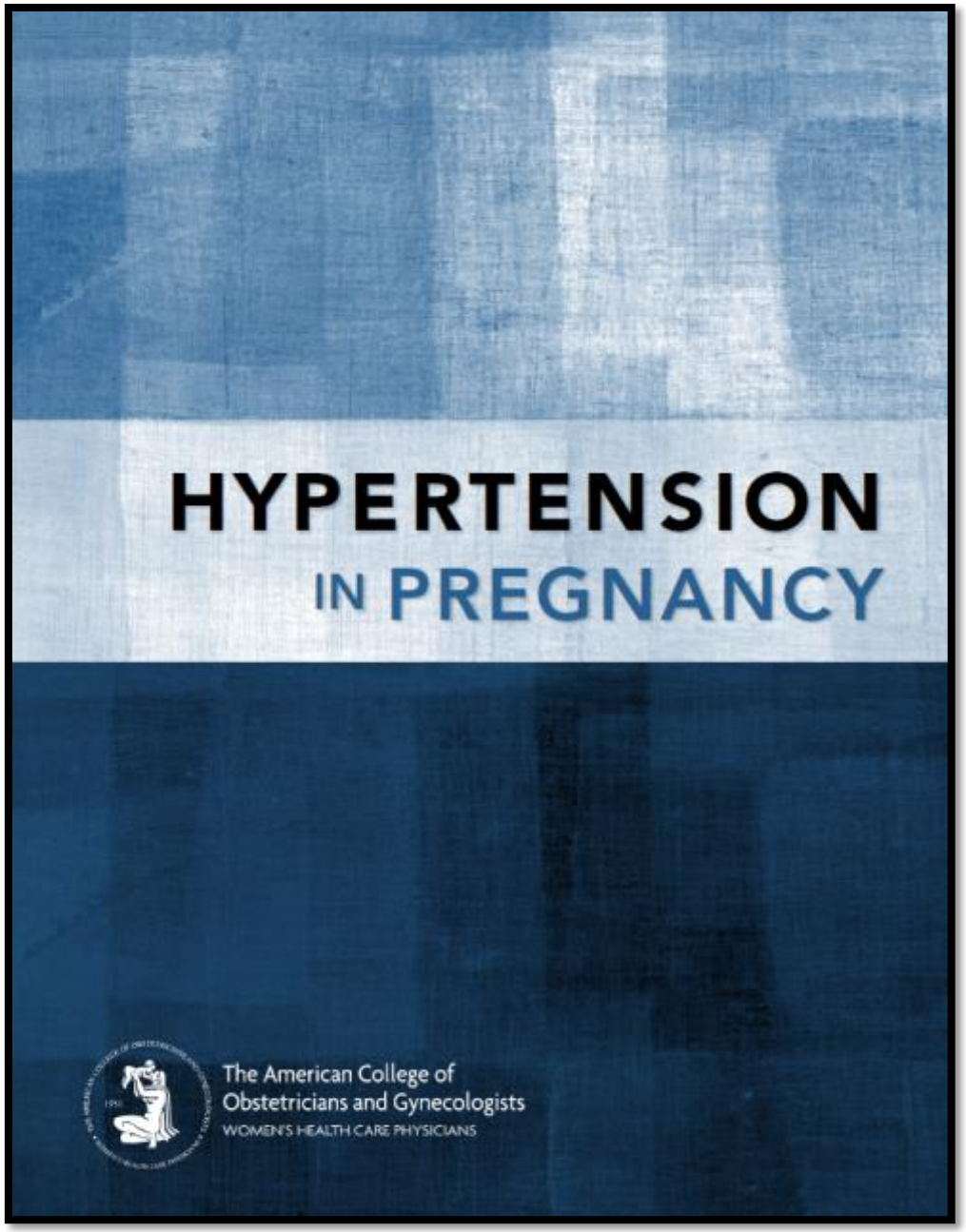
TRASTORNOS HIPERTENSIVOS DEL EMBARAZO

La mortalidad materna en América Latina y el Caribe está liderada por los trastornos hipertensivos del embarazo. En este continente, de cada cuatro muertes maternas una es originada por esta patología. Las muertes maternas han disminuido en algunos países de nuestra región, sin embargo es poco o nada el cambio con respecto a las causas de muertes y si bien es cierto que en algunos países u hospitales los trastornos hipertensivos del embarazo no son la primera causa de muerte, sin embargo lo son en la mayoría de nuestras instituciones de salud y lo son al sumar todos los casos en América Latina.

Trastornos hipertensivos

- Complica el 12 % de embarazos
- Responsable del 18% de muerte materna

La mayoría de las muertes asociadas a trastornos hipertensivos en la embarazada pueden evitarse con un diagnóstico oportuno y adecuado y un manejo efectivo basado en las evidencias[3]. Por lo tanto, debemos enfatizar la forma correcta y oportuna de hacer el diagnóstico para dar un manejo óptimo.


HYPERTENSION
IN PREGNANCY
The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Clasificacion

- PRECLAMPSIA
- Presion sistolica de 140 mm Hg o Diastolica de 90 mm arriba de las 20 semanas en una mujer previamente normotensa
- Proteinuria 300 mg en orina de 24 horas o síntomas o parámetros de laboratorio

- HIPERTENSION GESTACIONAL
- Presion sistolica de 140 mm Hg o Diastolica de 90 mm arriba de las 20 semanas en una mujer previamente normotensa sin proteinuria o síntomas o parámetros de laboratorio

- HIPERTENSION CRONICA
- Presion sistolica de 140 mm Hg o Diastolica de 90 mm documentada antes de las 20 semanas de gestacion

- PRECLAMPSIA SOBREAGREGADA A HIPERTENSION CRONICA
- Aparecimiento o incremento de proteinuria
- Exacerbacion subita de la hipertension u otros signos de compromiso multisistemico tales como trombocitopenia o elevacion de transaminasas en una mujer ya conocida por hipertension

Hipertensión Gestacional

- Más frecuente : 6-18% en nulíparas y 6-8% en multíparas
- Riesgo de progresión a preeclampsia o eclampsia (50%)
- No restringir sal o actividad física
- No requieren antihipertensivos o profilaxis contra eclampsia
- TA elevadas peor pronostico que PEL

Preeclampsia

- Trastorno hipertensivo del embarazo caracterizado por TA mayor de 140/ 90.
- Proteinuria
- Signos y síntomas asociados
- Parámetros de laboratorio

TABLE E-1. Diagnostic Criteria for Preeclampsia ⇦

Blood pressure	• Greater than or equal to 140 mm Hg systolic or greater than or equal to 90 mm Hg diastolic on two occasions at least 4 hours apart after 20 weeks of gestation in a woman with a previously normal blood pressure • Greater than or equal to 160 mm Hg systolic or greater than or equal to 110 mm Hg diastolic, hypertension can be confirmed within a short interval (minutes) to facilitate timely antihypertensive therapy
and	
Proteinuria	• Greater than or equal to 300 mg per 24-hour urine collection (or this amount extrapolated from a timed collection) or • Protein/creatinine ratio greater than or equal to 0.3* • Dipstick reading of 1+ (used only if other quantitative methods not available)
Or in the absence of proteinuria, new-onset hypertension with the new onset of any of the following:	
Thrombocytopenia	• Platelet count less than 100,000/microliter
Renal insufficiency	• Serum creatinine concentrations greater than 1.1 mg/dL or a doubling of the serum creatinine concentration in the absence of other renal disease
Impaired liver function	• Elevated blood concentrations of liver transaminases to twice normal concentration
Pulmonary edema	
Cerebral or visual symptoms	

* Each measured as mg/dL.

BOX E-1. Severe Features of Preeclampsia (Any of these findings) ⇦

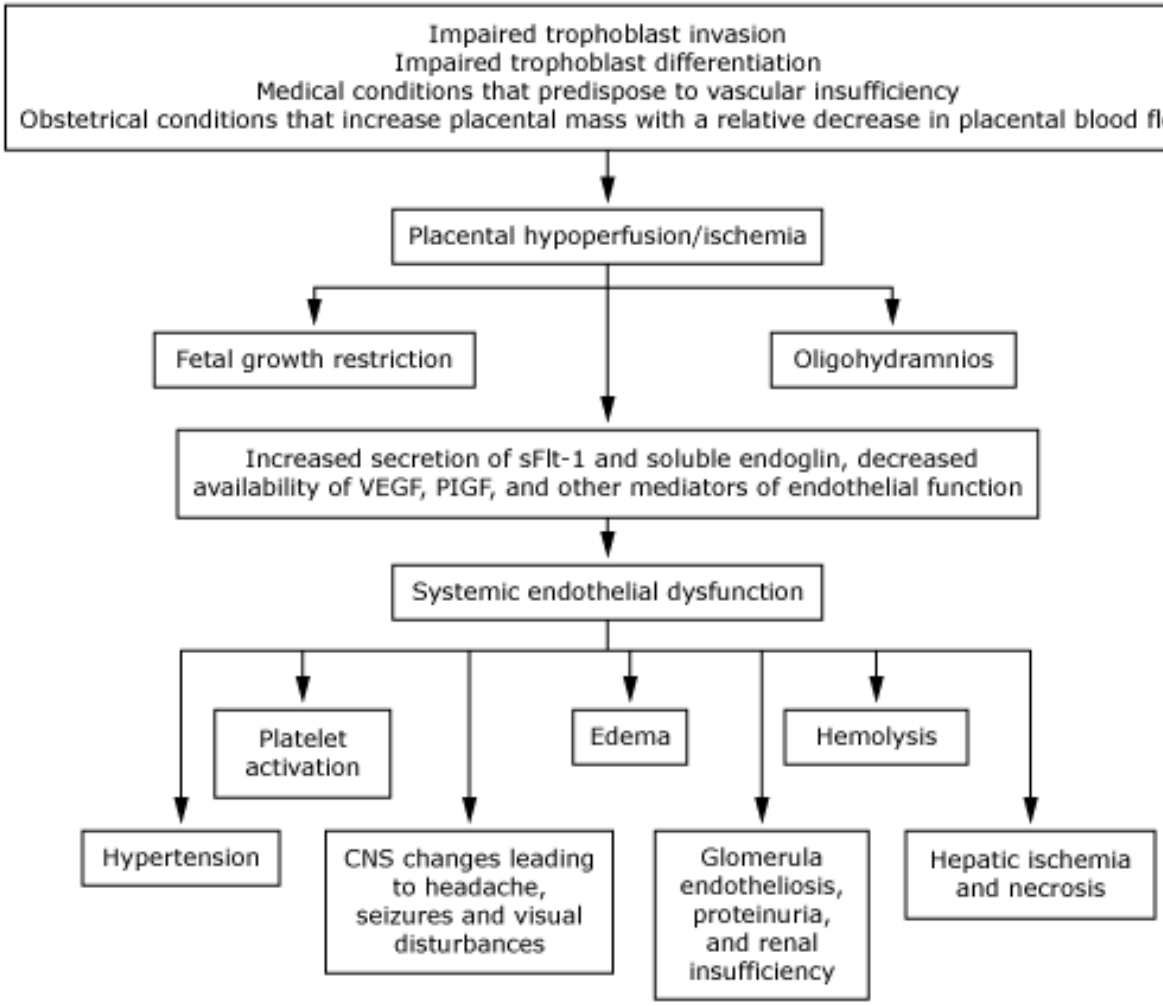
- Systolic blood pressure of 160 mm Hg or higher, or diastolic blood pressure of 110 mm Hg or higher on two occasions at least 4 hours apart while the patient is on bed rest (unless antihypertensive therapy is initiated before this time)
- Thrombocytopenia (platelet count less than 100,000/microliter)
- Impaired liver function as indicated by abnormally elevated blood concentrations of liver enzymes (to twice normal concentration), severe persistent right upper quadrant or epigastric pain unresponsive to medication and not accounted for by alternative diagnoses, or both
- Progressive renal insufficiency (serum creatinine concentration greater than 1.1 mg/dL or a doubling of the serum creatinine concentration in the absence of other renal disease)
- Pulmonary edema
- New-onset cerebral or visual disturbances

Factors associated with an increased risk of developing preeclampsia

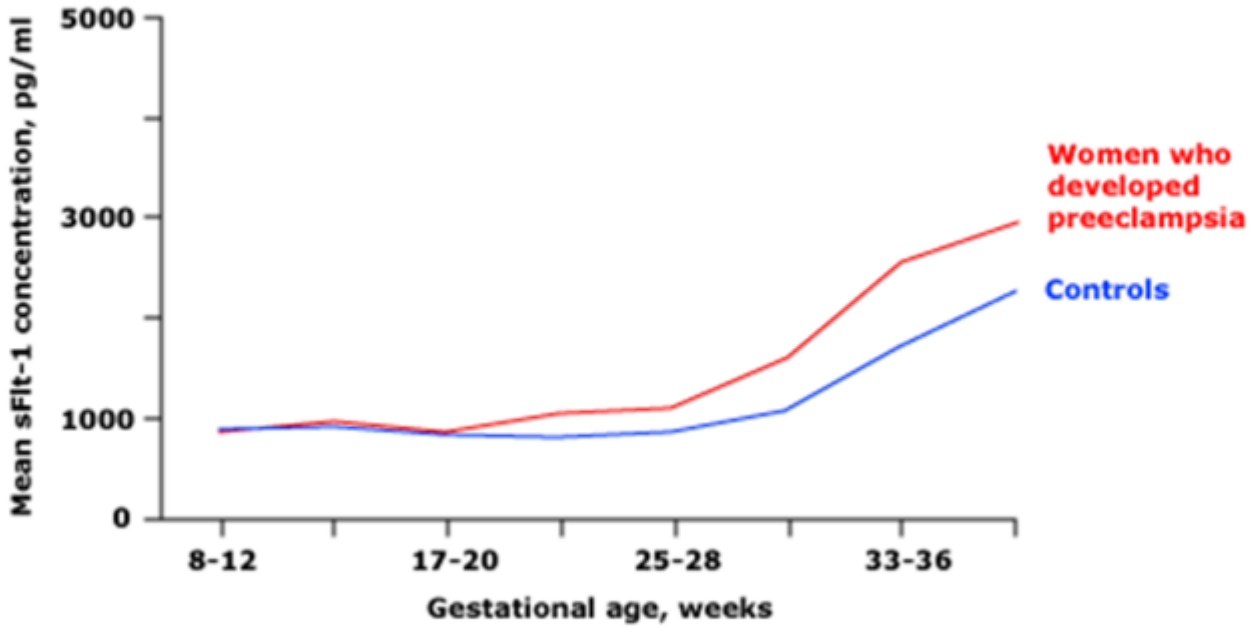
Nulliparity
Preeclampsia in a previous pregnancy
Age >40 years or <18 years
Family history of preeclampsia
Chronic hypertension
Chronic renal disease
Antiphospholipid antibody syndrome or inherited thrombophilia
Vascular or connective tissue disease
Diabetes mellitus (pregestational and gestational)
Multifetal gestation
High body mass index
Black race
Male partner whose mother or previous partner had preeclampsia
Hydrops fetalis
Unexplained fetal growth restriction
Woman herself was small for gestational age
Fetal growth restriction, abruptio placentae, or fetal demise in a previous pregnancy
Prolonged interpregnancy interval
Partner related factors (new partner, limted sperm exposure [eg, previous use of barrier contraception])
Hydatidiform mole
Susceptibility genes

By comparison, smoking decreases the risk of preeclampsia

Model for pathogenesis of preeclampsia

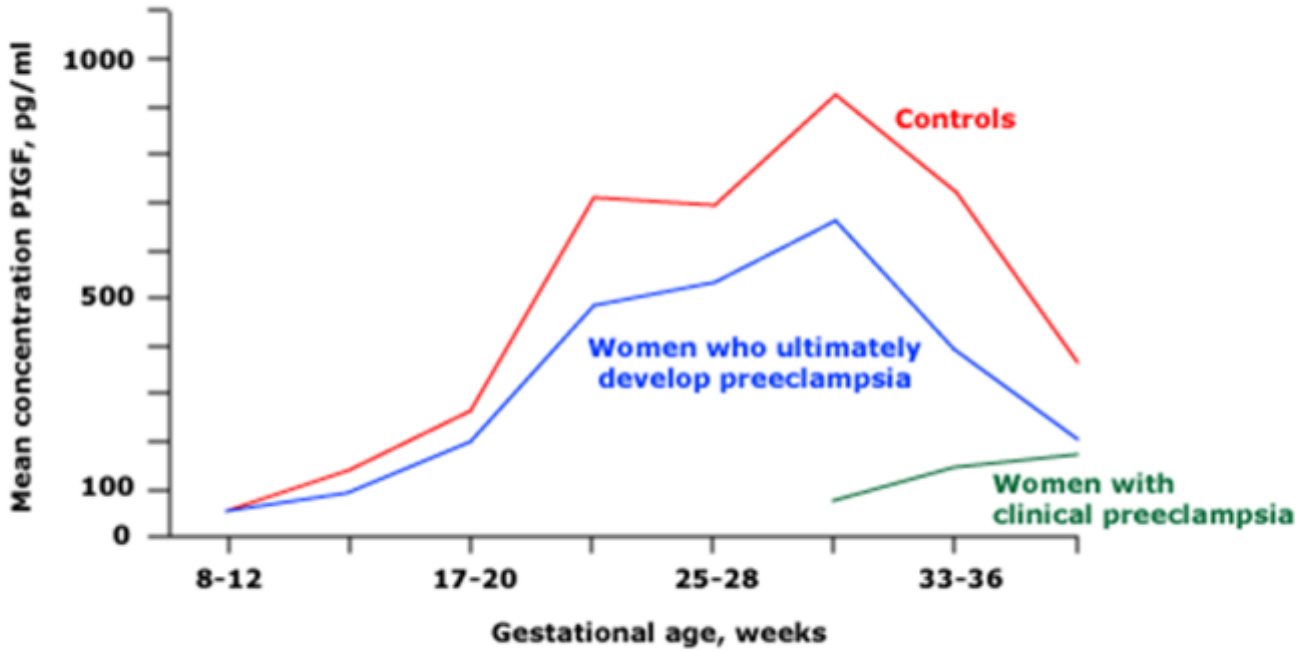


Concentration of sFlt-1 in women who developed preeclampsia and normal controls



Modified from: Levine, RJ, Maynard, SE, Qian, C, et al. N Engl J Med 2004; 350:672.

Concentration of PIGF in various groups



Modified from: Levine, RJ, Maynard, SE, Qian, C, et al. N Engl J Med 2004; 350:672.

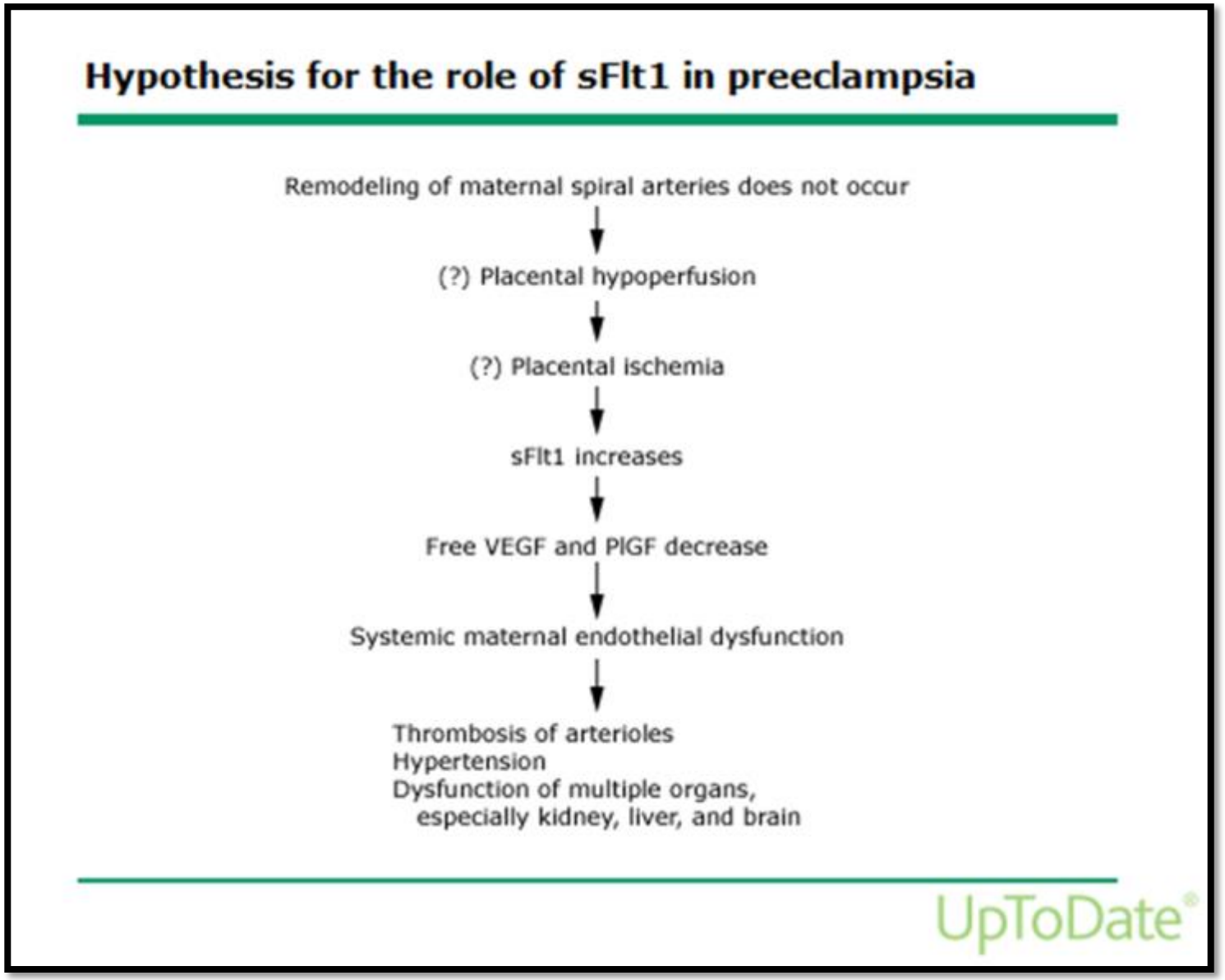
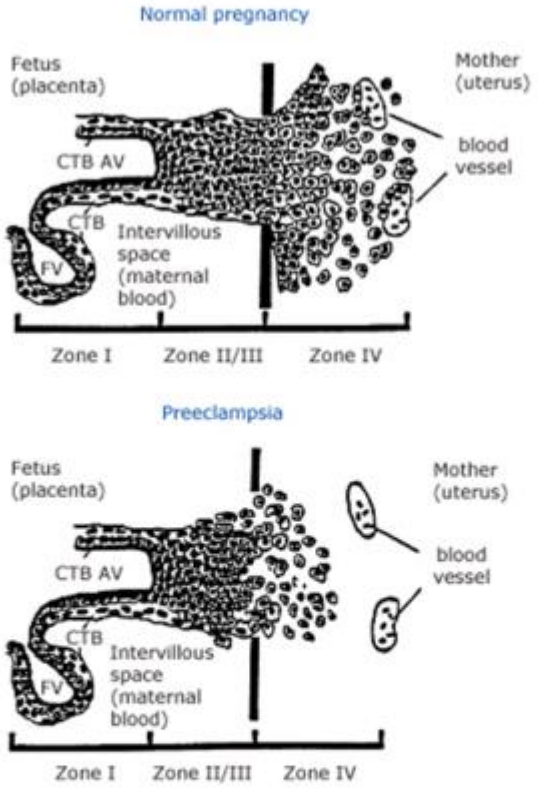

Hypothesis for the role of sFlt1 in preeclampsia
Remodeling of maternal spiral arteries does not occur
(?) Placental hypoperfusion
(?) Placental ischemia
sFlt1 increases
Free VEGF and PlGF decrease
Systemic maternal endothelial dysfunction
Thrombosis of arterioles
Hypertension
Dysfunction of multiple organs,
especially kidney, liver, and brain
UpToDate

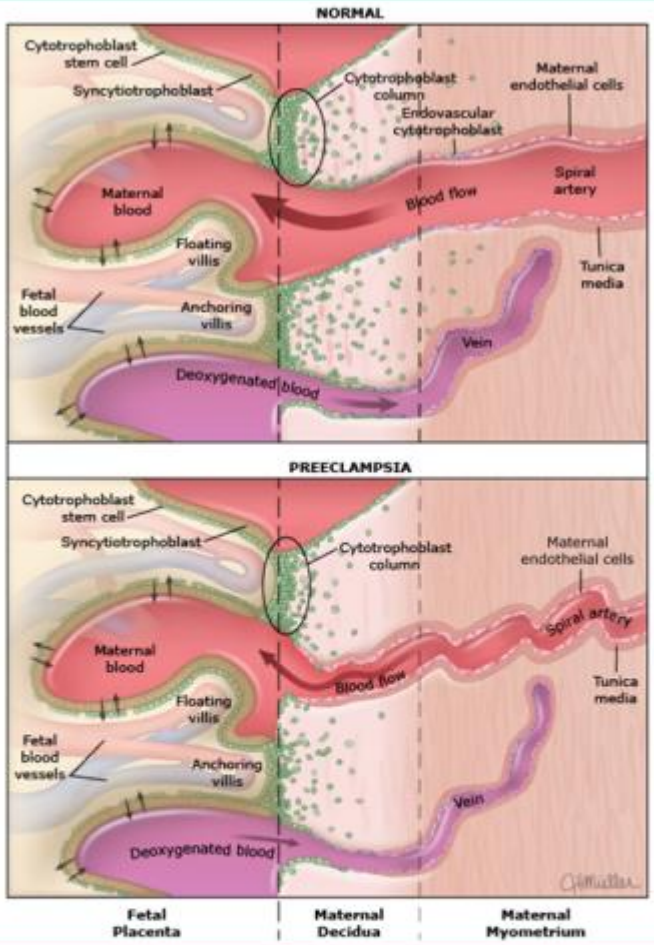
Diagram of anchoring villi (AV) at the maternal-fetal interface in normal and preeclamptic pregnancy



The floating villi (FV) are in the intervillous space in direct contact with with the maternal blood. In normal pregnancy, invasive cytotrophoblasts (CTB) form cell columns (zone II/III) and invade maternal decidua and vasculature (zone IV). During the differentiation along the invasive path, the cytotrophoblasts dramatically alter their expression of various molecules, such as integrins. In preeclampsia, the invasive cytotrophoblasts fail to differentiate along the invasive pathway and do not gain access to spiral arteries.

Courtesy of Kee-Hak Lim, MD.

Abnormal placentation in preeclampsia



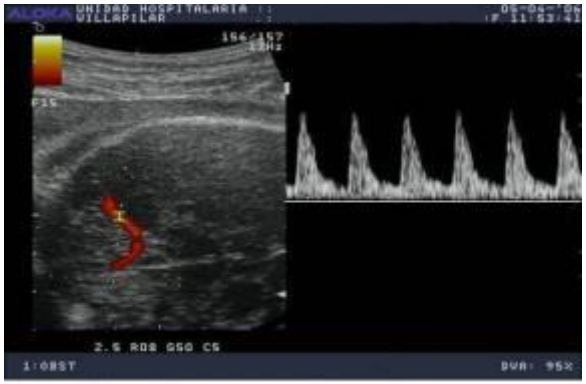
Exchange of oxygen, nutrients, and waste products between the fetus and mother depends on adequate placental perfusion by maternal vessels. In normal placental development, invasive cytotrophoblasts of fetal origin invade the maternal spiral arteries, transforming them from small-caliber resistance vessels to high-caliber capacitance vessels capable of providing placental perfusion adequate to sustain the growing fetus. During the process of vascular invasion, the cytotrophoblasts differentiate from an epithelial phenotype to an endothelial phenotype, a process referred to as "pseudovasculogenesis" or "vascular mimicry" (Upper panel). In preeclampsia, cytotrophoblasts fail to adopt an invasive endothelial phenotype. Instead, invasion of the spiral arteries is shallow and they remain small caliber, resistance vessels (Lower panel).

Otros

- Factores inmunológicos: antígenos HLA I
- Sensibilidad incrementada a la angiotensina II
- Factores genéticos
- Inflamación/infección: respuesta exagerada

Predictores

- Hipocalciuria
- Notch
- Fibronectina celular



Prediction of Preeclampsia

A great deal of effort has been directed at the identification of demographic factors, biochemical analytes, or biophysical findings, alone or in combination, to predict early in pregnancy the later development of preeclampsia. Although there are some encouraging findings, these tests are not yet ready for clinical use.

TASK FORCE RECOMMENDATION

- Screening to predict preeclampsia beyond obtaining an appropriate medical history to evaluate for risk factors is not recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

Prevención

TASK FORCE RECOMMENDATIONS

- For women with a medical history of early-onset preeclampsia and preterm delivery at less than 34 0/7 weeks of gestation or preeclampsia in more than one prior pregnancy, initiating the administration of daily low-dose (60–80 mg) aspirin beginning in the late first trimester is suggested.*

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

*Meta-analysis of more than 30,000 women in randomized trials of aspirin to prevent preeclampsia indicates a small reduction in the incidence and morbidity of preeclampsia and reveals no evidence of acute risk, although long-term fetal effects cannot be excluded. The number of women to treat to have a therapeutic effect is determined by prevalence. In view of maternal safety, a discussion of the use of aspirin in light of individual risk is justified.

Prevención

- The administration of vitamin C or vitamin E to prevent preeclampsia is not recommended.

  Quality of evidence: High
  Strength of recommendation: Strong

- It is suggested that dietary salt not be restricted during pregnancy for the prevention of preeclampsia.

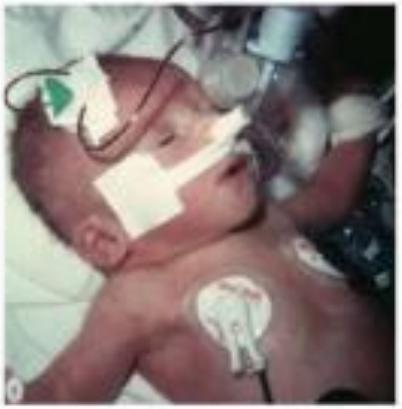
  Quality of evidence: Low
  Strength of recommendation: Qualified

- It is suggested that bed rest or the restriction of other physical activity not be used for the primary prevention of preeclampsia and its complications.

  Quality of evidence: Low
  Strength of recommendation: Qualified

SUPLEMENTO DE CALCIO Y ASPIRINA PARA PREVENCIÓN DE PRE-ECLAMPSIA

A toda embarazada con factores de alto riesgo de Preeclampsia como son:



-Hipertensión arterial crónica
-Diabetes pregestacional
-Síndrome antifosfolípido
-Enfermedad renal crónica
-Edad menor de 18 o mayor de 35 años
- IMC mayor de 30
Embarazo múltiple
-Antecedente de preeclampsia grave previa o sus complicaciones

Indique:

- Ácido acetilsalicílico, 100 mg cada día vía oral desde la semana 12 a la 36 de gestación

- Carbonato de Calcio, 600 mg, dos tabletas cada día vía oral desde antes de la semana 20 al término de la gestación

Manejo

TASK FORCE RECOMMENDATIONS

- The close monitoring of women with gestational hypertension or preeclampsia without severe features, with serial assessment of maternal symptoms and fetal movement (daily by the woman), serial measurements of BP (twice weekly), and assessment of platelet counts and liver enzymes (weekly) is suggested.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

- For women with gestational hypertension, monitoring BP at least once weekly with proteinuria assessment in the office and with an additional weekly measurement of BP at home or in the office is suggested.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

Manejo

- For women with mild gestational hypertension or preeclampsia with a persistent BP of less than 160 mm Hg systolic or 110 mm Hg diastolic, it is suggested that antihypertensive medications not be administered.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

- For women with gestational hypertension or preeclampsia without severe features, it is suggested that strict bed rest not be prescribed.*†

  Quality of evidence: Low
  Strength of recommendation: Qualified

* The task force acknowledged that there may be situations in which different levels of rest, either at home or in the hospital, may be indicated for individual women. The previous recommendations do not cover advice regarding overall physical activity and manual or office work.

† Women may need to be hospitalized for reasons other than bed rest, such as for maternal and fetal surveillance. The task force agreed that hospitalization for maternal and fetal surveillance is resource intensive and should be considered as a priority for research and future recommendations.

Manejo

- If evidence of fetal growth restriction is found in women with preeclampsia, fetoplacental assessment that includes umbilical artery Doppler velocimetry as an adjunct antenatal test is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with mild gestational hypertension or preeclampsia without severe features and no indication for delivery at less than 37 0/7 weeks of gestation, expectant management with maternal and fetal monitoring is suggested.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For women with mild gestational hypertension or preeclampsia without severe features at or beyond 37 0/7 weeks of gestation, delivery rather than continued observation is suggested.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

Manejo

- For women with severe preeclampsia at or beyond 34 0/7 weeks of gestation, and in those with unstable maternal or fetal conditions irrespective of gestational age, delivery soon after maternal stabilization is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with severe preeclampsia at less than 34 0/7 weeks of gestation with stable maternal and fetal conditions, it is recommended that continued pregnancy be undertaken only at facilities with adequate maternal and neonatal intensive care resources.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with severe preeclampsia receiving expectant management at 34 0/7 weeks or less of gestation, the administration of corticosteroids for fetal lung maturity benefit is recommended.

  Quality of evidence: High

Manejo

- For women with preeclampsia with severe hypertension during pregnancy (sustained systolic BP of at least 160 mm Hg or diastolic BP of at least 110 mm Hg), the use of antihypertensive therapy is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with preeclampsia, it is suggested that a delivery decision should not be based on the amount of proteinuria or change in the amount of proteinuria.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with severe preeclampsia and before fetal viability, delivery after maternal stabilization is recommended. Expectant management is not recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

Manejo

- It is suggested that corticosteroids be administered and delivery deferred for 48 hours if maternal and fetal conditions remain stable for women with severe preeclampsia and a viable fetus at 33 6/7 weeks or less of gestation with any of the following:
  - preterm premature rupture of membranes
  - labor
  - low platelet count (less than 100,000/microliter)
  - persistently abnormal hepatic enzyme concentrations (twice or more the upper normal values)
  - fetal growth restriction (less than the fifth percentile)
  - severe oligohydramnios (amniotic fluid index less than 5 cm)
  - reversed end-diastolic flow on umbilical artery Doppler studies
  - new-onset renal dysfunction or increasing renal dysfunction

Quality of evidence: Moderate
Strength of recommendation: Qualified

Manejo

- It is recommended that corticosteroids be given if the fetus is viable and at 33 6/7 weeks or less of gestation, but that delivery not be delayed after initial maternal stabilization regardless of gestational age for women with severe preeclampsia that is complicated further with any of the following:
  - uncontrollable severe hypertension
  - eclampsia
  - pulmonary edema
  - abruptio placentae
  - disseminated intravascular coagulation
  - evidence of nonreassuring fetal status
  - intrapartum fetal demise

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with preeclampsia, it is suggested that the mode of delivery need not be cesarean delivery. The mode of delivery should be determined by fetal gestational age, fetal presentation, cervical status, and maternal and fetal conditions.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

Manejo

- For women with eclampsia, the administration of parenteral magnesium sulfate is recommended.

  Quality of evidence: High
  Strength of recommendation: Strong

- For women with severe preeclampsia, the administration of intrapartum–postpartum magnesium sulfate to prevent eclampsia is recommended.

  Quality of evidence: High
  Strength of recommendation: Strong

- For women with preeclampsia undergoing cesarean delivery, the continued intraoperative administration of parenteral magnesium sulfate to prevent eclampsia is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with HELLP syndrome and before the gestational age of fetal viability, it is recommended that delivery be undertaken shortly after initial maternal stabilization.

  Quality of evidence: High
  Strength of recommendation: Strong

PROTOCOLO DE SULFATO DE MAGNESIO

REGIMEN DE PRITCHAF	REGIMEN DE ZUSPAN	REGIMEN DE SIBAI
Dosis inicial: 4 gr al 20% EV lento (15-20 min.) Forma de preparar la dilución al 20%: • Diluir 8 cc de sulfato de magnesio al 50% en 12 cc de agua destilada. • Luego cumplir dosis IM de 5 gr (50%) en cada glúteo. • Control en 4 horas y cumplir solamente 5 grs. IM profundo en glúteos alternos a intervalos de 4 horas. • El sulfato de magnesio debe cumplirse en esta frecuencia hasta 24 horas post-parto.	Régimen EV. Dosis de carga: 4 gr diluidos en 100 ml de Dextrosa al 5% EV lento (15 - 20 min.) Dosis de Mantenimiento: • 1 - 2 gr EV / hora preferentemente con Bomba de Infusión. • Realizar control clínico de los niveles sèricos de sulfato de Magnesio c/ hora. • Evaluar Magnesio Sérico c/ 4 horas.	Régimen EV. Dosis de carga: 6 gr EV lento (en 20 - 30 min.) Forma de preparación Diluir 6 gr de sulfato de magnesio al 50% en 150 ml de Dextrosa al 5%. Dosis de Mantenimiento: • 2 - 3 gr EV / hora en Bomba de Infusión. • Realizar control clínico de los niveles sèricos de sulfato de Magnesio c/ hora.

- CONTROL DE SULFATO:
  - T.A.
  - DIURESIS
  - F. RESPIRATORIA
  - R. OSTEOTENDINOSOS
- ANTÍDOTO: GLUCONATO DE CALCIO AL 10% 10 ml

NIVELES SERICOS DEL SULFATO DE MAGNESIO

NIVEL TERAPÉUTICO	6 - 8 MEQ / L
• ABOLICIÓN DEL REFLEJO PATELAR	10 - 12 MEQ / L
• DISMINUCIÓN DE LA FRECUENCIA RESPIRATORIA	12 - 15 MEQ / L
• PARO RESPIRATORIO	15 - 20 MEQ / L
• PARO CARDIACO	MAS DE 25 MEQ / L

SE MULTIPLICA EL DATO EN MG/DL POR 1.2 PARA OBTENER MEQ/L

Manejo

- For women with HELLP syndrome at 34 0/7 weeks or more of gestation, it is recommended that delivery be undertaken soon after initial maternal stabilization.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with HELLP syndrome from the gestational age of fetal viability to 33 6/7 weeks of gestation, it is suggested that delivery be delayed for 24–48 hours if maternal and fetal condition remains stable to complete a course of corticosteroids for fetal benefit.*

  Quality of evidence: Low
  Strength of recommendation: Qualified

*Corticosteroids have been used in randomized controlled trials to attempt to improve maternal and fetal condition. In these studies, there was no evidence of benefit to improve overall maternal and fetal outcome (although this has been suggested in observational studies). There is evidence in the randomized trials of improvement of platelet counts with corticosteroid treatment. In clinical settings in which an improvement in platelet count is considered useful, corticosteroids may be justified.

Manejo

- For women with preeclampsia who require analgesia for labor or anesthesia for cesarean delivery and with a clinical situation that permits sufficient time for establishment of anesthesia, the administration of neuraxial anesthesia (either spinal or epidural anesthesia) is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with severe preeclampsia, it is suggested that invasive hemodynamic monitoring not be used routinely.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For women in whom gestational hypertension, preeclampsia, or superimposed preeclampsia is diagnosed, it is suggested that BP be monitored in the hospital or that equivalent outpatient surveillance be performed for at least 72 hours postpartum and again 7–10 days after delivery or earlier in women with symptoms.

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

Manejo

- For all women in the postpartum period (not just women with preeclampsia), it is suggested that discharge instructions include information about the signs and symptoms of preeclampsia as well as the importance of prompt reporting of this information to their health care providers.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For women in the postpartum period who present with new-onset hypertension associated with headaches or blurred vision or preeclampsia with severe hypertension, the parenteral administration of magnesium sulfate is suggested.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For women with persistent postpartum hypertension, BP of 150 mm Hg systolic or 100 mm Hg diastolic or higher, on at least two occasions that are at least 4–6 hours apart, antihypertensive therapy is suggested. Persistent BP of 160 mm Hg systolic or 110 mm Hg diastolic or higher should be treated within 1 hour.

Manejo

- It is suggested that weight loss and extremely low-sodium diets (less than 100 mEq/d) not be used for managing chronic hypertension in pregnancy.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For women with chronic hypertension who are accustomed to exercising, and in whom BP is well controlled, it is recommended that moderate exercise be continued during pregnancy.

  Quality of evidence: Low
  Strength of recommendation: Qualified

Manejo

- For pregnant women with persistent chronic hypertension with systolic BP of 160 mm Hg or higher or diastolic BP of 105 mm Hg or higher, antihypertensive therapy is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For pregnant women with chronic hypertension and BP less than 160 mm Hg systolic or 105 mm Hg diastolic and no evidence of end-organ damage, it is suggested that they not be treated with pharmacologic antihypertensive therapy.

  Quality of evidence: Low
  Strength of recommendation: Qualified

Manejo

- For pregnant women with chronic hypertension treated with antihypertensive medication, it is suggested that BP levels be maintained between 120 mm Hg systolic and 80 mm Hg diastolic and 160 mm Hg systolic and 105 mm Hg diastolic.

  Quality of evidence: Low
  Strength of recommendation: Qualified

- For the initial treatment of pregnant women with chronic hypertension who require pharmacologic therapy, labetalol, nifedipine, or methyldopa are recommended above all other antihypertensive drugs.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

Drug doses for oral treatment of hypertension in pregnancy

Drug	Class	Initial dose	Usual effective dose range	Maximum total daily dose
Methyldopa	Centrally acting alpha-agonist	250 mg two to three times daily, increase every two days as needed*	250 to 1000 mg in two to three divided doses	3000 mg
Labetalol	Combined alpha- and beta-blocker	100 mg two times daily, increase by 100 mg twice daily every two to three days as needed	200 to 800 mg in two divided doses	2400 mg
Nifedipine extended release•	Calcium channel blocker	30 to 60 mg once daily as an extended release tablet, increase at 7 to 14 day intervals	30 to 90 mg once daily	120 mg
Hydralazine **NOTE:** Due to reflex tachycardia, monotherapy with oral hydralazine is not recommended; hydralazine may be combined with methyldopa or labetalol if needed as add-on therapy	Peripheral vasodilator	Begin with 10 mg four times per day, increase by 10 to 25 mg/dose every 2 to 5 days	50 to 100 mg in two to four divided doses	200 mgΔ

* The full hypotensive effect of an initial dose or adjustment of methylodopa may not occur until after 2 to 3 days of continuous use.

• Use of immediate release nifedipine (oral or sublingual) is not recommended because it may cause significant rapid decreases in blood pressure.

Δ Chronic hydralazine doses above 100 mg daily are associated with an increased risk for developing lupus erythematosus, particularly in women and slow acetylators; ascertainment of acetylator status is recommended before increasing dose above 100 mg per day in many countries.

Adapted from:

1. *Seely EW, Ecker J. Chronic hypertension in pregnancy. N Engl J Med 2011; 365:439.*
2. *Magee LA. Treating hypertension in women of child-bearing age and during pregnancy. Drug Saf 2001; 24:457.*

Manejo

- For women with uncomplicated chronic hypertension in pregnancy, the use of angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, renin inhibitors, and mineralocorticoid receptor antagonists is not recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women of reproductive age with chronic hypertension, the use of angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, renin inhibitors, and mineralocorticoid receptor antagonists is not recommended unless there is a compelling reason, such as the presence of proteinuric renal disease.

  Quality of evidence: Low
  Strength of recommendation: Qualified

Manejo

- For women with chronic hypertension who are at a greatly increased risk of adverse pregnancy outcomes (history of early-onset preeclampsia and preterm delivery at less than 34 0/7 weeks of gestation or preeclampsia in more than one prior pregnancy), initiating the administration of daily low-dose aspirin (60–80 mg) beginning in the late first trimester is suggested.*

  Quality of evidence: Moderate
  Strength of recommendation: Qualified

  *Meta-analysis of more than 30,000 women in randomized trials of aspirin to prevent preeclampsia indicates a small reduction in the incidence and morbidity of preeclampsia and reveals no evidence of acute risk, although long-term fetal effects cannot be excluded. The number of women to treat to have a therapeutic effect is determined by prevalence. In view of maternal safety, a discussion of the use of aspirin in light of individual risk is justified.

Manejo

- For women with chronic hypertension and no additional maternal or fetal complications, delivery before 38 0/7 weeks of gestation is not recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

- For women with superimposed preeclampsia who receive expectant management at less than 34 0/7 weeks of gestation, the administration of corticosteroids for fetal lung maturity benefit is recommended.

  Quality of evidence: High
  Strength of recommendation: Strong

- For women with chronic hypertension and superimposed preeclampsia with severe features, the administration of intrapartum–postpartum parenteral magnesium sulfate to prevent eclampsia is recommended.

  Quality of evidence: Moderate
  Strength of recommendation: Strong

Manejo

- For women with superimposed preeclampsia without severe features and stable maternal and fetal conditions, expectant management until 37 0/7 weeks of gestation is suggested.

  Quality of evidence: Low
  Strength of recommendation: Qualified

Manejo

- Delivery soon after maternal stabilization is recommended irrespective of gestational age or full corticosteroid benefit for women with superimposed preeclampsia that is complicated further by any of the following:
  - uncontrollable severe hypertension
  - eclampsia
  - pulmonary edema
  - abruptio placentae
  - disseminated intravascular coagulation
  - nonreassuring fetal status

  Quality of evidence: Moderate
  Strength of the recommendation: Strong

Manejo

- For women with superimposed preeclampsia with severe features at less than 34 0/7 weeks of gestation with stable maternal and fetal conditions, it is recommended that continued pregnancy should be undertaken only at facilities with adequate maternal and neonatal intensive care resources.

  Quality of evidence: Moderate
  Strength of evidence: Strong

- For women with superimposed preeclampsia with severe features, expectant management beyond 34 0/7 weeks of gestation is not recommended.

  Quality of evidence: Moderate
  Strength of the recommendation: Strong

Seguimiento

TASK FORCE RECOMMENDATION

- For women with a medical history of preeclampsia who gave birth preterm (less than 37 0/7 weeks of gestation) or who have a medical history of recurrent preeclampsia, yearly assessment of BP, lipids, fasting blood glucose, and body mass index is suggested.*

  Quality of evidence: Low
  Strength of recommendation: Qualified

*Although there is clear evidence of an association between preeclampsia and later-life CV disease, the value and appropriate timing of assessment is not yet established. Health care providers and patients should make this decision based on their judgment of the relative value of extra information versus expense and inconvenience.

Hipertensión gestacional leve o preeclampsia sin signos de gravedad

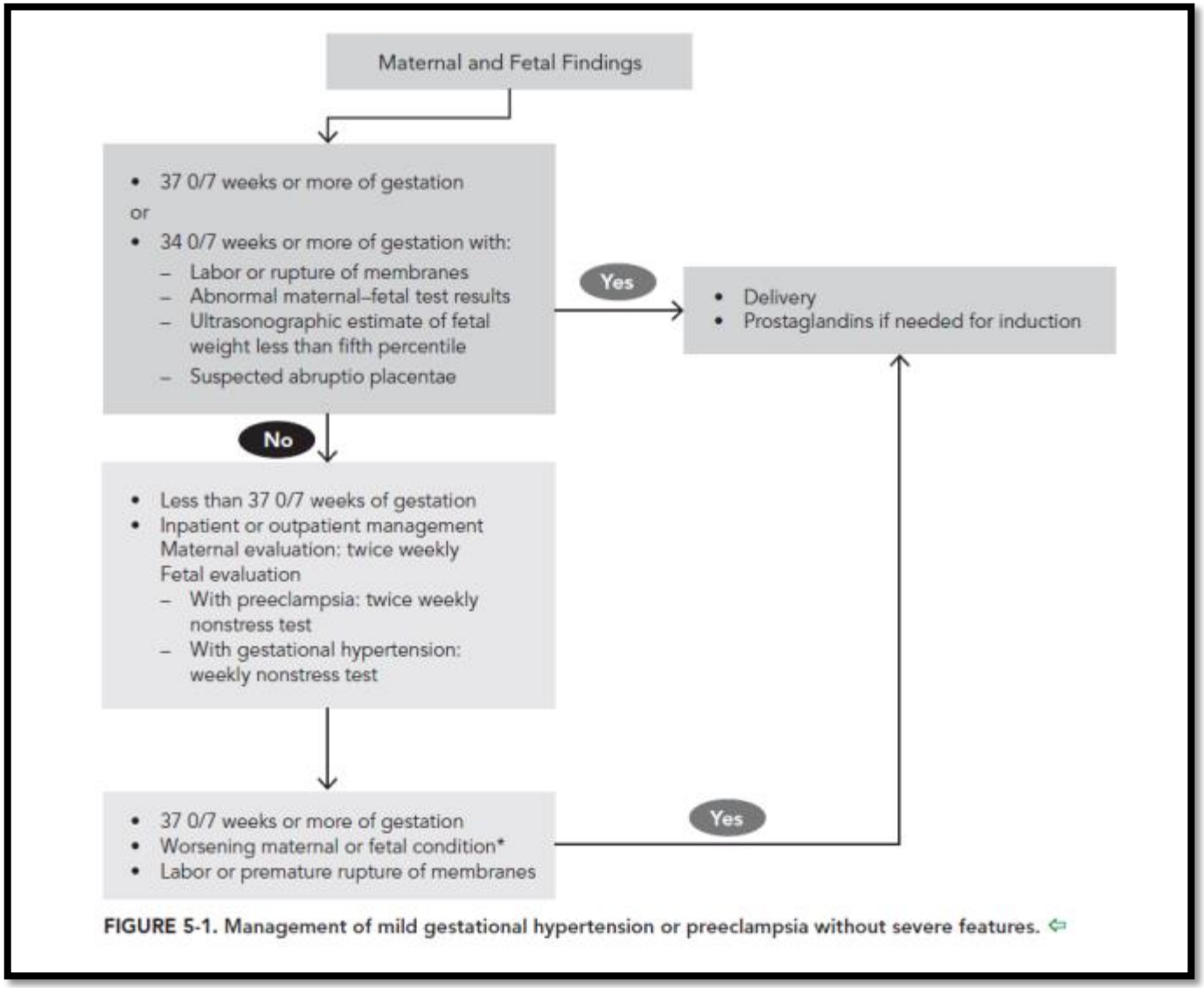
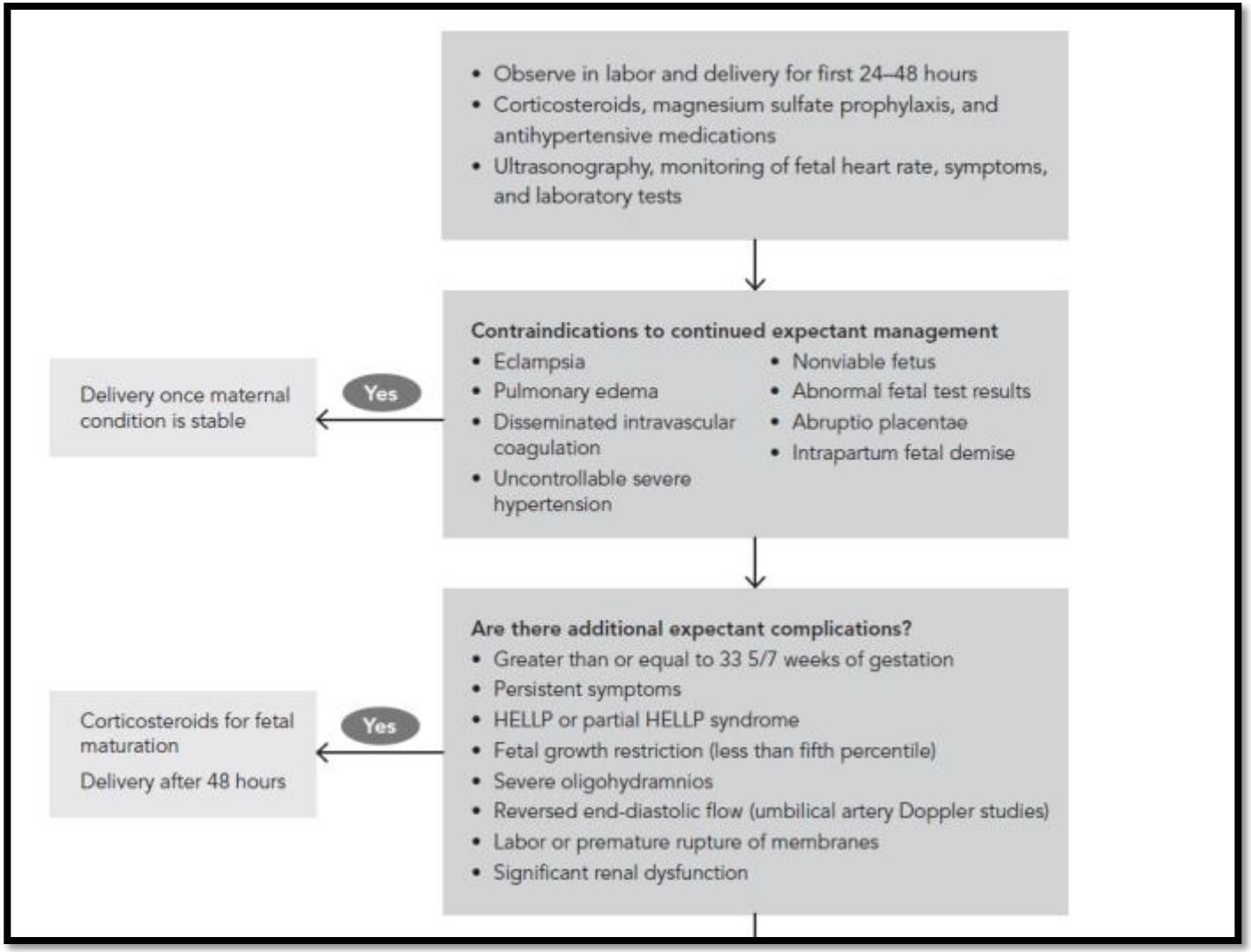


FIGURE 5-1. Management of mild gestational hypertension or preeclampsia without severe features. ⇦

Preeclampsia grave



Preeclampsia grave

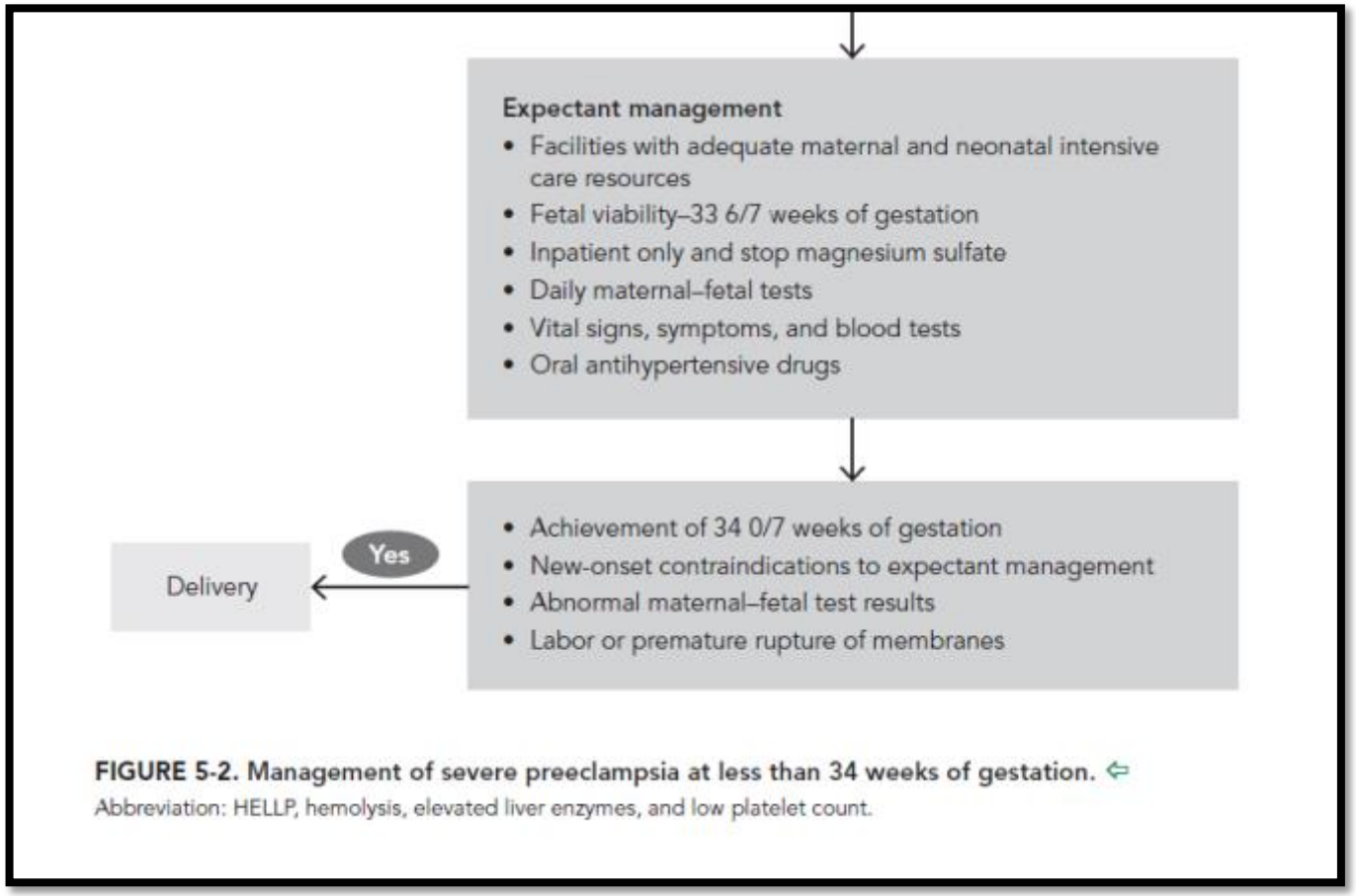


FIGURE 5-2. Management of severe preeclampsia at less than 34 weeks of gestation. ⇦

Abbreviation: HELLP, hemolysis, elevated liver enzymes, and low platelet count.

Hidralazina

- Vasodilatador periferico
- Inicio acción 10-20 min
- Dosis : 5 – 10 mg C/ 15-20 min max 30 mg.
- Efectos secundarios:
  - Taquicardia, hipotension, cefalea, ansiedad, vómitos, epigastralgia, en neonatos trombocitopenia

Hidralazina

- Primer escoge?

  Magee LA, Cham C, Waterman EJ, et al: Hydralazine for treatment of severe hypertension in pregnancy: Meta-analysis. *BMJ* 2003; 327:955–964

- Menos efectivo nifedipina
- Igual que el labetalol
- Asociado con pobres resultados maternos y fetales

- Hipotension

Labetalol

- B block no selectivo
- Disminuya RVP, y baja Fc
- Contraindicado en asma
- Infusión continua: 1 mg/Kg
- 20 mg – 40 mg ---80 mg - - 80 mg C/15 min max 300 mg

C) TRATAMIENTO CON FLUIDOS

La hemoconcentración y disminución del volumen plasmático es común en pacientes con pre-eclampsia y eclampsia. Ese hallazgo ha llevado a que por muchos años los médicos tratantes decidan la administración de fluidos para expandir el volumen plasmático. A pesar de no existir evidencias sobre el beneficio de la administración de fluidos en la pre-eclampsia/eclamsia[21,22], es una práctica muy común en nuestros países, incluso hay publicaciones y guías recomendando su uso rutinario[23-25].

Lo correcto es que solo se usen los fluidos con los que se administra el sulfato de magnesio (50 cc/h). En caso de usar hidralazina como antihipertensivo en las crisis hipertensivas, se puede administrar una hidratación adicional intravenosa de 500 cc[6] en 24 horas.

No hay justificación basada en pruebas para recomendar el uso rutinario de fluidos en la pre-eclampsia/eclampsia[4,5,21, 22]. Es una conducta que debe eliminarse, ya que no genera ningún beneficio. Incluso puede ser perjudicial al generar muertes maternas asociadas a complicaciones pulmonares como edema agudo pulmonar y síndrome de dificultad respiratoria del adulto[26].

3.8 SÍNDROME DE HELLP:

- **DEFINICIÓN:**

Término acuñado por Weinstein en 1982, representa un acrónimo de las palabras en inglés:

H: hemólisis

EL: enzimas hepáticas elevadas

LP: plaquetas baja

Es una complicación de la preeclampsia o puede actuar como entidad independiente (hasta un 20% son normotensas).

Siendo un cuadro clínico que puede complicar la evolución de una preeclampsia.

HELLP

- "The presence of HELLP syndrome is not an indication for immediate delivery by cesarean section"

Management of HELLP syndrome patient requiring cesarean section for delivery

General anesthesia for platelet count $<75{,}000/mm^3$

Six to ten units of platelets prior to surgery if platelet count $<40{,}000/mm^3$

Leave vesicouterine peritoneum (bladder flap) open

Subfascial drain

Secondary closure of skin incision or subcutaneous drain

Postoperative transfusions as needed

Intensive monitoring for 48 hours post partum

Consider dexamethasone therapy (10 mg IV every 12 hours) until postpartum resolution of disease

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