

EFFECTIVENESS OF THE USE OF CALCIUM CHANNEL BLOCKERS AS PREVENTION OF THE DEVELOPMENT OF PREECLAMPSIA

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Abstract: Preeclampsia is a condition, within the spectrum of hypertensive disorders of pregnancy, characterized by elevated blood pressure and proteinuria, which can progress to involve multiple organ systems. Demonstrate the effectiveness of the use of Amlodipine in preventing the development of severe preeclampsia in pregnant women at the León Becerra Camacho Hospital in 2020. As a result and conclusion, it was obtained that the use of calcium channel receptor antagonists is effective in the development of severe preeclampsia in pregnant women at the León Becerra Camacho Hospital in the year 2019 to 2020. The types of patients who develop hypertensive disorders in pregnancy are overweight, multiparous pregnant women who do not take calcium channel receptor antagonists. The most frequent risk factors in pregnant women are low socioeconomic level, mixed race, overweight and short interpregnancy period and the most frequent complications in pregnant women at the León Becerra Camacho Hospital in the year 2019 to 2020 are Hellp syndrome and eclampsia.

Keywords: Preeclampsia, Gynecology, Amlodipine, Proteinuria.

INTRODUCTION

Preeclampsia is a condition, within the spectrum of hypertensive disorders of pregnancy, characterized by elevated blood pressure and proteinuria, which can progress to involve multiple organ systems (Álvarez-Fernández et al., 2016).

The Royal College of Obstetricians and Gynecologists clinically defines preeclampsia as the presence of pregnancy-induced hypertension (blood pressure $\geq 140/90$ mmHg after 19 weeks' gestation) and significant proteinuria (> 0.3 g/24 h). Preeclampsia can further be classified as mild or severe, depending on the classification system used (Bergallo et al., 2018).

Severe preeclampsia includes severe hypertension ($\geq 170/110$ mmHg) and severe proteinuria, and may also include other maternal signs of target organ dysfunction (Estelbina et al., 2015; Martínez Quinteros & Belalcázar Sánchez, 2022).

An important variety of clinical, biochemical, biophysical and hemodynamic tests have been proposed for the identification of the patient who will develop preeclampsia (Fenakel & Lurie, 1990).

Regarding treatment, calcium channel blockers have gained wide use in treatment in various fields of medicine (Guevara Ríos & Meza Santibáñez, 2015). Calcium channel blockers have been shown to inhibit contractions of the pregnant and non-pregnant uterus, and lately their properties have theoretically made it an ideal candidate for use in severe pregnancy-induced hypertension: it is effective in reducing blood pressure, has a rapid effect and long-lasting action, can be conveniently administered orally and is not associated with serious side effects (Health., 2022).

Therefore, this research, which is carried out in a retrospective and cross-sectional manner, aims to determine the effectiveness of calcium channel blockers on the prevalence of pre-eclampsia at the León Becerra de Milagro Hospital in the period from January to December. of the year 2020, 116 patients will be studied in the aforementioned period.

RESEARCH QUESTIONS

What is the effectiveness of calcium antagonists in the prevention of severe preeclampsia at the León Becerra Camacho Hospital in 2020?

What are the risk factors of pregnant women who developed preeclampsia at the León Becerra Camacho Hospital in the city of Milagro in 2020?

What are the complications of pregnant

women with Preeclampsia at the León Becerra Camacho Hospital in the city of Milagro in 2020?

What type of pregnant women develop hypertensive disorders in León Becerra Camacho in the city of Milagro in 2020?

GENERAL AND SPECIFIC OBJECTIVES

GENERAL OBJECTIVE

Demonstrate the effectiveness of the use of Amlodipine in preventing the development of severe preeclampsia in pregnant women at the León Becerra Camacho Hospital in 2020.

SPECIFIC OBJECTIVES

Define what type of pregnant patients develop hypertensive disorders at the León Becerra Camacho Hospital in 2020.

Identify the risk factors for Preeclampsia at the León Becerra Hospital in 2020.

Establish the complications of patients with preeclampsia at the León Becerra Camacho Hospital in 2020.

PROBLEM FORMULATION

What is the effectiveness of calcium antagonist drugs in the prevention of severe preeclampsia at the León Becerra Camacho Hospital in 2020?

RESEARCH HYPOTHESIS

Calcium channel receptor antagonists are highly effective in preventing severe preeclampsia.

VIABILITY

The following research is viable because it is of great interest to health personnel who investigate this pathology and the impact it causes on them, as well as updating the pathology to be studied.

INVESTIGATION METHODOLOGY

APPROACH

The approach to be used will be quantitative, cross-sectional, retrospective descriptive, non-experimental analytical, field where variables will be analyzed. (twenty-one)

TYPE AND DESIGN OF THE RESEARCH

The purpose of this project is to establish the effectiveness of calcium antagonists in the prevention of severe preeclampsia. Our study is observational where we will indirectly review the medical records of patients with preeclampsia at the León Becerra Camacho Hospital in 2020.

LEVELS OF RESEARCH

Descriptive, Explanatory, analytical and cross-sectional correlational.

PERIOD AND PLACE WHERE THE RESEARCH IS DEVELOPED

León Becerra Camacho Hospital located in the city of Milagro in the province of Guayas, Zone 5, General Hospital II Level, Epiclachima and Eloy Alfaro streets.

POPULATION AND SAMPLE UNIVERSE AND SAMPLE

For the universe used, it will be all pregnant patients from the year 2020 between the period from January to December, the sample will correspond to all the pregnant women who appear in our inclusion and exclusion criteria. There will be no formula for sample calculation, but rather census-type sampling that includes all pregnant women. In total we have 116 pregnant women in our study sample.

INCLUSION CRITERIA

- a. Pregnant woman with risk factor for preeclampsia
- b. Patients treated in 2020
- c. Complete medical history.

EXCLUSION CRITERIA

- a. Not Pregnant
- b. Patients with Incomplete Medical History

INFORMATION COLLECTION TECHNIQUES AND INSTRUMENTS

With prior authorization from the person in charge of the León Becerra Camacho Hospital through a letter with signatures and subsequent approval for data collection from the medical records in a data collection form or questionnaire, the data was collected in a database on the Excel platform. , for subsequent ordering and coding, then tabulation and analysis of the results using tables and graphs with percentages.

Our research is based on the design of a data collection sheet based on the Clinical History of pregnant patients admitted to the gynecological-obstetric emergency area at the León Becerra de Milagro General Hospital, during the period from January 2020 to December 2020. patients with risk factors for the development of pre-eclampsia, we sought to demonstrate the effectiveness of the use of calcium blockers in preventing the development of pre-eclampsia.

ETHICAL ASPECTS

The present work brings together the characteristics, technical and operational conditions that ensure the fulfillment of the objectives, it is a viable study because it has the support of ``Universidad de Guayaquil`` and the León Becerra Hospital for its investigative use.

STATISTIC ANALYSIS

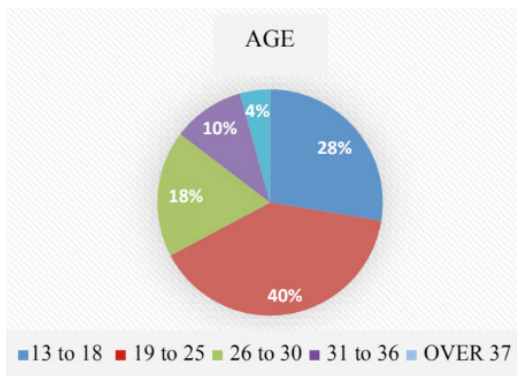
The sample will be collected in a database created in the Excel 2013 Program, to then be tabulated and statistically analyzed using formulas, for subsequent tables, graphs and percentages.

RESULTS

AGE	TOTAL	HALF	PERCENTAGE
13 A 18	32		28%
19 A 25	46		40%
26 A 30	21	21	18%
31 A 36	12		10%
OVER 37	5		4%
TOTAL	116		100%

TABLE 1: AGE OF PREGNANTS AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



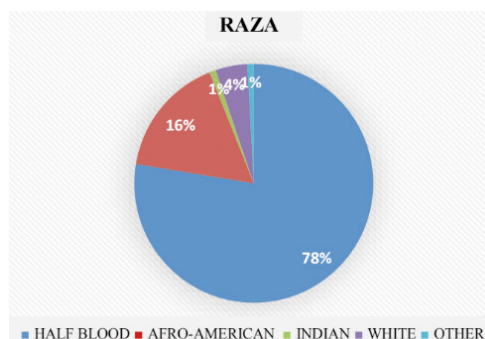
GRAPH 1: PERCENTAGE OF AGE OF PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE HIGHEST PERCENTAGE OF AGE IS BETWEEN 19 TO 25 YEARS WITH AN AVERAGE OF 21 YEARS OF AGE.

RACE	TOTAL	PERCENTAGE
HALF BLOOD	90	78%
AFRO-AMERICAN	19	16%
INDIAN	1	1%
WHITE	5	4%
OTHER	1	1%
TOTAL	116	100%

TABLE 2: MOST FREQUENT BREED OF PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



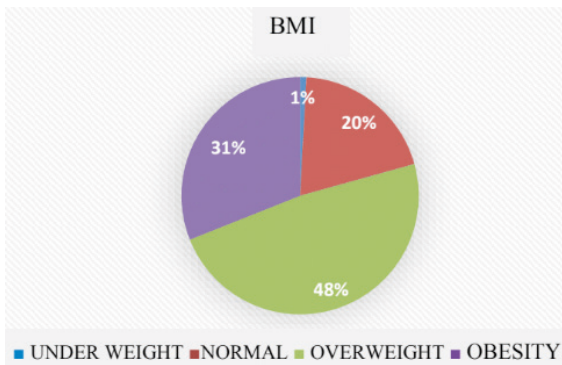
GRAPH 2: PERCENTAGE OF RACE OF PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE RACE THAT PREDOMINATES IS MESTIZO FOLLOWED BY AFRICAN AMERICAN.

BMI	TOTAL	PERCENTAGE
UNDER WEIGHT	1	1%
NORMAL	23	20%
OVERWEIGHT	56	48%
OBESITY	36	31%
TOTAL	116	100%

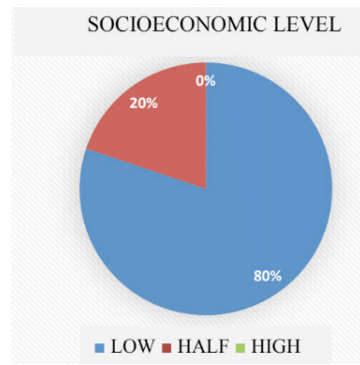
TABLE 3: BODY MASS INDEX IN PREGNANT PEOPLE AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



GRAPH 3: PERCENTAGE OF BMI IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE PREDOMINANT BODY MASS INDEX WAS OVERWEIGHT WITH 48% FOLLOWED BY OBESITY WITH 31%.



GRAPH 4: PERCENTAGE OF SOCIOECONOMIC LEVEL IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE SOCIOECONOMIC LEVEL OF THE MAJORITY OF THE PREGNANT WOMEN IS LOW.

SOCIOECONOMIC LEVEL	TOTAL	PERCENTAGE
LOW	93	80%
HALF	23	20%
HIGH	0	0%
TOTAL	116	100%

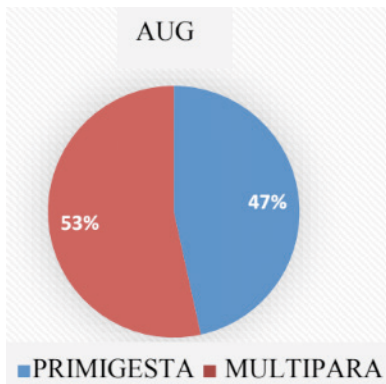
TABLE 4: SOCIOECONOMIC LEVEL OF PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL

AUG	TOTAL	PERCENTAGE
PRIMIGEST	54	47%
MULTIPARA	62	53%
TOTAL	116	100%

TABLE 5: OBSTETRIC GYNECOLOGY HISTORY IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



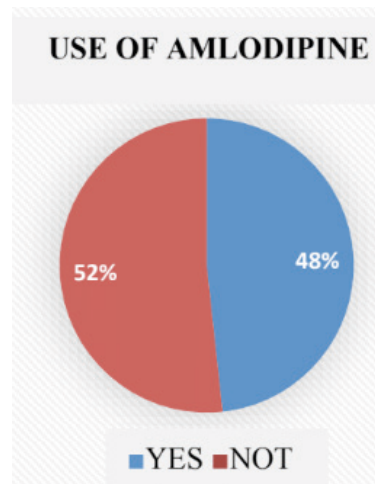
GRAPH 5: PERCENTAGE OF AUG IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE MAJORITY OF PREGNANT WOMEN ARE MULTIPARES WITH 53%.

USE OF AMLODIPINE	TOTAL	PERCENTAGE
YEAH	56	48%
NO	60	52%
TOTAL	116	100%

TABLE 6: USE OF AMLODIPINE IN PREGNANT PEOPLE AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



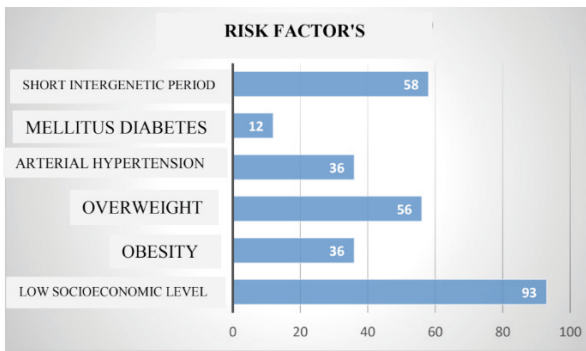
GRAPH 6: PERCENTAGE OF USE OF AMLODIPINE IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE HIGHEST PERCENTAGE OF PREGNANT WOMEN DID NOT USE AMLODIPINE AT 52%.

RISK FACTOR'S	TOTAL	PERCENTAGE
LOW SOCIOECONOMIC LEVEL	93	80%
OBESITY	36	31%
OVERWEIGHT	56	48%
ARTERIAL HYPERTENSION	36	31%
MELLITUS DIABETES	12	10%
SHORT INTERGENETIC PERIOD	58	50%

TABLE 7: RISK FACTORS OF PREGNANT PARTIES AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



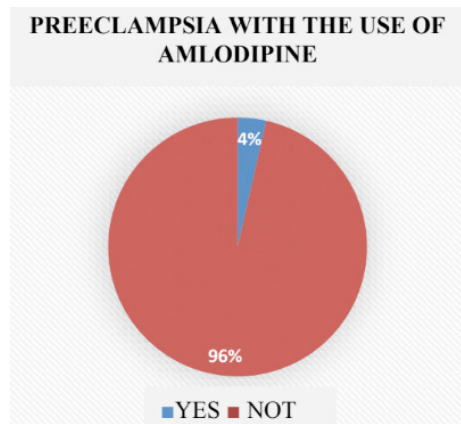
GRAPH 7: PERCENTAGE OF RISK FACTORS IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE MAJORITY OF THE PREGNANT WOMEN HAD A LOW SOCIOECONOMIC LEVEL, IN ADDITION TO OVERWEIGHT AND SHORT INTERGENESIS PERIOD.

N	PREECLAMPSIA		VALUE P
	YEAH	NOT	
USE OF AMLODIPINE	2 (4%)	54 (96%)	0.16

TABLE 8: RELATIONSHIP OF THE USE OF AMLODIPINE WITH THE APPEARANCE OF PREECLAMPIA IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



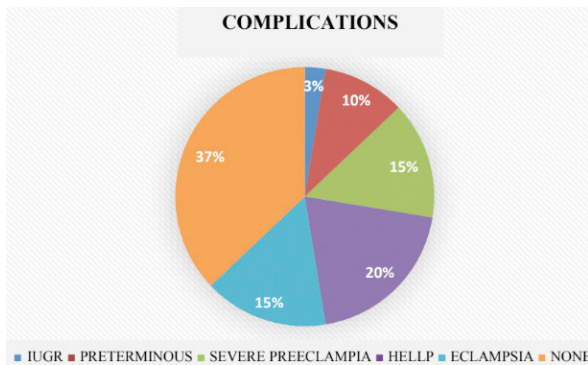
GRAPH 8: PERCENTAGE OF THE USE OF AMLODIPINE WITH THE APPEARANCE OF PREECLAMPIA IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 56 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE HIGHEST PERCENTAGE WHO USED AMLODIPINE DURING PREGNANCY DID NOT DEVELOP PREECLAMPSIA WITH 96% WHILE 4% DID DEVELOP PREECLAMPSIA DESPITE USING AMLODIPINE.

COMPLICATIONS	TOTAL	PERCENTAGE
IUGR	3	3%
PRETERMINO	12	10%
SEVERE PREECLAMPIA	17	15%
HELLP	23	20%
ECLAMPSIA	18	15%
NONE	43	37%
TOTAL	116	100%

TABLE 9: COMPLICATIONS IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

SOURCE: LEÓN BECERRA CAMACHO HOSPITAL



GRAPH 9: PERCENTAGE OF COMPLICATIONS IN PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL IN THE PERIOD 2019 TO 2020.

ANALYSIS: AMONG THE 116 PREGNANT WOMEN AT THE LEÓN BECERRA CAMACHO HOSPITAL, THE MAJORITY DID NOT PRESENT COMPLICATIONS DURING PREGNANCY.

DISCUSSION

Preeclampsia (PE) is a clinical entity characterized by the new onset of hypertension and proteinuria or end-organ damage after 20 weeks of gestation (Leeman et al., 2016).

It is one of the main hypertensive disorders related to pregnancy and can occur postpartum. Additional clinical signs and symptoms include headache, visual disturbances, epigastric pain, thrombocytopenia, and abnormal liver function (LeFevre & Krumm, 2019).

These clinical manifestations are triggered by mild to severe microangiopathy of the target organs, including the brain, liver, kidneys and placenta (Martínez Quinteros & Belalcázar Sánchez, 2022). Possible maternal complications include pulmonary edema, cerebral hemorrhage, liver failure, kidney failure, and even death (Mayorga Albán et al., 2021).

Possible fetal complications are due to placental hypoperfusion or the need for premature delivery (Ministerio de Salud

Pública del Ecuador, 2016). Traditionally, the clinical diagnosis of PE is made when new-onset hypertension in the second half of pregnancy is associated with new-onset proteinuria (Monje Álvarez, 2011). However, following the observation that some patients show evidence of multiorgan damage without proteinuria, in certain circumstances PD can be diagnosed without proteinuria. In the absence of proteinuria, the diagnosis can be made if any of the following occur: abnormal liver function, thrombocytopenia, renal failure, pulmonary edema, visual impairment, or cerebral symptoms (Novianty et al., 2019). According to the 2013 report of the American College of Obstetricians and Gynecologists Task Force on Hypertension in Pregnancy, PE can be diagnosed when systolic blood pressure is greater than or equal to 140 mmHg or diastolic blood pressure is greater than or equal to 90 mmHg on two occasions at least 4 hours apart in a previously normotensive patient or systolic blood pressure is greater than or equal to 160 mmHg or diastolic blood pressure is greater than or equal to 110 mmHg and hypertension can be confirmed within minutes to facilitate timely antihypertensive therapy (Panahi et al., 2020). In addition to hypertension, proteinuria must be measured as greater than or equal to 300 mg per 24-h urine sample, as a protein ratio greater than or equal to 0.3, or as a urine dipstick protein of 1+ (if not quantitative measurement is available) (Salam et al., 2015).

Previously, PD was classified in terms of severity as mild, moderate, or severe (Sarmiento et al., 2017). More recently, because morbidity and mortality can be significant for PE without severe features, the 2013 report of the American College of Obstetricians and Gynecologists Task Force on Hypertension in Pregnancy recommends that this classification be avoided (Tomico, 2020). Instead, the term “preeclampsia without severe features” must

be used to distinguish from the more severe forms of “preeclampsia with severe features.” Based on gestational age at delivery, PE has been broadly classified as early-onset, with signs and symptoms developing at <34 weeks’ gestation, and late-onset in patients with new hypertension and proteinuria. onset at ≥ 34 weeks of gestation, and sometimes during labor (Torres & Chacón, 2020).

In Indonesia, preeclampsia and eclampsia remain one of the leading causes of maternal and perinatal mortality (Álvarez-Fernández et al., 2016). This study aims to determine the pattern of administration of calcium antagonists to pregnant women at Mohammad Hoesin Hospital, Palembang (Bergallo et al., 2018).

The drug use survey was conducted in the Medical Records Room from November to December 2013 (Brown et al., 2018). The study population was all hypertensive patients in pregnant women in the Inpatient Facility of the Department of Obstetrics and Gynecology of Mohammad Hoesin Hospital (Estelbina et al., 2015). The sample was 63 patients who met the inclusion criteria (Estelbina et al., 2015). The research results are in descriptive form and in percentage tables. There were 63 pregnant women with hypertension. Hypertension in pregnant women was found between 33 and 37 years

of age (40%). Hypertension was found in the first pregnancy (11.3%). The most common type of hypertension is second degree (68.2%). The calcium antagonists used are nifedipine and amlodipine. In contrast to our study, the most frequent age of presentation was 26 to 30 years with a mean age of 21 years, and the use of calcium antagonists helps prevent preeclampsia. severe (Guevara Ríos & Meza Santibáñez, 2015).

CONCLUSIONS

1. The use of calcium channel receptor antagonists is effective in the development of severe preeclampsia in pregnant women at the León Becerra Camacho Hospital in the year 2019 to 2020.
2. The types of patients who develop hypertensive disorders in pregnancy are overweight, multiparous pregnant women who do not take calcium channel receptor antagonists.
3. The most frequent risk factors in pregnant women at the León Becerra Camacho Hospital in the year 2019 to 2020 are low socioeconomic level, mixed race, overweight, and short intergenetic period.
4. The most frequent complications in pregnant women at the León Becerra Camacho Hospital in the year 2019 to 2020 are Hellp syndrome and eclampsia.

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