

Hypertensive disorders of pregnancy in adolescents

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The authors report similar contributions to the original idea, study design, data collection,

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Abstract

Introduction: pregnancy-induced hypertension is one of the most common complications of pregnancy and is responsible for a significant percentage of both maternal and perinatal morbidity and mortality. **Materials and methods:** The present is a descriptive, correlational, retrospective study with the aim of describing hypertensive disorders and their most frequent complications that occur during adolescent pregnancy. **Results:** It was found that of the 13-17 age group, 29% of the cases attended in the emergency and hospitalisation areas were able to receive emergency care in the hospital areas, while 71% received timely referral and care in tertiary hospital units. **Conclusions:** 92% of the screened cases were diagnosed as pre-eclampsia in its different variants, 7% of the cases were admitted as gestational hypertension and only 1% of the cases attended were registered as eclampsia.

Keywords: Pregnancy; Pre-eclampsia; Eclampsia; Hypertension, Pregnancy-Induced; Pregnancy in Adolescence;

Trastornos hipertensivos del embarazo en adolescentes

Resumen

Introducción: la hipertensión inducida en el embarazo constituye una de las complicaciones más habituales de la gestación siendo responsable de un importante porcentaje de morbimortalidad, tanto materna cuanto perinatal. **Materiales y métodos:** El presente es un estudio descriptivo, retrospectivo, correlacional, con el objetivo de describir los trastornos hipertensivos y sus complicaciones más frecuentes, que se presentan durante el embarazo adolescente. **Resultados:** se encontró que del grupo de edad entre 13 – 17 años, que el 29% de los casos atendidos en las áreas de emergencia y hospitalización pudieron recibir una atención emergente dentro de las áreas hospitalarias, mientras que un 71% tuvo una oportuna referencia y atención dentro de unidades hospitalarias de tercer nivel. **Conclusiones:** el 92% de los casos escrutados fueron diagnosticados como preeclampsias en sus distintas variantes, un 7% de los casos fueron ingresados como hipertensión gestacional y solo el 1% de los casos atendidos fue registrado como eclampsias.

Palabras clave: Embarazo; Preeclampsia; Eclampsia; Hipertensión Inducida en el Embarazo; Embarazo en Adolescencia;

Introduction

Worldwide, pregnancy-induced hypertension is one of the most common complications of pregnancy and is responsible for a significant percentage of both maternal and perinatal morbidity and mortality. Problems with the management of pregnancy-induced hypertension lie not only in its aetiopathogenesis, which is still unknown, but also in the variation in definitions, measurements and classifications used to categorise gestational hypertension; pre-eclampsia-eclampsia is one of the main causes of maternal and perinatal morbidity and mortality worldwide; in 2010, in Ecuador, it was ranked as the leading cause of maternal death (1).

Pregnancy-induced hypertension is complicated in 5-10% of cases, and is part of the "lethal triad" of pregnancy, along with haemorrhage and infection, which impact on maternal morbidity and mortality rates, (1,2) especially due to the high rate of teenage pregnancies and the lack of adequate prenatal care by patients in rural or popular sectors of Ecuador, who refuse to attend prenatal care appointments, delaying accurate diagnosis of complications as well as treatment during the first weeks of gestation (1).

Materials and methods

This is a descriptive, retrospective, correlational study, with the aim of describing hypertensive disorders and their most frequent complications that occur during

adolescent pregnancy, during the period from March to August 2016, carried out through the analysis of an anonymised database prepared from medical records of the Gynaeco-obstetrics service in Microsoft Excel spreadsheet document, on patients from the emergency area of the Hospital Sagrado Corazón de Jesús, of the Ministry of Public Health of the city of Quevedo in the province of Los Ríos, Ecuador.

The universe was 136 pregnant adolescent patients with some type of hypertensive disorder, hospitalised in the gynaecological hospital ward of the Sagrado Corazón de Jesús Hospital in the city of Quevedo, from March to August 2016. The sample consisted of 100 patients between 13 and 17 years of age with a diagnosis of maternal hypertension, pre-eclampsia or eclampsia during their pregnancy and puerperium in the gynaecology hospital ward from March to August 2016. They met the inclusion criteria: patients with pregnancy >20 weeks with mild to severe pre-eclampsia confirmed by clinical and laboratory tests; patients with pregnancy <20 weeks with diagnosed hypertension with or without proteinuria; patients aged between 13 and 17 years. Variables such as age, marital status, educational level, parity, gestational hypertensive disorders (GHD) by trimester, maternal obstetric complications, routes of gestational termination, clinical manifestations were analysed.

Ethical aspects: The present research was feasible with the authorisation of the

authorities and the teaching department of the institution, validated by experts from the University of Guayaquil.

Results

Table 1. Universe and sample

Variables		n	%
Age	13	1	1
	14	5	5
	15	29	29
	16	24	24
	17	41	41
Parity	Nulipara	63	63
	Multipara	37	37
Gestational hypertensive disorders GsDH	1st quarter	0	0
	2nd quarter	19	19
	3rd quarter	81	81
Marital Status	Single	28	28
	Free union	64	64
	Married	8	8
	Widows	0	0
Level of education	Elementary Education	26	26
	High school education	57	57
	College education	6	6
	Illiterate	11	11
Previous GsHD	Chronic Arterial Hypertension	0	0
	Pre-eclampsia	32	32
	Eclampsia	3	3
	None	65	65
Routes to termination of pregnancy	Vaginal birth	7	24
	Caesarea	22	76
Complications	Eclampsia	1	3
	PDM	0	0
	HELLP	1	3
	Atonia	2	7
	None	25	86

Premature detachment of the membrane (DPM)

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To carry out this research work on hypertensive disorders in pregnant adolescent patients and their complications, Hospital in the gynaecological hospital ward of the Sacred Heart of Jesus Hospital (SHJH) in the city of Quevedo during the period from March to August 2016, a sample of 100 people was chosen exclusively female and aged between 13 and 17 years of chronological age, but without discrimination of religion, social or marital status, level of education, or ethnicity. This graph shows that patients aged 17 years were the group that suffered the most hypertensive disorders during pregnancy with a total of 41%; in second place, followed by those aged 15 years with 29%; followed by the group aged 16 years with 24%; while patients aged 14 years represent 5% and in last place there is 1% for patients aged 13 years. The concept of parity in gynaeco-obstetrics is the classification of a woman by the number of children born alive or dead, while in some definitions it must also fulfil certain characteristics such as having a pregnancy of 20 weeks of gestation or more and that the product has a weight greater than or equal to 500 grams. The current graph indicates that 63% of pregnant adolescent patients who have suffered some type of hypertensive disorder are nulliparous or primigravid, while the remaining 37% are multiparous. In the third trimester of pregnancy, hypertensive disorders were more frequently diagnosed in adolescent patients admitted to the Sagrado Corazón de Jesús hospital in the city of Quevedo with 81% of patients, while in the second trimester 19% of cases were reported. These data are consistent with the medical literature, which states that most hypertensive disorders during pregnancy occur in the last weeks of gestation, which correspond to the third trimester of pregnancy.

With respect to the marital status of the patients, the present graph shows that the majority (64%) reported being in union, followed by the patients who registered a single marital status, and in last place were the patients who were married (8%). Analysing the situation, this is due to the fact that most of the patients taken as a sample for this research were very young and had little education. In terms of schooling, 57% of the patients have second level studies (secondary school), while 26% are first level students

(primary school), followed by 6% represented by professionals and the remaining 11% by people who have no level of education. As for the present graph, which shows what type of hypertensive disorder the patients suffered from in previous pregnancies, it is evident that of the 100 patients, 32 were diagnosed with pre-eclampsia in their previous pregnancies and 3 patients with eclampsia, while the remaining 65 apparently did not suffer from any hypertensive disorder in their previous pregnancies; these data are highly correlated with the fact that the majority of the patients are nulliparous, which was demonstrated in this study in the previous table. Of the 29 cases of pregnant adolescent patients with hypertensive disorders who were definitively treated at the Sagrado Corazón de Jesús Hospital in the city of Quevedo by termination of gestation or pregnancy considering risk/benefit and maternal-fetal well-being and the complications involved, 22 patients underwent vaginal delivery, representing most cases (76%) and the remaining 24% (7 cases) had their pregnancies terminated by caesarean section.

The clinical manifestations of hypertensive disorders are varied and involve various apparatuses or systems. For this research work, the most characteristic and frequent signs and symptoms were chosen, broken down as follows according to their frequency in the patients chosen for the research: headache with 48%, epigastralgia with 32%, oedema in the lower limbs with 10%, phosphenes with 3%, vomiting with 5% and tinnitus with the remaining 2%. Any patient who suffers from any type of hypertensive disorder during pregnancy is likely to suffer complications which increase their probabilities according to the sum of some factors such as extreme age, multiparity, personal pathological antecedents, even more so gynaeco-obstetric, whether perinatal or during childbirth and/or puerperium. Of the 29 cases that were resolved by termination of pregnancy, two cases recorded maternal complications such as uterine atony, while only one case of eclampsia and HELLP syndrome were reported as complications due to hypertensive disorders.

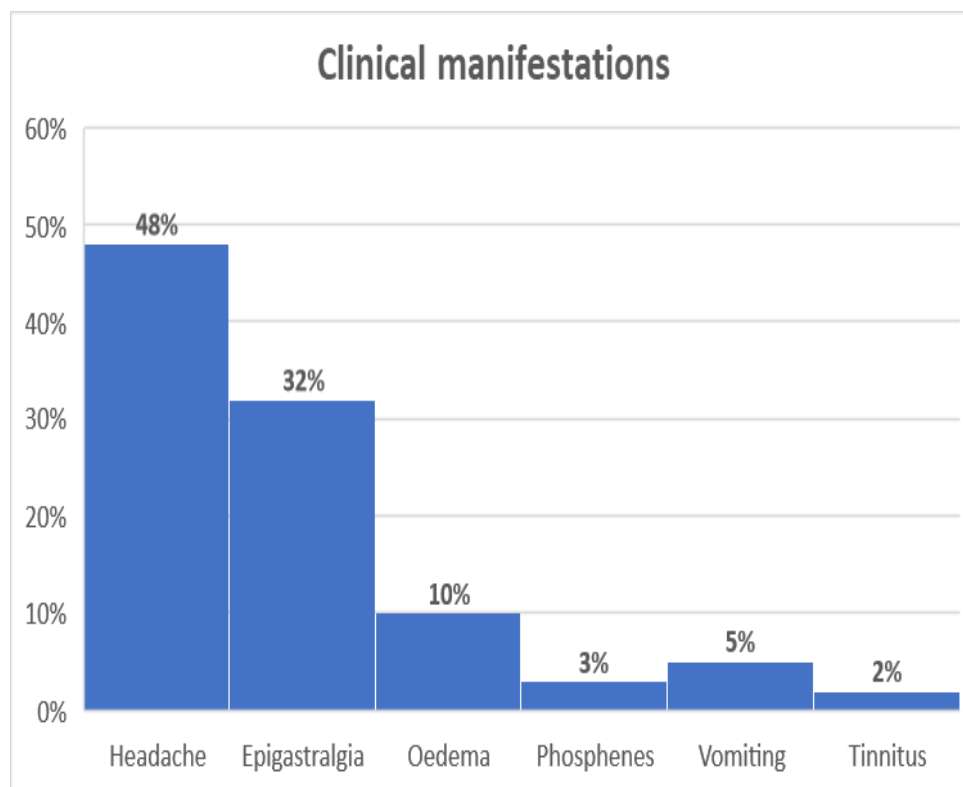


Figure 1. Frequency of clinical manifestations in adolescent patients with hypertensive disorders during pregnancy. Headache 48%, Epigastralgia 32%, oedema 10%, Phosphenes 3%, Vomiting 5%, tinnitus 2%.

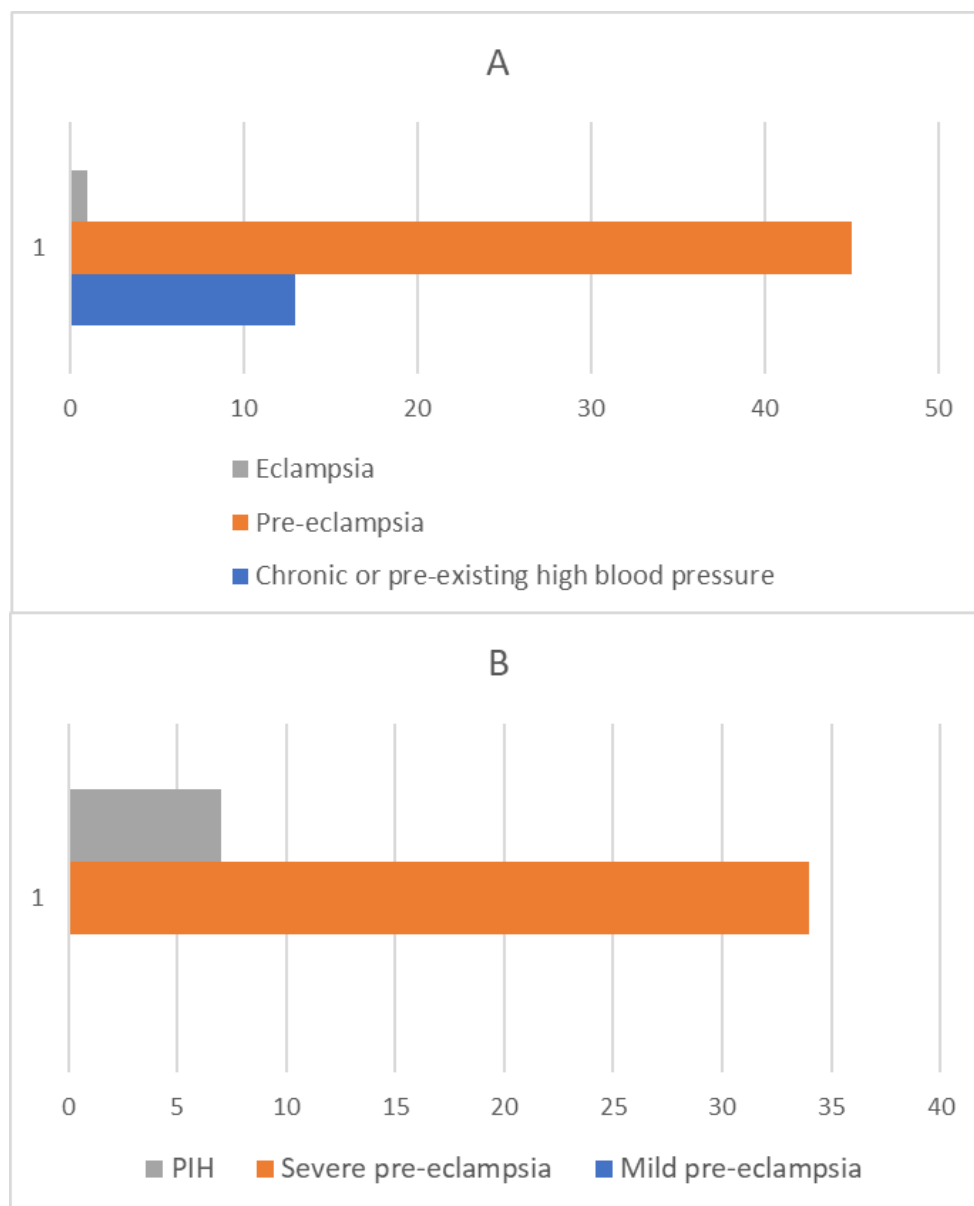


Figure 2. Classification characterisation of hypertensive disorders in pregnant patients with hypertensive disorders. Mild pre-eclampsia and severe pre-eclampsia were the most frequent with 45 and 34 cases respectively.

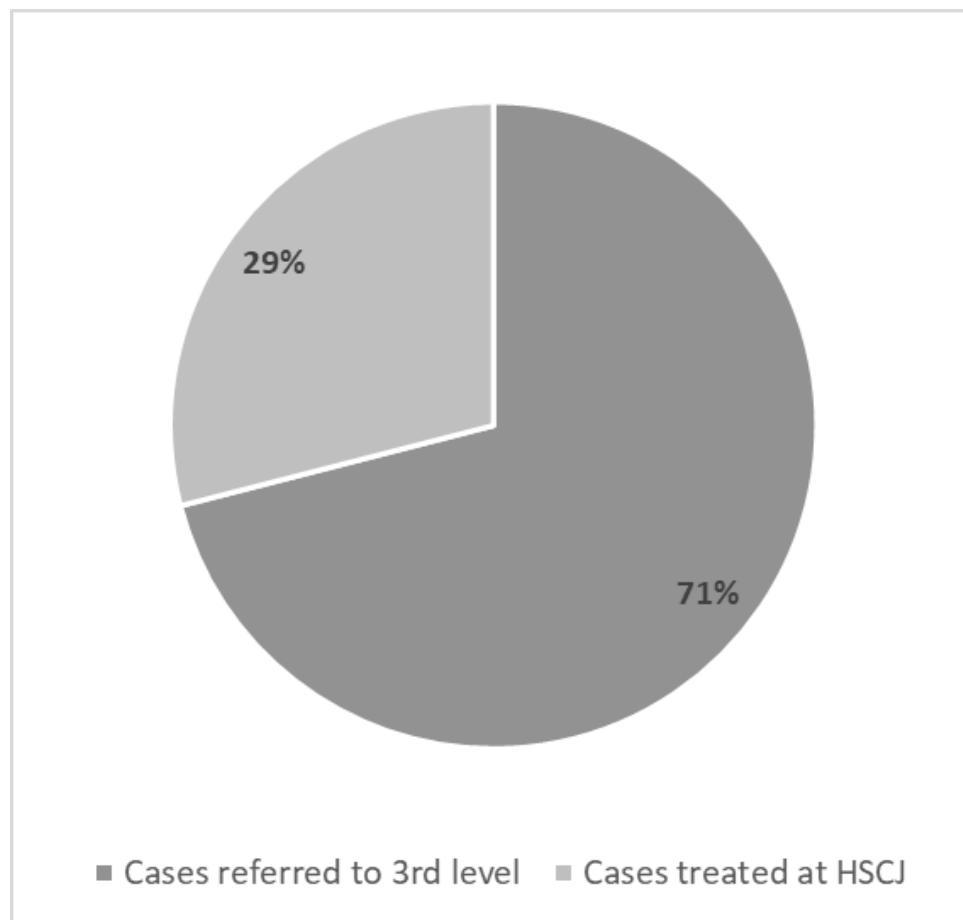


Figure 3. Case management of patients with hypertensive disorders in pregnancy.

Considering that the SHJH is a second level hospital institution, i.e. a basic hospital where it does not have the infrastructure or materials and/or instruments and professionals of different specialities such as intensivists, cardiologists, nephrologists, haematologists and therefore lacks areas such as intermediate care, ICU, NICU, etc., when we receive a patient we try to stabilise him/her, to resolve the cases within the institution according to the resources available, otherwise the patients are referred to third or fourth level health entities (general hospitals) where all the material and human resources are available to provide definitive treatment to the patient. The above is consistent with the data in table and graph 9, which shows that 71% of the cases of pregnant adolescent patients with hypertensive disorders were referred to tertiary health units and only 29% of the cases were definitively resolved at the SHJH in the city of Quevedo.

Discussion

Pregnancy-induced hypertension (PIH) is a major cause of maternal mortality and morbidity and can lead to fetal growth restriction and prematurity, as well as other

perinatal complications (1). The frequency, in some regions of the world, can be as high as 35%, which may be increased by rising rates of teenage pregnancy (3,4).

PIH complicates 5-10% of pregnancies, correlating with the maternal "lethal triad" (1). In the case of hypertension, pre-eclampsia syndrome, either alone or in addition to chronic hypertension, is the most dangerous. New hypertension without proteinuria in pregnancy, called gestational hypertension, is followed by signs and symptoms of pre-eclampsia in almost half of all pregnancies; pre-eclampsia is identified in only 3.9% of all pregnancies and may remain hidden behind chronic hypertensive pathology (2).

Within PIH there are accompanying signs and symptoms, which, together with arterial hypertension, define distinct clinical entities with different repercussions, whose diagnosis and proper management are key to a good pregnancy outcome (5).

In Latin America, a quarter of maternal deaths have been associated with complications from PIH, with pre-eclampsia and eclampsia being the main causes of maternal and perinatal morbidity and mortality; most of these deaths

are preventable through the timely and effective provision of care to pregnant women (1,6,7). Although the exact incidence of eclampsia in pregnant women in developing countries has not been determined, it is estimated to be one case per 100 to 1700 women; and one or two cases of eclampsia per 100 women with severe pre-eclampsia (6).

Developing countries continue to experience comparatively higher rates of maternal and perinatal deaths from complicated pregnancies due to hypertension as a result of low utilisation of antenatal care and obstetric care services, as well as late presentation to specialised units for emergency care (6,7). Problems with the management of hypertension in pregnancy lie not only in its unknown aetiopathogenesis, but also in the variation in definitions, measurements and classifications used to categorise hypertension in pregnant women (6). Women with pre-eclampsia who live in low-income settings are at higher risk of developing eclampsia and dying from it; in 2010, in Ecuador, it was ranked as the leading cause of maternal death (1,8).

Jack Pritchard chose the term gestational hypertension to describe any uncomplicated new onset hypertension during pregnancy when there was no evidence of pre-eclampsia, however, the use of this term caused some confusion because some specialists used the term for both gestational hypertension and pre-eclampsia, so it was decided to use the National High Blood Pressure Education Program Working Group's outline (NHBPEP) (2,9).

The NHBPEP classification of hypertensive disorders was much more didactic and

accurate for those hypertensive diseases that complicate pregnancy, and describes four types of hypertensive disease (9).

The terminology and classifications of hypertensive states in pregnancy are very numerous, so it happens that the same expression is used to designate different clinical situations. The definitions and severity criteria proposed by each organisation such as the NHBPEP, the Royal College of Obstetricians and Gynaecologists, the Spanish Society of Gynaecology and Obstetrics (SEGO), the Society of Obstetric Medicine of Australia and New Zealand (SOMANZ), the Society of Obstetricians and Gynaecologists of Canada (SOGC), the American Society of Hypertension and the UK's National Institute for Health and Clinical Excellence (NICE), sometimes confuse the researcher as to the most correct choice of diagnostic assessment. (9-13).

The most important thing in the classification of PIH is that it allows differentiation between the increase in blood pressure that exists before pregnancy and the one that is due to a disease caused by pregnancy (pre-eclampsia) (1). In chronic arterial hypertension, increased blood pressure is the key event, while in pre-eclampsia, increased blood pressure is a sign of a complex syndrome, the impact of one or the other on maternal perinatal health and its treatment is different, so it is important to distinguish between the two (5).

As mentioned above, the terminology recommended by the NHBPEP is simple, concise and practical, and is used by most clinical guidelines and care protocols, which establish four categories (Table 1) (9).

Table 2. Terminology for hypertensive disorders of pregnancy

Gestational hypertension: formerly called pregnancy-induced hypertension. If pre-eclampsia syndrome does not develop and the hypertension resolves by 12 weeks postpartum, it is called transient hypertension.

Pre-eclampsia and eclampsia syndrome.

Pre-eclampsia syndrome superimposed on chronic hypertension.

Chronic hypertension.

Source: National High Blood Pressure Education Program Working Group

Source: Farfán Cano, Theses (1)

It should be emphasised that to be included in the above-mentioned classification, the parameters set out in the following sections must be met:

- a) Hypertension (HT) is defined as a blood pressure (BP) equal

to or greater than 140 mmHg systolic (SP) or 90 mmHg diastolic (DP), determined on two separate occasions at least four hours apart, except in cases that meet the criteria

- for severe hypertension as defined below (14–16).
- HT that persists after the puerperium is considered to be chronic (14).
 - According to this classification, an elevation in SP of 30 mmHg and/or 15 mmHg in DP above the mean values prior to 20 weeks gestation is sufficient to consider hypertension to be present. However, this consensus group wishes to emphasise that it considers it preferable to start from figures equal to or higher than 140 BP or 90 DP, since due to physiological changes in SP, especially in the first half of pregnancy, this could lead us to consider a pregnant woman to be hypertensive when she is not (14).
 - We consider that oliguria <600 ml/24h should be considered as a sign of particular severity in a

pregnant woman with hypertension (14).

Some classifications include a group of "Unclassified Hypertension", which does not take into account the classification that we propose to follow; therefore, we must highlight the need to complete the study of those cases not classified, after the puerperium, in order to include them definitively in the corresponding group (17).

Gestational or transient hypertension: Is the development of HTIE or in the first 24 hours of the puerperium without other signs of pre-eclampsia or pre-existing hypertension. It is a retrospective diagnosis and if in doubt the case should be classified as pre-eclampsia (14).

Pre-eclampsia and eclampsia syndrome: Pre-eclampsia (Table 2) is the finding after the 20th week of pregnancy (except for trophoblastic disease or hydrops) of hypertension, accompanied by proteinuria, oedema or both (Table 3 specifies the types of pre-eclampsia and clinical features). Eclampsia is the occurrence of seizures in a patient with pre-eclampsia that cannot be attributed to other causes (6)

Table 2. Criteria for pre-eclampsia

Diagnosis from 20 weeks' gestation.

BP $\geq$ 140/90 mm Hg with presence of proteinuria.

By exception before 20 weeks in gestational trophoblastic disease, severe antiphospholipid syndrome or multiple pregnancy.

Source: Farfán Cano, Theses (1).

Table 3. Types of Pre-eclampsia

Mild pre-eclampsia	Blood pressure $\geq$ 140/90 mm Hg, on two occasions separated by at least four hours, with proteinuria $\geq$ 300 mg/24 hours sin criterios de gravedad
Severe pre-eclampsia	Blood pressure $\geq$ 160/110 mm Hg, with positive proteinuria and associated with one or more of the following clinical or laboratory events (indicative of endothelial target organ damage) Proteinuria >5g/24 h Liver disturbances (increased transaminases, persistent epigastralgia, nausea/vomiting, upper quadrant abdominal pain). nausea/vomiting, upper quadrant abdominal pain) Haematological alterations (Thrombocytopenia <100,000/mm³, Haemolysis, Disseminated Intravascular Coagulopathy) Renal function disturbances (serum creatinine >0.9 mg/dL, Oliguria <50 mL/hour) Neurological disturbances (tendon hyperreflexia, persistent headache, hyperexcitability, psychomotor psychomotor, sensorimotor disturbance - confusion) Visual disturbances (blurred vision, scintillating scotomas, diplopia, photophobia) Intrauterine growth restriction Oligohydramnios Placental abruption Cyanosis - Acute Lung Edema (not attributable to other causes)

Source: Farfán Cano, Tesis. (1)

Eclampsia is considered to be the development of generalised tonic-clonic convulsions and/or unexplained coma in the second half of pregnancy, during labour or puerperium, not attributable to other pathologies.

Chronic hypertension with superimposed pre-eclampsia

All chronic hypertensive disorders, whatever their cause, predispose to superimposed pre-eclampsia and eclampsia. Chronic underlying hypertension should be diagnosed based on the patient's findings and history. These disorders can create difficult problems with diagnosis and treatment that are not seen until after mid-pregnancy. This may be because blood pressure typically decreases during the second trimester and early third trimester in normotensive and chronically hypertensive patients. Thus, a woman with previously undiagnosed chronic vascular disease, who is first seen at 20 weeks, often has blood pressure within the accepted normal range.

However, during the third trimester, as blood pressure returns to its original hypertensive range, it may be difficult to define whether the hypertension is chronic or pregnancy-induced. Even a careful search for signs of pre-existing end-organ damage may be futile, as many of these women have mild disease. Therefore, there is likely to be no evidence of ventricular hypertrophy, chronic retinal vascular changes or mild renal dysfunction (2).

In some women with chronic hypertension, blood pressure rises to frankly abnormal levels, usually after 24 weeks. If this is accompanied by proteinuria, superimposed pre-eclampsia is diagnosed. The latter can often develop earlier in pregnancy than "pure" pre-eclampsia. Superimposed disease tends to be more severe and is often accompanied by fetal growth restriction, the criteria are set out in table 4 (2).

Table 4. Criteria for the characterisation of superimposed pre-eclampsia

ANORMALITY	MILD	SERIOUS
Diastolic BP	< 110 mmHg	> 110 mmHg
Systolic BP	<160 mmHg	> 160 mmHg
Proteinuria	<2+	>3+
Headache	Absent	Present
Visual Disorders	Absent	Present
Upper Abdominal Pain	Absent	Present
Oliguria	Absent	Present
Seizures	Absent	Present
Serum Creatinine	Normal	High
Thrombocytopenia	Absent	Present
Increased serum transaminase	Minimum	Marked
Foetal growth restriction	Absent	Evidente
Pulmonary oedema	Absent	Presente

Source: Farfán Cano, Thesis (1).

Diagnosis of hypertensive disorder of pregnancy

Blood pressure should be assessed in the following way:

a) The pregnant woman is seated and the arm resting on a table at the level of the heart, having remained in this position for at least 5 minutes before the measurement. It could also be done in a slight left lateral decubitus position, as the important thing is that it is always done in the same position and with the same arm (18).

b) The cuff, which will have an air pocket of about 12-15 cm wide, encircling at least 80% of the arm circumference, should fit snugly on the arm at the level of the heart (18).

c) The air bag shall be rapidly inflated and emptied at a rate of 2-3 mmHg per second. The mean of two readings shall be taken as the final pressure (18).

d) Although it has been proposed to assess diastolic pressure in Korotkow phase IV, it is more practical to assess diastolic pressure in phase V, i.e. when the heartbeat sounds disappear, and

only use phase IV when V is detected at zero (18).

e) Proteinuria is defined as 300 mg or more of protein in 24-hour urine or 30 mg/dl in an isolated sample. If test strips are used, and although in theory, this concentration corresponds to 1+, it is generally agreed that a level of 2+ in two separate urine samples is diagnostic of proteinuria (18).

Qualitative and quantitative proteinuria determination

For the diagnosis of hypertensive disorder of pregnancy accompanied by proteinuria, a strip proteinuria or 24-hour proteinuria determination should be performed (6).

Clinical-surgical management of hypertensive disorder of pregnancy

Treatment of hypertensive disorder of pregnancy: Knowing that the aetiopathogenesis of gestational hypertensive disorders is still unclear, the indicated therapy is to choose the right time and place for termination of pregnancy. Obstetric management of pre-eclampsia alone is fundamentally based on the balance between feto-neonatal and maternal health (6).

Hospital admission criteria: Latin American clinical practice guidelines recommend hospitalisation for pregnant women with any hypertensive disorder of pregnancy with risk of complications such as severe pre-eclampsia, since the presence of proteinuria greater than 300 mg/24 h implies advanced disease and the onset of an unstable phase in which the health of the foetus and the mother can deteriorate unpredictably (6).

Conservative Treatment: Exclusive conservative management of preterm pregnancies <35 gestational weeks has been shown to improve perinatal outcomes, but strict and careful monitoring of the maternal-fetal status must be performed. The first treatment option is the use of glucocorticoids for fetal maturation between 24 and 34.6 gestational weeks (less than 35 weeks), as well as the use of Mg sulphate in prophylactic doses for 24 h in cases of severe pre-eclampsia. It allows stabilisation of the patient and prevents the onset of neurological symptoms and seizures, which occur in the transition to eclampsia, in a timely manner. Thiazide drugs are not recommended in the treatment of pre-eclampsia and eclampsia and their complications. However, other drugs are available such as nifedipine, a calcium channel blocker, which is very safe to use in pregnancy

and lactation, and slow-release oral preparations are recommended; it should not be administered sublingually to avoid the risk of sudden hypotension. Alpha-methyl-dopa, a centrally acting alpha-adrenergic agonist that decreases peripheral resistance of blood vessels, is the first choice for most scientific societies because of its well-documented safety after the first trimester and for the duration of lactation. Antenatal corticosteroids may be considered for women who are less than 34 weeks gestation with hypertension (with or without proteinuria or signs of severity) if delivery is contemplated within the next seven days. The first choice is betamethasone (1 ampoule 12 mg, 6 mg phosphate + 6 mg acetate) intramuscularly gluteal (IM) every 24 hours, for a total of two doses (6).

Treatment in hypertensive emergency: The aim of treating acute severe hypertension is to prevent potential cerebrovascular and cardiovascular complications such as encephalopathy, cerebral haemorrhage and congestive heart failure. The most widely used antihypertensive drug is Labetalol, an alpha- and beta-blocker used in the treatment of arterial hypertension, recommended in women with diastolic blood pressure equal to or greater than 105-110 mm Hg and with large studies approving its effectiveness (Duley L, 2007); however, it is not available in Ecuador. Nevertheless, Nifedipine for this purpose is effective, safe, convenient and widely available. Clinical practice guidelines recommend action with these drugs when diastolic BP is >110mmHg, the first drug to act is Nifedipine (10 and 20 mg comp., slow release, 10 mg orally every 20 or 30 minutes according to response. Maximum dose of 60 mg) administered with the patient conscious and contraindicated in patients >45 years of age, or with diabetes >10 years of evolution. Side effects include maternal effects such as headache and hot flushes, as well as important foetal effects such as the production of foetal tachycardia (6).

Hydralazine (1ml amp = 20 mg) is a potent vasodilator indicated in moderate to severe hypertension, its smooth muscle relaxant effect is beneficial in persistent hypertension after administration of Nifedipine, 5 mg IV is the initial dose (if diastolic BP persists >110, continue with 5-10 mg IV every 15-20 minutes) and its maximum dose is 40 mg. Hydralazine was related to significant maternal-fetal tachycardia effects and was associated with a higher incidence of placental abruption in patients medicated with it, so it is advisable to maintain imaging controls of

patients after 24 hours of administration (6,7,19,20).

Conclusions

Worldwide, hypertensive disorders are one of the most common complications of pregnancy and are responsible for a significant proportion of both maternal and perinatal morbidity and mortality, especially in resource-poor settings. The WHO has shown that hypertensive disorders are one of the leading causes of maternal death in developing countries, especially in Africa, Latin America and the Caribbean. Developing countries continue to have comparatively higher rates of maternal and perinatal deaths from complicated pregnancies due to hypertension.

Pre-eclampsia is one of the main causes of maternal and perinatal morbidity and mortality worldwide; in 2010, in Ecuador, it was ranked as the leading cause of maternal death. Gestational hypertensive syndromes are defined as systolic blood pressure greater than 140 mmHg or diastolic blood pressure greater than 90 mmHg in pregnancies older than 20 weeks in previously normotensive women or women with previous hypertension that may or may not be accompanied by proteinuria in 24 hours of less than or greater than 300mg, negative or positive test strip +++.

The present study was carried out using the institution's anonymised database, compiled from the clinical records of patients who presented clinical signs and symptoms of hypertension seen in the emergency and gynaecological hospitalisation areas of the Hospital Sagrado Corazón De Jesús from March to August 2016. The age group of 17 years was found to be the predominant one in suffering from PIH, corresponding to 41% of the cases.

Of the age group 13-17 years, 29% of the cases seen in the emergency and inpatient areas were able to receive emergency care within the hospital areas and 71% had timely referral and care within tertiary hospital units.

In addition, it is concluded that 92% of the cases screened were diagnosed as pre-eclampsia in its different variants, 7% of the cases were admitted as gestational hypertension and only 1% of the cases attended were registered as eclampsia.

Among the clinical manifestations, pregnant adolescent patients diagnosed with a hypertensive disorder reported that the most frequent signs were headache (48%) and epigastralgia (32%). Most of the patients were nulliparous or primigravid, accounting for

63%, and the trimester of pregnancy in which most cases of hypertensive disorders were reported was the third trimester, with 81 cases.

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