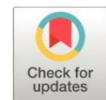


Prevalence of hypertensive disorders in pregnancy: systematic review

*Prevalencia de los trastornos hipertensivos en el embarazo: revisión
sistemática*

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Palabras**claves:**

preeclampsia,
prevalence,
Síndrome hellp,
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Keywords:

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Resumen

Los trastornos hipertensivos del embarazo (THE) son de gran valor a nivel mundial, esto se debe al gran efecto en la morbimortalidad materna y fetal, los (THE) son muy habituales, y afectan entre 5% y el 10% de todos los embarazos. Objetivo general: determinar las prevalencias de los trastornos hipertensivos en el embarazo mediante una revisión sistemática de la literatura. Metodología: se desarrollado una revisión sistemática de literatura sobre prevalencia de los Trastornos Hipertensivos en el Embarazo, mediante las declaraciones PRISMA. Resultados: en Noruega la muestra de estudio fue las mujeres que dieron a luz durante los años 1999 hasta el 2014, la prevalencia de preeclampsia presento de 3,7 %. Conclusión: la prevalencia de eclampsia, preeclampsia en Noruega fue 3.7 %, Nepal 1,77%, región africana es de 2,9%, región Sudeste asiático 1,1%, India 3,8 ± 0,6%, Ecuador 3,6%, Irán 6,5%, Argentina 2,9%, Colombia 3,5%. La prevalencia del síndrome de Hellp: Chile 13.6 %, Irán 0,8%, Asia 0,69%, Argentina 5.51%, China fue 0,5% al 0,9%, Perú 9,7%, Francia 0,2%, México 4,5%.

Abstract

Hypertensive disorders of pregnancy (THE) are of excellent value worldwide, this is due to the significant effect on maternal and fetal morbidity and mortality, the (THE) are quite common, affecting between 5% and 10% of all pregnancies. General objective: to determine the prevalence of hypertensive disorders in pregnancy through a systematic review of the literature. Methodology: A systematic literature review on the prevalence of hypertensive disorders in pregnancy was developed using PRISMA statements. Results: in Norway, the study sample was women who gave birth during the years 1999 to 2014, the prevalence of preeclampsia was 3.7%. Conclusion: the prevalence of eclampsia, preeclampsia in Norway was 3.7 %, Nepal 1.77%, African region is 2.9%, Southeast Asian region 1.1%, India 3.8 ± 0.6%, Ecuador 3.6%, Iran 6.5%, Argentina 2.9%, Colombia 3.5%. Prevalence of Hellp syndrome: Chile 13.6%, Iran 0.8%, Asia 0.69%, Argentina 5.51%, China was 0.5% to 0.9%, Peru 9.7%, France 0.2%, Mexico 4.5%.

Introduction

Hypertensive disorders of pregnancy (THE) are of excellent value worldwide, this is due to the significant effect on maternal and fetal morbimortality, THE are quite common, affecting between 5% and 10% of all pregnancies (1). According to Mogrovejo (2), hypertensive disorders in gestation presume a high incidence of preeclampsia progression, which could develop into eclampsia, and even HELLP syndrome may occur, thus placing the maternal/fetal risk high.

The expression hypertension in gestation describes a wide spectrum of conditions whose range fluctuates from mild increase in blood pressure to severe hypertension with damage to a target organ and severe maternal-fetal morbidity and mortality that may occur during gestation, delivery and postpartum (3).

The research will be focused on determining the prevalence of preeclampsia (PE), eclampsia and Hellp syndrome (HS), the study will be centered on the search for several studies that demonstrate a relevant contribution of information on preeclampsia, eclampsia and Hellp syndrome, The main reason that promoted this literature review is focused on the prevalence of hypertensive disorders in pregnancy, which will benefit health personnel, physicians, specialists, nurses, and postgraduates who will have a document with updated information on the prevalence of hypertensive disorders of pregnancy.

Hypertensive disorders of pregnancy (THE) affect about 5 to 10% of all pregnant women and are the main factors contributing to maternal and neonatal morbidity and mortality worldwide, hypertension in pregnancy is determined when blood pressure is $\geq 140/90$ mmHg, at least in 2 shots with 4 hours of difference, the (THE) are: gestational hypertension (PE), eclampsia, Hellp syndrome (SH) (4).

Worldwide, it is estimated that (SH) affects 0.1% to 0.9% of pregnancies, as well as 10% to 20% of pregnancies with severe (PE) and 50% of cases of eclampsia. (SH) presents with the following clinical manifestations: platelets below 100,000 mm, elevated transaminases, increased LDH, hyperbilirubinemia (hemolysis), hyperuricemia due to acute renal failure (5).

A study conducted in Ecuador found a predominance of chronic hypertension in 21 patients (40.3 %) with a study sample, followed by gestational arterial hypertension with 11 cases (23.1 %), mild (PE) with a percentage of 15.4 % of cases and mild hypertension (PE) with a percentage of 15.4 % of cases, 4 % of the cases and chronic hypertension plus (PE) or eclampsia with 13.5 %, there was also only one case of eclampsia (1.9 %), which is given by the efficient attention of health personnel to mild forms to prevent them from reaching these severe forms of the entity (6). The general objective of this study is: to

determine the prevalence of hypertensive disorders in pregnancy through a systematic review of the literature. The specific objectives are: 1) to review the prevalence's of preeclampsia and eclampsia worldwide, and 2) to examine in the scientific literature the prevalence of Hellp syndrome.

Methodology

A systematic literature review on the prevalence of Hypertensive Disorders in Pregnancy was developed using statements PRISMA (7).

Search strategies

The search for information on the prevalence of Hypertensive Disorders in Pregnancy in the database: Scopus, PubMed, ProQuest between the year 2016-2021, documents were selected that have direct relation with the addressed topic of study, for the placement of keywords was used the Descriptors in Health Sciences "prevalence", "HELLP Syndrome", "Eclampsia", "Preeclampsia", and also used bilean operators "AND" and "OR" being as follows: "prevalence" and "HELLP syndrome", "prevalence" or "incidence" and "eclampsia", "prevalence" and "preeclampsia".

Inclusion criteria

The selection of articles was performed as follows:

- Languages: studies in Spanish and English were included.
- Year of publication: between 2016 and 2021.
- Studies conducted prevalence of Hypertensive Disorders in Pregnancy.
- Quality of articles.
- Studies published in high impact journals.

Exclusion criteria

- Letters to the editor.
- Inability to retrieve the full text of the article.
- Repeated article from a previous search.

Procedure

It will be carried out in 3 phases, the first will be a thorough review of the existing information in the different databases the appropriate use of keywords, the second phase will apply the inclusion and exclusion criteria to select the relevant scientific articles for the development of the study, with in the third phase a critical reading will be applied to the pre-selected articles for a final review to determine the relevance and contribution to the study.

Results

Figure 1.

Flow diagram

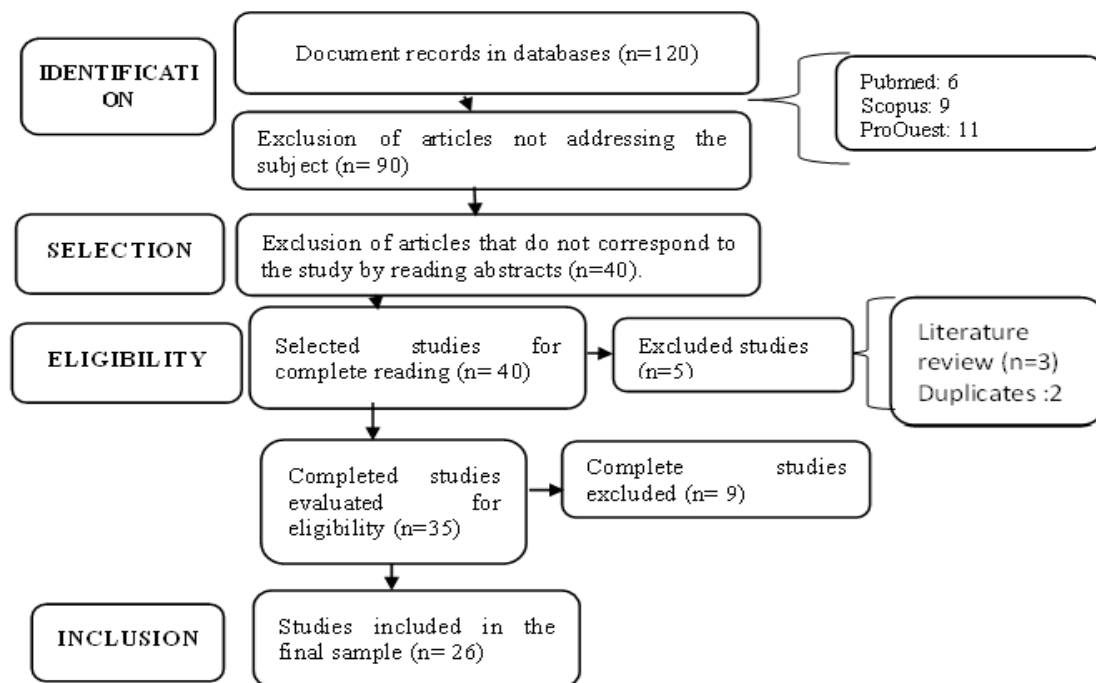


Table 1.

Selected articles

Author	Year	Title	Country	Preeclampsia	Eclampsia	Syndrome de Hellp
Laine et al. (8)	2019	Prevalence and risk of preeclampsia and gestational hypertension in twin pregnancies: a population-based registry study.	Noriega	3,7%	--	--
Shraddha & Pramod (9)	2018	Eclampsia in a tertiary care hospital in Nepal: A five-year study.	Nepal	1,77%	--	--

Table 1.

Selected articles (continued)

Author	Year	Title	Country	Preeclampsia	Eclampsia	Syndrome de Hellp
Macedo et al. (10)	2020	eclampsia and eclampsia in adolescent pregnancy: a systematic review and meta-analysis Prevalence of preeclampsia and eclampsia in adolescent pregnancy: a systematic review and meta-analysis of 291,247 adolescents worldwide since 1969	Europa	6,7%	--	--
Bellizzi & Howard (11)	2017	Signs of eclampsia during singleton deliveries and early neonatal mortality in middle-income countries in three WHO regions.	Switzerland	African 2.9%, Southeast Asia 1.1%.	--	--
Fatemeh & Farahnaz (12)	2017	Seasonal variation in the prevalence of preeclampsia Fatemeh.	Iran	3,8 ± 0,6%.	--	--
Condo et al. (13)	2018	Preeclampsia and eclampsia in patients attended in the emergency area of the Verdi Cevallos Balda Hospital July 2016 - June 2017.	Ecuador	--	--	3,6%

Table 1.

Selected articles (continued)

Author	Year	Title	Country	Preeclampsia	Eclampsia	Syndrome de Hellp
Handayani et al. (14)	2020	Ecological analysis of preeclampsia/eclampsia a case in, Indonesia, 2015-2019 Sesotiyarningsih.	Indonesia	--	--	2,46% 5,74%
Sanaz & Koochakzadi (15)	2018	Prevalence of preeclampsia and its maternal and fetal complications in women referred to fetal complications in women referred to Amirmomenin Zabol Hospital in 2014-2015	Iran	--	6,5%.	0,8%.
Mutabazi et al. (16)	2019	Seasonal variation in the incidence of preeclampsia and eclampsia in Kigali, Rwanda.	Africa	--	2,3%.	--
Milos & Strada (17)	2017	Analysis of risk factors for the development of hypertensive states of pregnancy.	Argentina	--	2,9 %	1,5%
Salamanca & Nieves (18)	2019	Preeclampsia view: prevalence and associated factors in pregnant women in a health institution of Boyacá in the period 2015 to 2017.	Boyacá-Colombia	--	3,5%	--

Table 1.

Selected articles (continued)

Author	Year	Title	Country	Preeclampsia	Eclampsia	Syndrome de Hellp
Godwin & Ubong (19)	2021	Prevalence and maternal-fetal outcomes of pre-eclampsia/eclampsia among preeclampsia/eclampsia among pregnant women women in a teaching hospital in north-central north-central Nigeria: a retrospective cross-sectional study. retrospective study	Nigeria - Africa	--	--	3,6%.
Labarca et al (20)	2017	Prevalence of HELLP syndrome in critical pregnant women: "Dr. Armando Castillo Plaza" Maternity Hospital, Maracaibo, Venezuela.	Chile	--	---	13,60%
Sitaula & Baburam (21)	2020	Prevalence of hemolysis, elevated liver enzymes and low platelet counts in pregnant women in a tertiary care hospital in pregnant women at a tertiary care hospital	Asia	---	--	0,69%.
Cremonte & Fregenal (22)	2017	Maternal morbidity in patients with hellp syndrome at the Angela Iglesias llano Corrientes-capital hospital. hospital Angela Iglesias Llano Corrientes-capital. January 2015-april2017	Argentina	--	--	5.51%

Table 1.

Selected articles (continued)

Author	Year	Title	Country	Preeclampsia	Eclampsia	Syndrome de Hellp
Chanjuan (23)	2020	Prenatal plasma fibrinogen level predicts postpartum hemorrhage in patients with HELLP syndrome	China	--	--	0,5% 0,9%
Peña et al. (24)	2017	HELLP syndrome: maternal-fetal outcome. Maternal Intensive Care Unit of the National Maternal Perinatal Institute.	Perú	--	--	9,7%
Moutengou et al. (25)	2021	Prevalence of hypertensive disorders during pregnancy in France (2010-2018): the nationwide CONCEPTION study.	Francia	--	--	0,2%
García & Montes (26)	2021	Prevalence of pregnancy-induced pregnancy-induced hypertension preceding eclampsia	México	--	--	4,5%

Discussion

The analysis of the 19 selected articles was conducted to determine the prevalence of hypertensive disorders during pregnancy such as preeclampsia, eclampsia and Hellp syndrome worldwide.

Prevalence of preeclampsia and eclampsia worldwide

A study conducted by Laine et al. (8) in Norway the study sample was women who gave birth during the years 1999 to 2014, the prevalence of preeclampsia presented 3.7%. On the other hand, a study conducted by Shraddha and Pramod (9), in a tertiary care hospital in Nepal, the prevalence of eclampsia was 1.77%.

In this study, the prevalence of preeclampsia and eclampsia in adolescent pregnancy was 6.7% from rural areas (10). Studies indicate that the prevalence of preeclampsia in the African region is 2.9%, Southeast Asia 1.1% (11).

On the other hand, Fatemeh and Farahnaz (12), in India, in a hospital study sample of 8000 women admitted for delivery, the prevalence of preeclampsia was $3.8 \pm 0.6\%$. On the other hand, a study conducted by Condo et al. (13), in a hospital in Ecuador with a study sample of 3400 pregnant women, the prevalence of preeclampsia and eclampsia was 3.6%.

Similarly, Handayani et al. (14), in a study carried out in Indonesia, the study sample consisted of 11 health centers with a prevalence of preeclampsia and eclampsia: Krebung, Wonoayu, Sukodono, Sidoarjo, Waru health center was 2.46%, Tanggulangin, Urangagung health center was 3.28%, Buduran, Taman health center was 4.10% and finally Candi health center was 5.74%, according to this report the prevalence is due to the behavior of the inhabitants who do not support prenatal checkups.

Likewise, another study conducted in Iran in a third level hospital, the prevalence of preeclampsia in Zabol was 6.5%, which is produced by the lack of commitment of the pregnant women who do not attend their prenatal check-ups (15). In contrast to Mutabazi et al. (16), a study conducted in Africa in 2 large hospitals with 19,746 deliveries in 2 years showed a prevalence of preeclampsia and eclampsia of 2.3%-0.3%, which is believed to be due to seasonal variation such as malaria, although studies are still to be conducted.

However, in Argentina the prevalence of preeclampsia was 2.9% in a study group of 136 pregnant women (17). According to a study conducted in Colombia, the prevalence of preeclampsia was 3.5% in a study sample of 2531 pregnant women (18). Likewise, a study conducted in Africa in a third level hospital showed a prevalence of 3.60% of preeclampsia, which is due to high mortality because pregnant women do not attend prenatal check-ups, do not have basic education, and are inaccessible to health centers (19).

Prevalence of Hellp syndrome

A study conducted in Argentina by Milos and Strada (17), in a hospital with a study group of 136 pregnant women showed a prevalence of Hellp syndrome of 1.5%, since the patients had a history of gestational hypertension, multiparity, obesity and age. In a study conducted in Chile by Labarca et al. (20), the prevalence of Hellp syndrome was 13.60%, which is higher due to the lack of commitment of users in the geographical situation.

Sanaz and Koochakzai (15), in a study conducted in Iran, the prevalence of HELLP syndrome was 0.8%, which is due to the lack of commitment of the pregnant woman. Likewise, a study conducted by Sitaula and Baburam (21), in Asia in a third level hospital with a study sample of 11974 patients showed a prevalence of 0.69% for which it was concluded that more emphasis should be placed on prenatal controls. On the other hand, a study conducted by Cremonte and Fregenal (22), in Argentina in a tertiary hospital using prenatal cards showed a prevalence of Hellp syndrome of 5.51%. As well as Chanjuan (23), in a study conducted in China, the prevalence of Hellp syndrome is 0.5% to 0.9%.

On the other hand, a study conducted by Peña et al. (24), in Peru with a sample group of 502 pregnant women representing 49 patients presented Hellp syndrome with a prevalence of 9.7%. In France, in a study conducted in 10 public and private hospitals, Hellp syndrome represented 10% of the cases with preeclampsia, with a prevalence of 0.2% (25). A study conducted by García and Montes (26), in Mexico the prevalence of Hellp syndrome was 4.5%, i.e., 7 patients.

Conclusions

- It is concluded with this systematic review work the prevalence of eclampsia, preeclampsia in Norway was 3.7%, Nepal 1.77%, African region is 2.9%, Southeast Asia 1.1%, India $3.8 \pm 0.6\%$, Ecuador 3.6%, Iran 6.5%, Argentina 2.9%, Colombia 3.5%, the prevalence is due to inaccessibility to health due to geographical location, lack of commitment of pregnant women, guidelines are not met 100%, in health centers, the staff should be committed to maternal and fetal health to avoid complications.
- The prevalence of Hellp syndrome: Chile 13.6%, Iran 0.8%, Asia 0.69%, Argentina 5.51%, China was 0.5% to 0.9%, Peru 9.7%, France 0.2%, Mexico 4.5%, the country with the highest prevalence is due to inadequate prenatal check-ups, lack of home visits, uncommitted pregnant women, inaccessibility to health, geographical situation.

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