



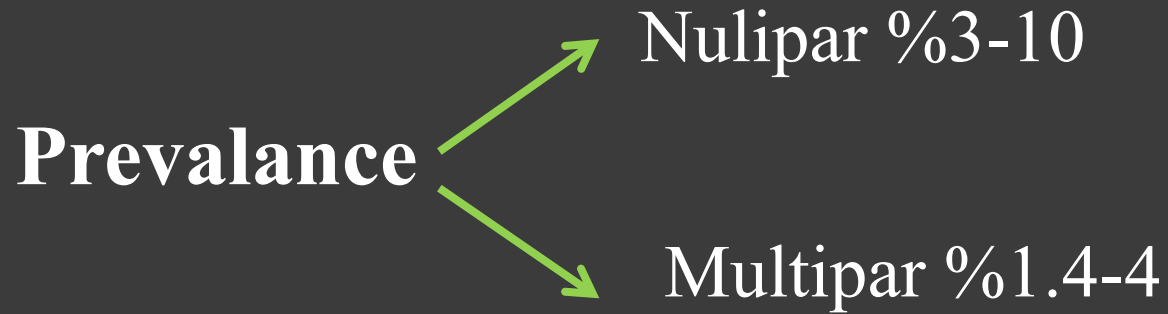
**In the name of
God**

Gestational Hypertension and Preeclampsia

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Infection, Preeclampsia, hemorrhage

Prevention

Terminology

- Preeclampsia and eclampsia syndrome
- chronic hypertension of any etiology
- preeclampsia superimposed of chronic hypertension
- Gestational hypertension

Preeclampsia syndrome

Endothelial leak that characterize the Preeclampsia syndrome

Affect virtually every organ system.

Obstetrical Complication


Condition	Criteria required
Gestational hypertension	BP>140/90 Hg after 20 weeks in previously normotensive women
Preeclampsia : Hypertension plus	
Proteinuria	<ul style="list-style-type: none"> • ≥ 300 mg/24 h, or • Urine protein: <u>creatinine</u> ratio ≥ 0.3, or <ul style="list-style-type: none"> • <u>Disptick</u> 1+Persistent
Or	
<u>Thorombocystopenia</u>	<ul style="list-style-type: none"> • Platelet count <100000/ml
Renal insufficiency	<ul style="list-style-type: none"> • <u>Creatinine</u> level >1.1 mg/dl or doubling of baseline
Liver involvement cerebral symptoms	<ul style="list-style-type: none"> • Serum transaminase levels twice normal • Headache, Visual disturbances, convulsions
Pulmonary edema	-

Indicators of Preeclampsia severity

Abnormality	Nonsevere ^b	Severe
Diastolic BP	<110 mm Hg	≥110 mm Hg
Systolic BP	<160 mm Hg	≥160 mm Hg
Proteinuria ^c	None to positive	None to positive
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain	Absent	Present
Oliguria	Absent	Present
Convulsion (eclampsia)	Absent	Present
Serum creatinine	Normal	Elevated
Thrombocytopenia (<100,000/ μ L)	Absent	Present

Abnormality	Non severe	Severe
Serum transaminase elevation	Minimal	Marked
Fetal-growth restriction	Absent	Present
Pulmonary edema	Absent	Present
Gestational age	Absent	Early

Risk Factors

- Age
- Parity
- Race
- BMI>30
- Metabolic syndrome
- Fetal sex  Male
- HIV positive
- Sleep disordered breathing
- SLE

Diabetes

Smoking

Prior still Birth, abortion, Preeclampsia

ART

Anti phospholipid syndrome

Chronic Hypertension

Chronic kidney disease

Prevention

Dietary and lifestyle modification

Low salt diet

Diuretic

Regular exercise

Bed rest(4-6h/ perday)

Calcium

Fish oil(↓ atherogenesis)

Anti oxidants(vit C,E,D)

Statins(↑ hemoxygenase)

Metformin(↓ activity mitochondrial chain)

Antihypertensive Drugs

Antithrombotic Agents

Vasospasm

Endothelial cell dysfunction

Inflammation

Activation of plc

Coagulation – hemostasis system

Complication:

- *Placental Infarection

- *Spiral artery thrombosis

Low Dose ASA

↓ Preeclampsia, Preterm labor, IUGR

Duration use → 12w-36w

High risk → History of preeclampsia

Multifetal gestation

Chronic hypertension

Type 1,2 Diabetes

Renal disease

Autoimmune disease(SLE-Aps)

Moderate Risk

Nulliparity

BMI>30

Family history of Preeclampsia(Mother-sister)

Sociodemographic Characteristics (race)

Age \geq 35

*LBW-SGA

Personal history *Previous adverse pregnancy outcome

*more than 10 years pregnancy interval

ASA & Anticoagulan

Lupus Anti coagulan

Placental thrombotic lesion

Thrombophilia

Metformin

Apheresis

Pravastatin

Sildenafil Citrate

Recombinant antithrombin

Preeclampsia Evaluation

Pregnancy Age

Sign & symptoms

Interval Visit:

- Weight change
- Poor sign
- Proteinuria-BP

Minimal change In BP, Weight → weekly visit

Sever Preeclampsia → hospitalization

Evaluation In hospital

Examination & Daily evaluation clinical finding

Daily weight measurement

BP q4h except between 24-6AM

Reduced physical activity

Protein, Calories, Na, Fluid

Proteinuria, Pr/cr Urine , q48h

CBC diff, Hepatic Transaminase levels, Cr

Uric acid, LDH, Coagulation ???

Evaluation of fetal size, well being, AFI, by sonography,
physical examination

Hospitalization Versus outpatient management

↑ Risk thromboemboly

Expectant Management

Gestational Age < 24w

Gestational Age > 34 w

Gestational Age 24-34 w

A → Anti hypertensive

B → Corticosteroid

C → Mgso4

Maximum Duration of expectant Management 2w

Heelp Syndrome

Glucocorticoids

24-34 w for lung maturation

Effect on Hypertension

Effect on Heelp syndrome

↓ Respiratory distress, ICH, Fetal death

TABLE 40-10 Indications for Delivery in Women <34 Weeks' Gestation Managed Expectantly

Corticosteroid Therapy for Lung Maturation^a and Delivery after Maternal Stabilization:

- Uncontrolled severe hypertension
- Eclampsia
- Pulmonary edema
- Placental abruption
- Disseminated intravascular coagulation
- Nonreassuring fetal status
- Fetal demise

Corticosteroid Therapy for Lung Maturation—Delay Delivery 48 hr If Possible:

- Preterm ruptured membranes or labor
- Thrombocytopenia <100,000/ μ L
- Hepatic transaminase levels twice upper limit of normal
- Fetal-growth restriction
- Oligohydramnios
- Reversed end-diastolic Doppler flow in umbilical artery
- Worsening renal dysfunction

Initial dose only, do not delay delivery.

Consideration for delivery

Evaluation based on BP , Proteinuria , P.S,GA

Prevent Intracranial hemorrhage

Main goal for management

* Anti Convulsion

* Anti Hypertension

* Delivery

Which kind of delivery preferation ?

Antihypertensive therapy

Mild to moderate preeclampsia

Sever Hypertension

Cerebrovascular hemorrhage

Hypertensive encephalopathy

Eclamptic Convulsion

Placental abruption

Congestive heart failure

Most of them increase in chronic Hypertension

Hydralazin

Most commonly used

Dose 5-10 q15-20 beginning effect on 10 minute

Diastolic BP between 90-110 mmHg

Prevention ICH

Response to Hydralazin ????

Side effect (Tachycardia, Palpitation)

Labetalol

Inhibitor α_1 and β

Side effect less than Hydralazin

Dose 10mg & q10 minute  80 mg

Maximum Dose 220 mg

Don't given to Asthematic women

Side effect (Hypotension, Bradycardia)

Nifedipine

Oral Drug

Calcium canal blocking

Dose \longrightarrow 10mg & q₂₀₋₃₀ minute \longrightarrow 10-20
mg

Don't use sublingual

Diuretics

- Loop Diuretics can further compromise

Placental perfusion

- Immediate effects redistribution of the
Intravascular volume reduced
- Use antepartum furosemide or similar
- Drugs solely to treat pulmonary edema

Fluid therapy

Lactated ringer \longrightarrow 60-125ml/h

Vomiting, diarrhea, diaphoresis, massive V/B

Oliguria & anuria \longrightarrow 30 cc/h

MgSO₄

Anticonvulsant that avoids producing
CNS depression

Action on cerebral cortex

Drug use IV-Im (efficacy)

Duration use

- Labor & 24h after Delivery
- Labor & 12h after Delivery
- Effect on Hypertension???

Renal excretion

- Uterine output
- Serum Cr

MgSO₄

Plasma mg level

- 4-7 mEq/l
- 10 mEq/l
- 12 mEq/l
- 25mEq/l

Respiratory paralysis

Ca gluconate or chloride 1gr IV



Mgso₄  DC

Tracheal Intubation and mechanical Ventilation

If glomerular filtration decreased

Cr > 1 mg/ml

Effect on BP

Effect on heart   cardiac output

 csf mg level

 Uterus contraction (8-10 meq/ml)

Fetal & neonatal effect

Cross placenta  serum & Af

 Beat to beat variability

 FHR

Neuroprotection in preterm

Long term given MG 3days or more 

osteopenia

Who should be given

Mgso₄

Contra Indication

Myasthenia gravis

Hypocalcemia

Moderate to severe renal failure

Cardiac Ischemia

Heart block

Myocarditis

Make a decision
for Delivery

Analgesia and Anesthesia

General anesthesia

Conduction Analgesia

Future pregnancy

Help syndrome

Preeclampsia before 30w

Sever preeclampsia

Metabolic syndrome

Effect of preeclampsia on future pregnancy

Preterm labour

IUGR

Placental abruption

C/S

Table: Some Long term consequences in women with Preeclampsia Syndrome

Cardiovascular

Chronic hypertension

Ischemic heart disease

Atherosclerosis

Coronary artery calcification

Cardiomyopathy

Thromboembolism

Neurovascular

Stroke

Retinal detachment

Diabetic retinopathy

Metabolic

Type 2 diabetes

Metabolic syndrome

Dyslipidemia

Obesity

Renal

Glomerular dysfunction

Proteinuria

Central nervous system

White-matter lesions

Cognitive dysfunction

Retinopathy

A close-up photograph of a baby wearing a light blue knit hat and a matching light blue zip-up outfit with small white polka dots. The baby has a surprised expression with wide eyes and an open mouth. To the left of the baby is a large, light blue rose with a white, textured, lace-like border. The background is a plain, light color.

**Thanks for your
attention**