January to December 2012, were admitted to hospital 35297 pregnant women, presenting 138 International Journal of Medicine and Pharmaceutical Research

eclamptic. Three case histories for lack of information in the register and two personal pathological history of

epilepsy were excluded; leaving a total of 133 patients, representing an incidence of 0.37%.

Maternal characteristics are seen in Table 1. It is observed that the most concentrated groups of eclamptic patients were 67 adolescents (50.3%), 71 primiparous (53.3%) and 103 gilts (7.4%). Table 2 shows the characteristics of pregnancy are grouped according to laboratory data demonstrating the relevant data as the average of the liver enzymes ALT and AST above the upper limits; depending on the time of occurrence of eclampsia, which occurred more frequently during the intrapartum 55 (41.3%) and mode of termination of pregnancy, in which 103 (92.4%) cases was by cesarean section (92.48%). Table 3 summarizes the resulting maternal as laboratory results and complications.

Among the resulting mother, the most common laboratory abnormalities were anemia ( $Hb < 11g/dl$ ), thrombocytopenia ( $< 150mm^3$ ) and abnormal liver enzymes (ALT and AST  $> 40u/L$ ). Renal dysfunction was established as a creatinine  $> 13mg/dl$ . Of the 133 patients, 40 (30.0%) had one or more complications. The principal was HELLP syndrome 21 (21.2%), followed by oligoamnios 19 (19.2%) and third postpartum hemorrhage and abnormal fetal pattern with 11 (11.1%) each. At lower frequency, neurological complications, however intracerebral hemorrhage associated with DIC and HELLP syndrome was the cause of maternal death, while the second occurred by CID. Maternal mortality was 1.5%. Resulting breast was assessed throughout the study group and compared to eclamptic pregnant women who had at least one complication, with those who had not any. The variables that were measured and the results are shown in Table 4. A statistical significance was not obtained thus showing no increased risk of developing complications from present risk factors analyzed.

In relation to perinatal outcome was obtained 135 infants (including two twin pregnancies), 23 patients were excluded because they were admitted to postpartum mothers and newborns remained in the home institution for a total of 112 newborns. Table 5 shows the detailed perinatal outcome according to the general characteristics and complications. It is observed that the mean gestational age, weight and height were below the lower limit of normal for a newborn. They further 57 (50.8%) had low birth weight (2500-1500gr) and 6 (5.3%) with extremely low birthweight ( $< 1000gr$ ). Of the cases examined highlight prematurity as the most frequent neonatal complication 59 (72.84%). The perinatal mortality rate was 12.5%, corresponding to 7 (6.25%) and 7 deaths (6.25%) neonatal deaths were due to complications of prematurity and one case of meconium aspiration syndrome.

## Discussion

The literature indicates that there has been a reduction in the incidence of eclampsia<sup>12</sup> in recent years. The incidence International Journal of Medicine and Pharmaceutical Research

of eclampsia in this study was 0.37%. This incidence is low compared with other studies in low- ingresos (13-18). This reduction can be attributed in part to a regular birth control, including early detection of preeclampsia and the consequent early management. In the study, 57 (42.7%) met at least 5 prenatal care according to MSP, but in 63 (47.3%) could not find this information, so it is not possible to fidedigna<sup>19</sup> rating. This decrease can also be attributed to the prophylactic use of magnesium sulfate for the peripartum, which is the drug of choice in these casos (8,9). Although no data were collected on the application, is indicated in the management protocol of pregnant women with preeclampsia and eclampsia in the maternity Enrique C. Sotomayor.

The results of this study suggested that adolescents were first gestation and nulliparous groups where most of the patients were concentrated. These features are consistent with the literature as being at risk of developing eclampsia. However, in other publications, women aged 20-30 years were the most affected and in this study 67 (50.3%) were teenagers, of which 8 (6%) were less than or equal to 14 years<sup>20</sup>. This factor is of epidemiological importance may mean an increase in the incidence of teenage pregnancy and hence increased risk of eclampsia.

Eclampsia produces multiple systemic disorders involving blood, liver, kidney and cardiovascular disorders, as well as central nervous system. The complications found were similar to those described in other studies. The main complication was HELLP syndrome 21(21.2%). This data in several publications as one of the most frecuentes (3,16) complications. It is indicated that this disease develops in 10-20% in women with pre-eclampsia / preeclampsia and is associated with greater mortality. As HELLP syndrome remains a factor in maternal mortality from eclampsia. Their presence suggests that early diagnosis of HELLP syndrome and its treatment may reduce rates mortalidad (7,9,21).

The second complication oligohydramnios was 19 (19.2%). No studies reported this as a complication was found, however described in the literature as one of intrapartum complications secondary to eclampsia<sup>8</sup>. In third were abnormal fetal pattern and postpartum hemorrhage with 11 (11.1%) each. Fetal abnormal pattern may be due to post-seizure activity, there fetal bradycardia, followed by compensatory tachycardia and fetal loss variability. When these patterns persist for more than 10-15 minutes, it is indicated for the immediate termination of pregnancy, irrespective of gestational age, to reduce the risk of maternal morbidity and mortality resulting from complications of eclampsia. Postpartum hemorrhage is one of the most common complications recorded in other studies (19,22). The causes were for incomplete delivery, acute abdominal bleeding and postoperative uterine atony.

Eclamptic patients requiring anticonvulsant therapy to prevent recurrence of future crises and possible complications arising repetitive activity: neuronal death,

aspiration, pulmonary edema, among others, which were evidenced. Some authors describe complications were not observed as transient blindness, cardiomegaly and pulmonary embolism. Maternal deaths due to intracerebral hemorrhage and DIC were present in other studies<sup>21,24</sup>. While not occur frequently, are serious complications for the high risk of mortality. The study indicates that the major cause of neonatal death were complications of prematurity. These results agree with those reported in the literature (25). El significant number of infants with low birth weight, 57 (50.8%) may be due to the high number of preterm pregnancies eclamptic patients. This indicates that gestational age was the most influential factor in perinatal mortality.

Because motherhood Enrique C. Sotomayor is a tertiary hospital and therefore institute hospital referrals, some patients who had postpartum eclampsia were transferred while the newborn remained in the institution. This was one of the limitations of the study because they could not find

the rest of perinatal complications eclamptic pregnant. Another limitation was the lack of data in medical records, such as race, as the literature indicates that black women carry more risk of eclampsia, and prenatal care, factors that could be more predictive or not risk of complications.

The earliest reference eclamptic pregnant or at risk to third-level institutions could help reduce morbidity and mortality. The best approach is to prevent the development of preeclampsia prenatal care in high-risk patients who could theoretically reduce the risk of eclampsia and its complications in pregnancy. In conclusion, the epidemiological profile and resulting maternal perinatal were similar to that described in the literature. Eclampsia was shown to cause multiple systemic disorders which hematological and neurological disorders are the greatest impact on maternal mortality. Because none is acquitted of complications, managing to be directed at the prevention of eclampsia.

**Table 1: Maternal Characteristics**

Parameters	Nº (%) o media ± SD.	
<b>Age</b>	21.6 ± 6.5	
14	8 (6.0)	
15-19	59 (44.3)	
20-34	63 (47.3)	
35	3 (2.2)	
<b>Gestas</b>	1.0 ± 1.7	
Primigesta	71 (53.3)	
Multigesta	62 (46.6)	
<b>Paridad</b>	0.4 ± 1.2	
nulliparous	103 (77.4)	
Multiparous	28 (21)	
+ Multiparous	2 (1.5)	
<b>Prenatal Control</b>	Completo	57 (42.8)
	Incompleto	10 (7.5)
	Faltantes	63 (47.3)
	Ausentes	3 (2.2)

**Table 2: Characteristics of pregnancy**

Lab	Nº (%) o media ± S.D
Hg (g/dl)	11.7 ± 2.4
Htc (%)	35.0 ± 7.1
Plaquets (mm <sup>3</sup> )	186.3 ± 99.2
GOT (U/L)	220.9 ± 527.7
GPT (U/L)	113.2 ± 256.8
GGT (U/L)	33.3 ± 39.1
Úricacid (mg/dl)	7.8 ± 2.3
Urea (mg/dl)	7.9 ± 2.3
Creatinine (mg/dl)	0.8 ± 0.4
<b>Period of eclampsia</b>	
Antepartum	46 (34.5)
Intrapartum	55 (41.3)
Pospartum	32 (24.0)
<b>Treatment</b>	
Cesárea	123 (92.4)
Parto vaginal	10 (7.5)

**Table 3: Mother resulting**

According to lab data :		Nº (%)
Anemia		45 (31.3)
Trombocytopenia		46 (31.9)
Liverenzymes		40 (27.8)
Renaldysfunction		13 (9.0)
<b>Complications</b>		
Obstetric	Oligoamnios	19 (19.2)
	Abnormal fetal pattern	11 (11.1)
	placentalabruption	9 (9.1)
hematologica	HELLP Syndrome*	21 (21.2)
	DIC**	6 (6.1)
	postpartumhemorrhage	11 (11.1)
cardiorespiratory	cardiopulmonaryarrest	3 (3.0)
	aspiration	4 (4.0)
	pulmonary edema	1 (1.0)
hepatic	Congestive Liver	3 (3.0)

Renal	Acute kidney failure	6 (6.1)
neurological	CVA***	1 (1.0)
	Intracerebral hemorrhage	1 (1.0)
	Coma	1 (1.0)
Death		2 (2.0)

**Table 4: Factores De Riesgo Según La Resultante Materna**

Variable	Level	Yes (n=40) N° (%)	No (n=93) N° (%)
Age	19	22 (16.3)	45 (34.3)
	>20	18 (13.5)	48 (36.1)
pregnancies	Primigesta	23 (17.3)	48 (36.1)
	Multigesta	17 (12.8)	45 (33.8)
Parity	Primípara	32 (24.1)	71 (53.4)
	Multípara	8 (6.0)	22 (16.5)
Anemia	Si	12 (9.0)	33 (24.8)
	No	28 (21.1)	60 (45.1)
Trombocytopenia	Si	10 (7.5)	36 (27.1)
	No	30 (22.6)	57 (42.9)
Hepatic enzymes	Yes	15 (11.3)	25 (18.8)
	No	25 (18.8)	68 (51.1)
Period	Antepartum	14 (10.5)	32 (24.1)
	Intrapartum	18 (13.5)	37 (27.8)
	Pospartum	8 (6.0)	24 (18.0)
Treatment	Caesarean section	38 (28.6)	86 (64.7)
	Partum	2 (1.5)	7 (5.3)

**Tabla 5: Perinatal resulting**

General characteristics of the series		N° (%) o media±SD
livebirths		98 (87.5)
gestationage (weeks)		35.2 ± 3.1
weight (gr)		2119.1 ± 720.1
Height(cm)		43.8 ± 4.4
Apgar	5 min	6.5 ± 1.4
	10 min	8 ± 1.0
Sex	Female	54 (48.2)
	Male	58 (51.7)
<b>Complicaciones</b>		<b>N° (%)</b>
Premature		59 (72.8)
Asphyxia		10 (12.3)
IUGR		11 (13.5)
SALAM		1 (1.2)
stillbirth		7 (6.2)
neonatal death		7 (6.2)

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