PREEKLAMSI

PNPK POGI/Kemenkes 2016

Prof. Dr. dr. Jusuf S E, SpOG (K)

ADAKAH PERUBAHAN PARADIGMA PREEKLAMSI – EKLAMSI ?

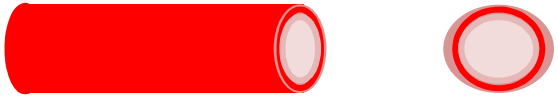
- Salah satu negara dengan Angka Kematian Ibu (AKI) tertinggi di Asia tenggara
- Jawa Barat salah satu tertinggi AKI di indonesia

Kunci Patologi pada Preeklamsi

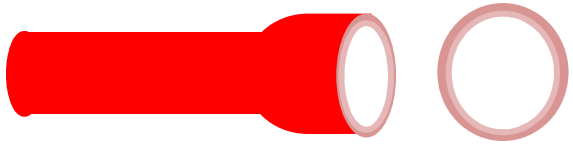
KONSEP PATOFISIOLOGI PREEKLAMSI

Sirkulasi uteroplasenta:A.spiralis

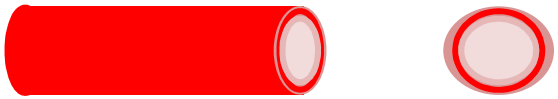
Tidak hamil

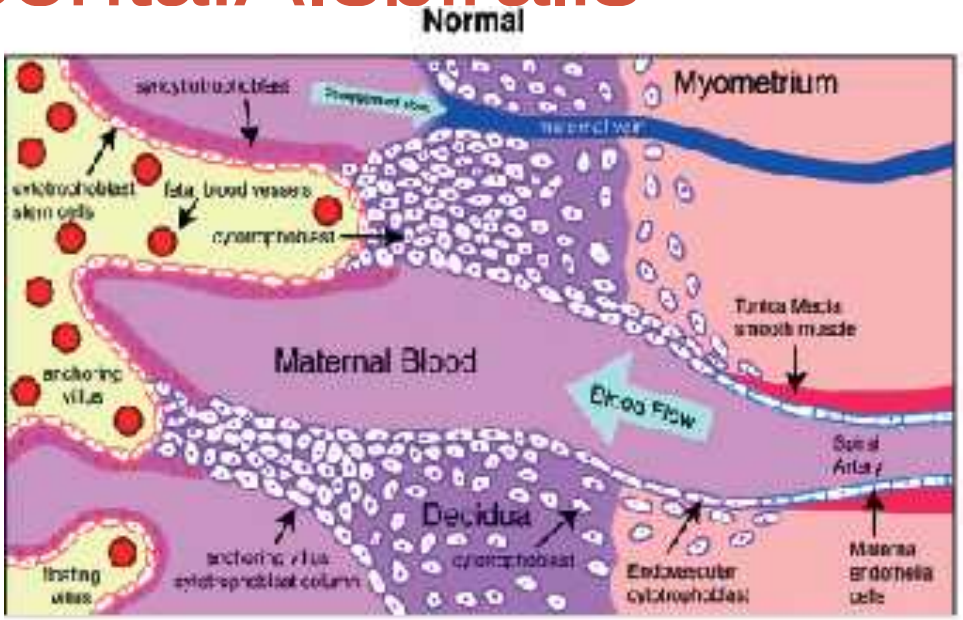


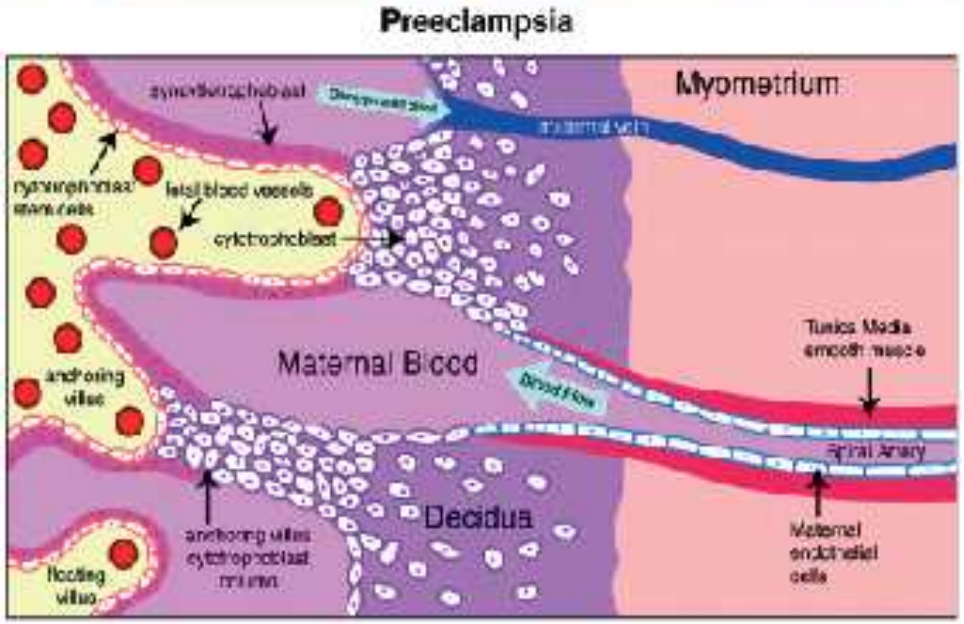
Kehamilan Normal



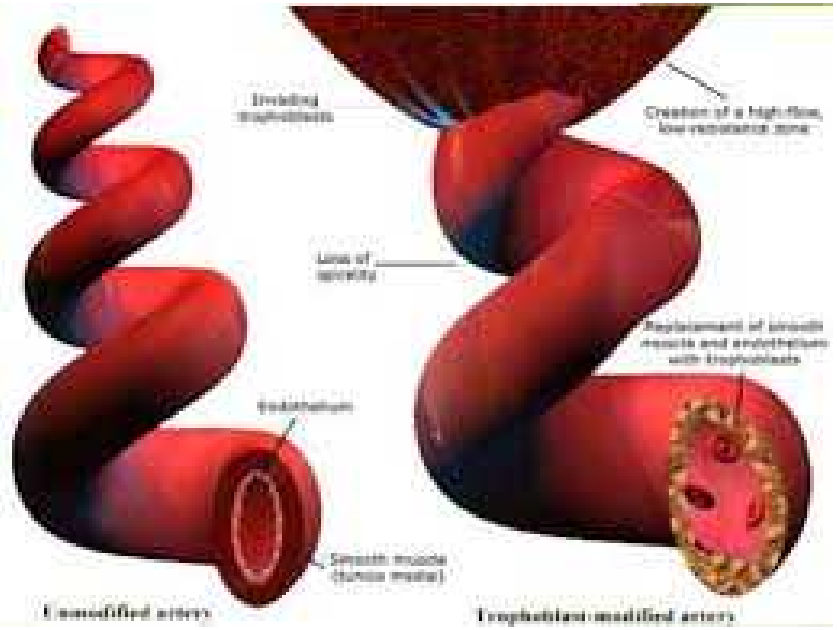
Preeklamsia/IUGR

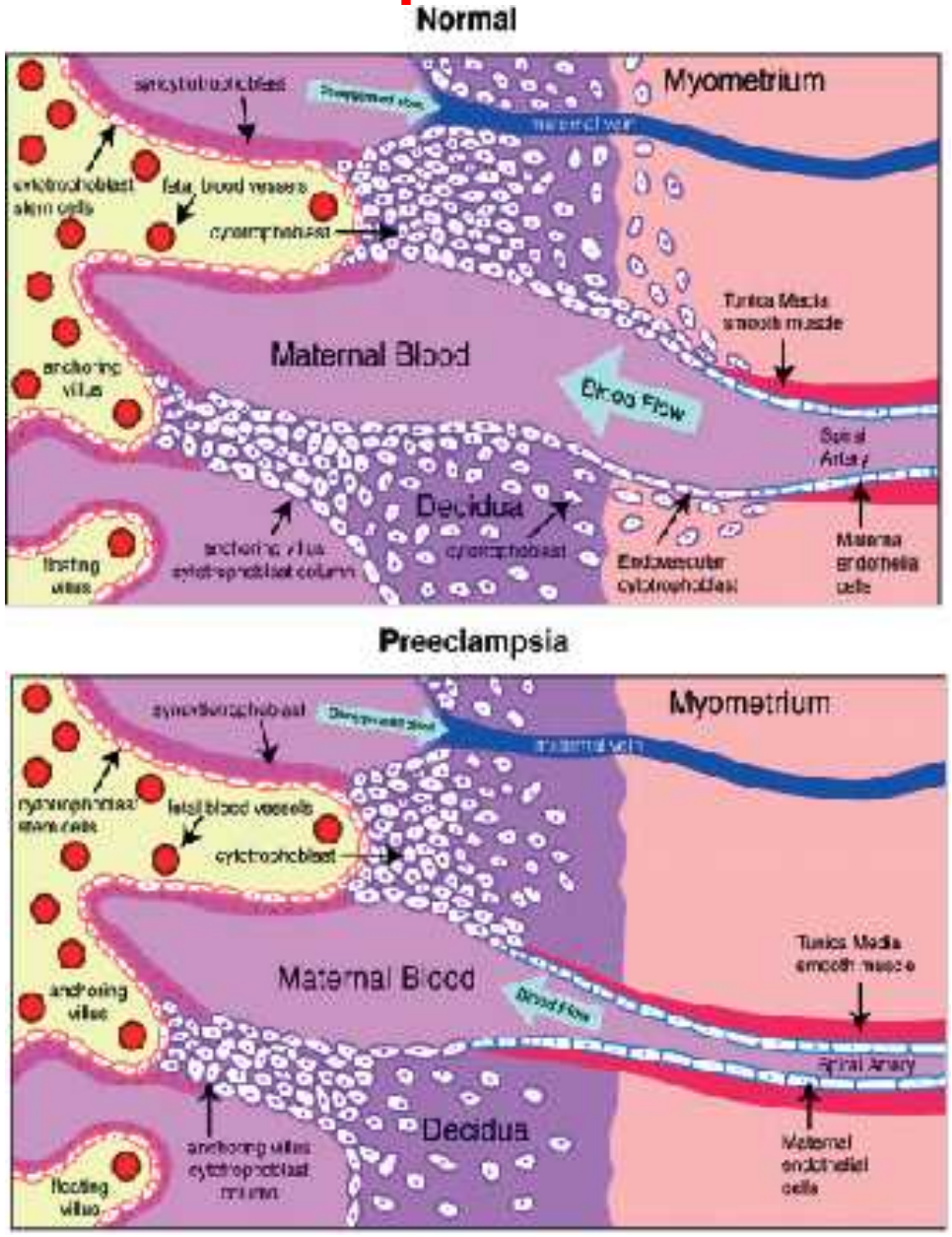


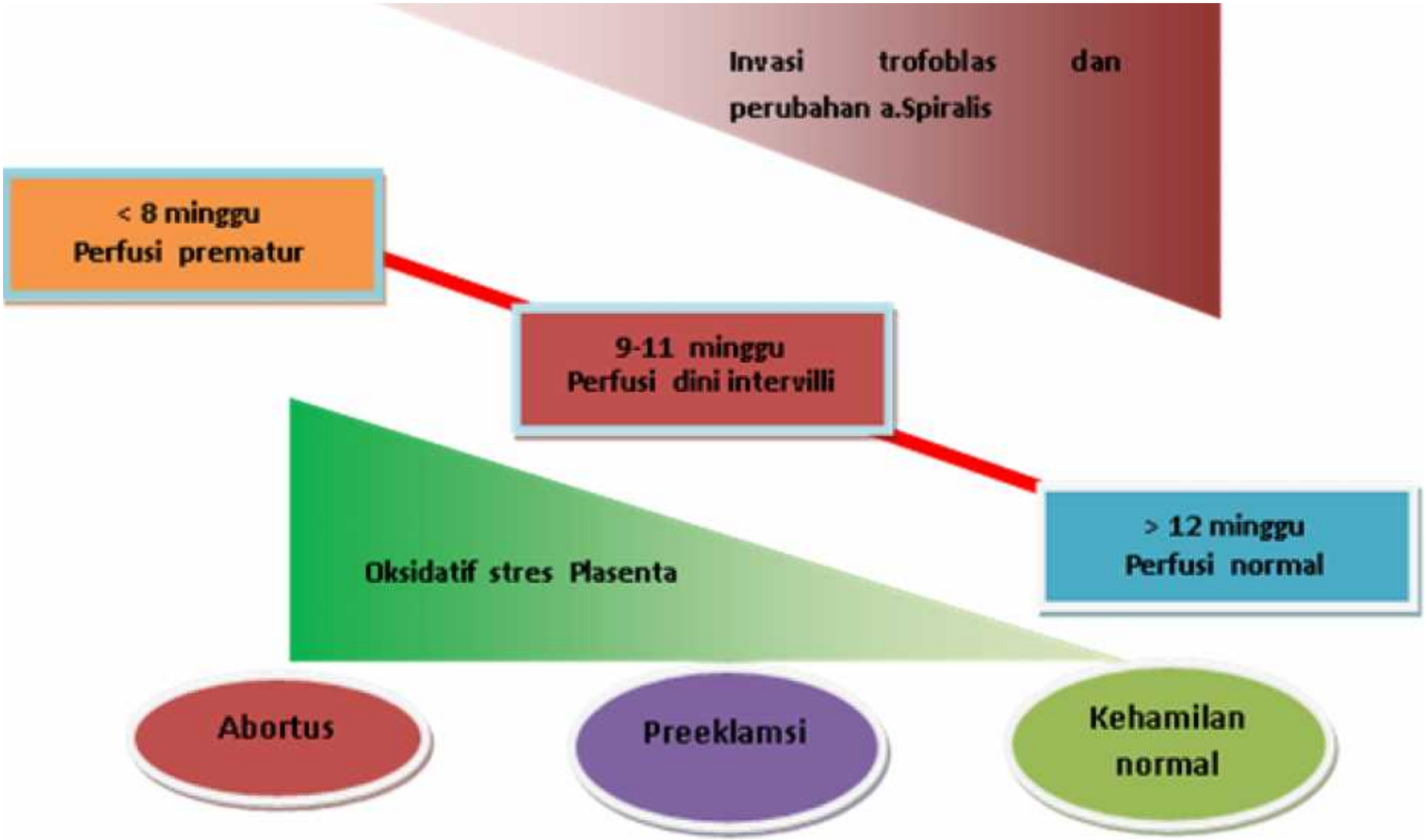


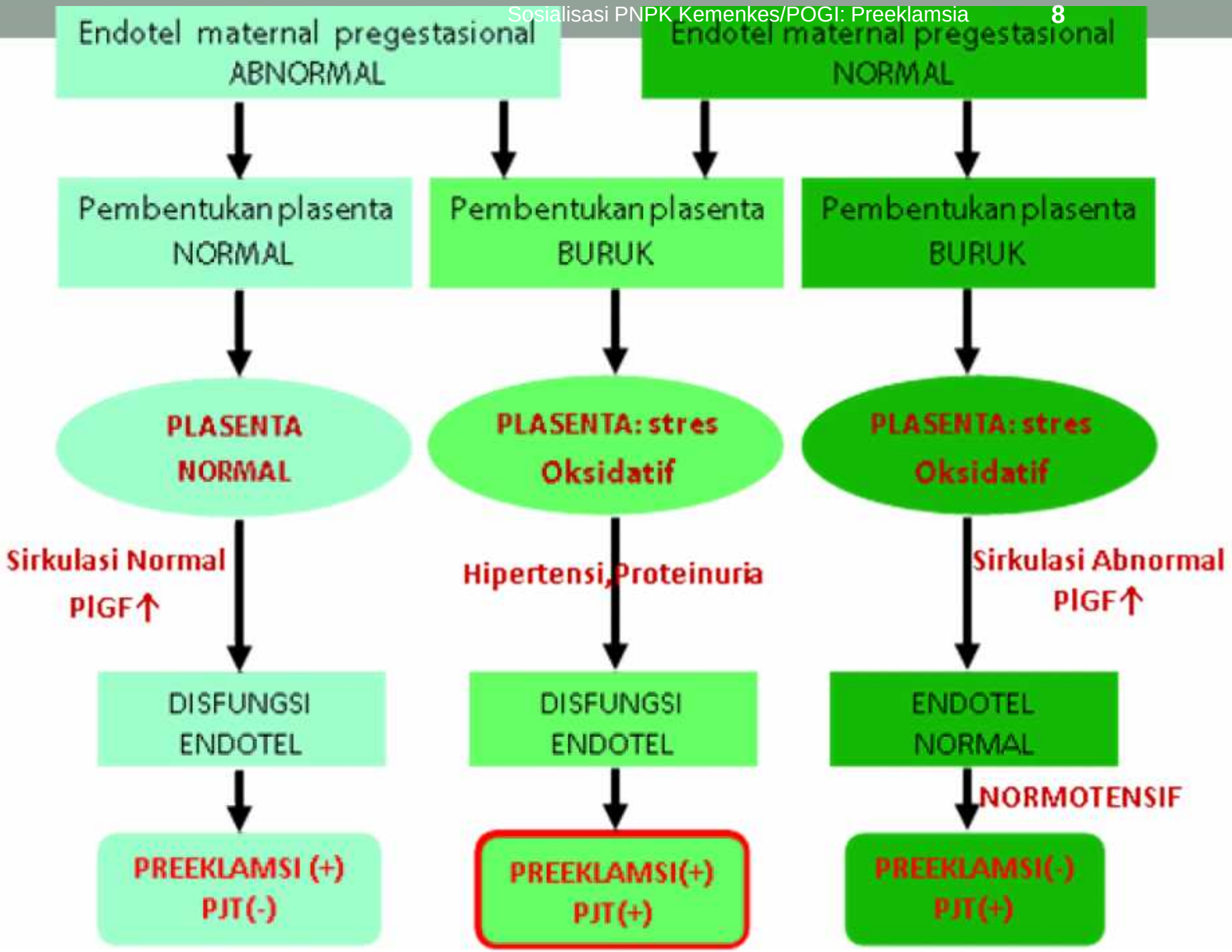


Sirkulasi uteroplasenta:A.spiralis






Invasi trofoblas dan perubahan a.Spiralis
< 8 minggu
Perfusi prematur
9-11 minggu
Perfusi dini intervilli
> 12 minggu
Perfusi normal
Oksidatif stres Plasenta
Abortus
Preeklamsi
Kehamilan normal


Endotel maternal pregestasional ABNORMAL
Endotel maternal pregestasional NORMAL
Pembentukan plasenta NORMAL
Pembentukan plasenta BURUK
Pembentukan plasenta BURUK
PLASENTA NORMAL
PLASENTA: stres Oksidatif
PLASENTA: stres Oksidatif
Sirkulasi Normal PlGF↑
Hipertensi, Proteinuria
Sirkulasi Abnormal PlGF↑
DISFUNGSI ENDOTEL
DISFUNGSI ENDOTEL
ENDOTEL NORMAL
NORMOTENSIF
PREEKLAMSI (+) PJT(-)
PREEKLAMSI(+) PJT(+)
PREEKLAMSI(-) PJT(+)

KLASIFIKASI BERDASARKAN WAKTU TIMBUL GEJALA, dibagi menjadi:

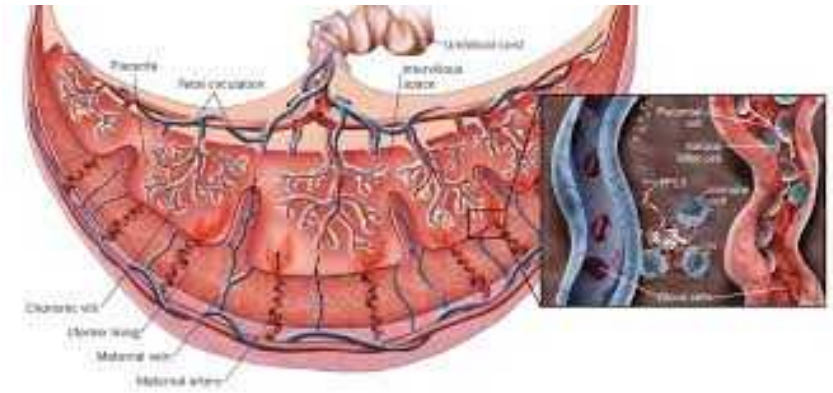
1. PREEKLAMSI AWITAN DINI (EARLY ONSET), < 34 mg

2. PREEKLAMSI AWITAN LANJUT (LATE ONSET), ≥ 34 mg

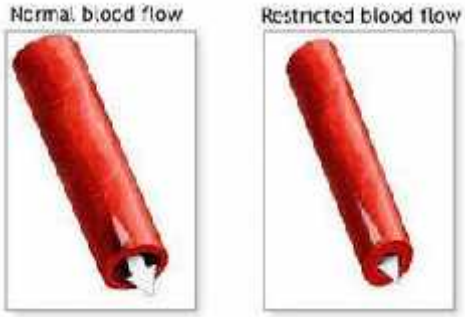
Awitan Dini (Fetal Site)

Protein Plasenta

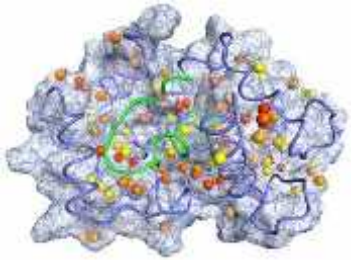
prinsip:



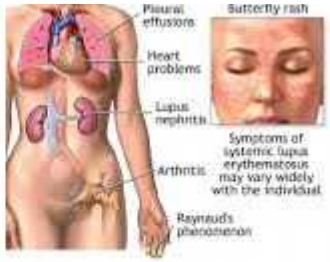
Remodeling a.spiralis (-)



Pembentukan Protein



Awitan Lanjut (Maternal Site)



Deteksi Dini

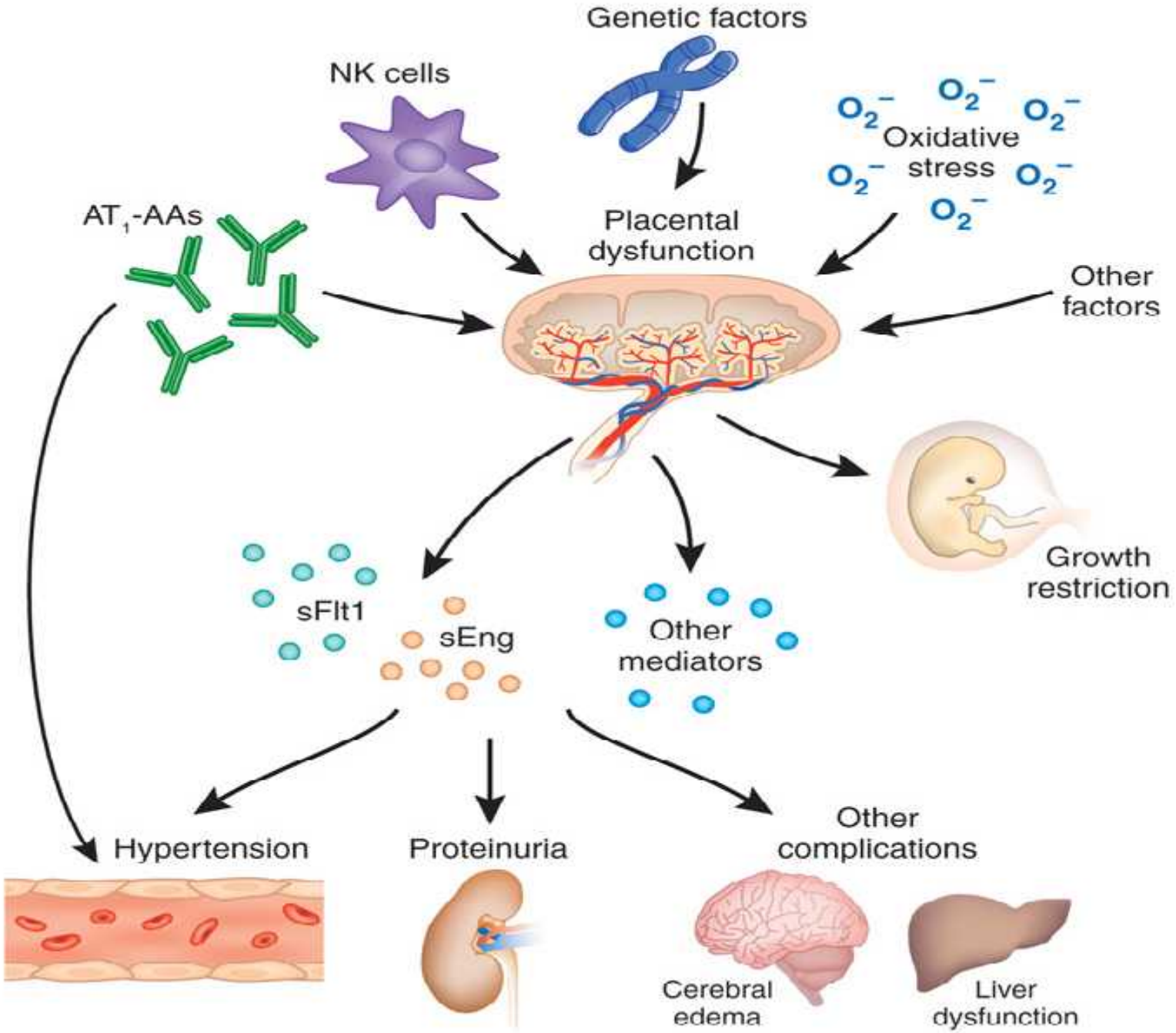
Faktor risiko

a. Early Onset

b.Late Onset

	Risiko yang ada sebelum konsepsi
	Penyakit ginjal /hipertensi
	Diabetes pregestasional
	SLE/artritis rheumatoid
	Thrombofilia
	Hipertiroid yang tidak terkontrol
	Sindrom polikistik ovarium
	Usia diatas 40 tahun
	Usia dibawah 20 tahun
	Obesitas/resistensi insulin
	BBLR maternal
	Maternal preterm
√	Preeklamsi kehamilan sebelumnya
√	Donor inseminasi/donasi oosit
√	Donasi embrio
√	Merokok
	Riwayat keluarga preeklamsi
	Riwayat peny kardiovaskuler
	Kehamilan multipel
√	Infeksi maternal
√	Abnormalitas kromosom
	Partner yg menyebabkan preeklamsi pd pasangan lain

Pengukuran Tekanan Darah secara berkala merupakan metode deteksi dini terbaik ?


Genetic factors
NK cells
O_2^- O_2^- O_2^-
Oxidative stress
O_2^- O_2^-
O_2^-
AT_1-AAs
Placental dysfunction
Other factors
Growth restriction
sFlt1
sEng
Other mediators
Hypertension
Proteinuria
Other complications
Cerebral edema
Liver dysfunction

PREDIKTOR

- TRIMESTER I:

Penanda	Kecenderungan
B-HCG bebas	menurun
PAPP-A	menurun
ADAM12	menurun
Sflt-1	meningkat
PP13	menurun
P-selectin	meningkat
PlGF	Menurun (<25pg/mL)
TNF-α	meningkat
SHBG	Menurun
VEGF	menurun

Prediktor Trimester II-III

Rasio sFlt-1/PlGF >85 (High Risk)

N: < 38

(kekurangan masih mahal Rp.1.550.000)

Modalitas detektor yang lain?

USG DOPPLER

- Arteri uterina
- Gambaran "**notching**".
- Peningkatan PI (> 1,45) dan RI (> 0,58) prediktor terjadinya PJT atau preeklamsi.

Kesimpulan:

Pemeriksaan Doppler bukan merupakan tes diagnostik yang baik dalam memprediksi preeklampsia baik pada kelompok risiko rendah maupun risiko tinggi.

Rekomendasi:

Pemeriksaan Doppler tidak direkomendasikan sebagai pemeriksaan tunggal untuk memprediksi preeklampsia.

***Level evidence I a*, Rekomendasi A**

USG Doppler

- Menilai hemodinamik ibu dan janin serta mempunyai kelebihan yaitu noninvasif.
- Peningkatan resistensi: diukur arteri segmen miometrium yang mengalirkan darah pada arteri spiralis.
- Pemeriksaan doppler arteri uterina dapat dilakukan melalui transabdominal atau transvaginal.
- Dapat dilakukan trimester I dan trimester II
- Pengukuran: PI, RI, S/D rasio dan karakter khusus (notching)

USG DOPPLER

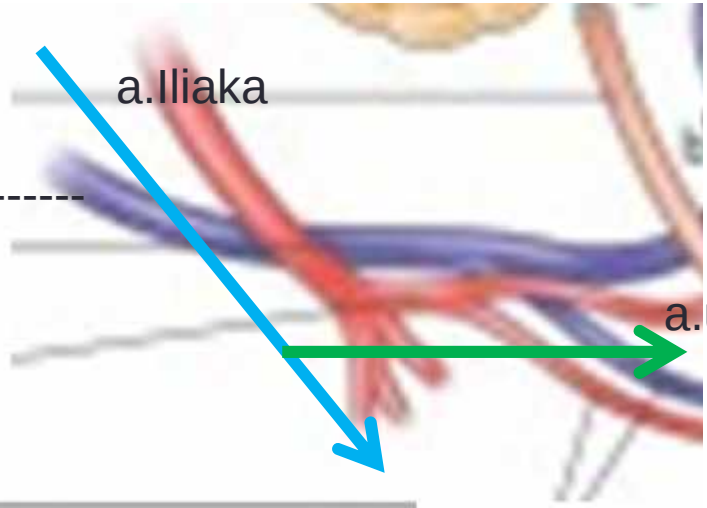
- Waktu pengukuran A.Uterina

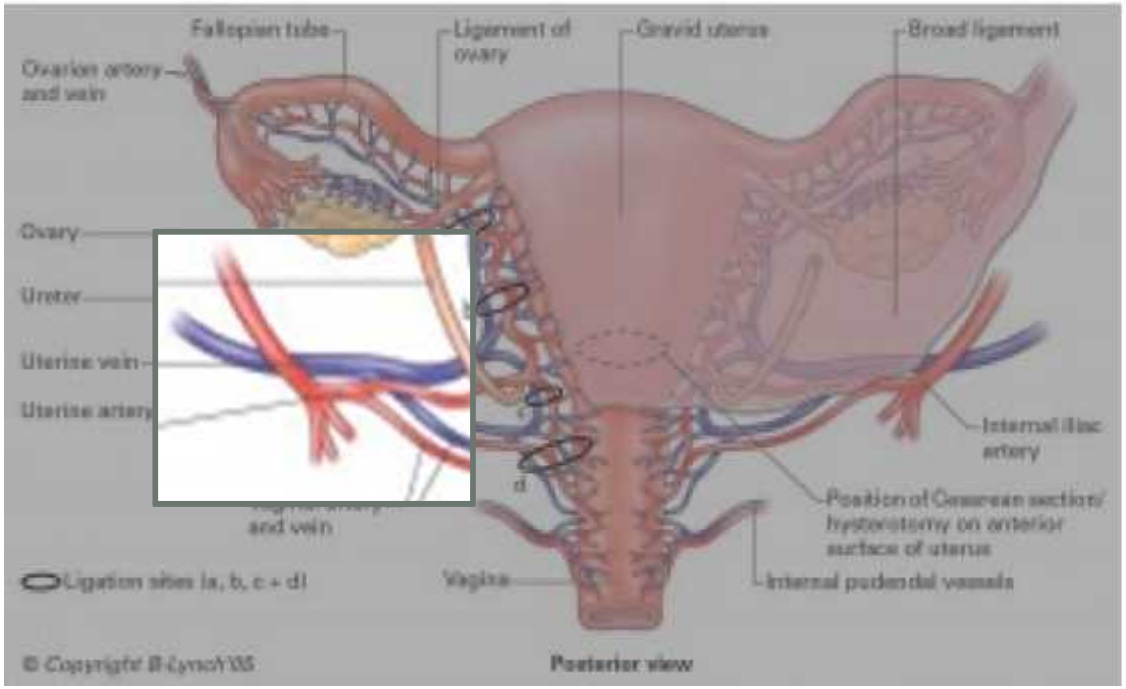
  2 tahap :

  1. Pertama kali usia 18 minggu bila notching (+) diulang usia kehamilan 22-24 minggu.
  2. Bila notching tidak menghilang diatas 24: risiko tinggi terjadinya PE.

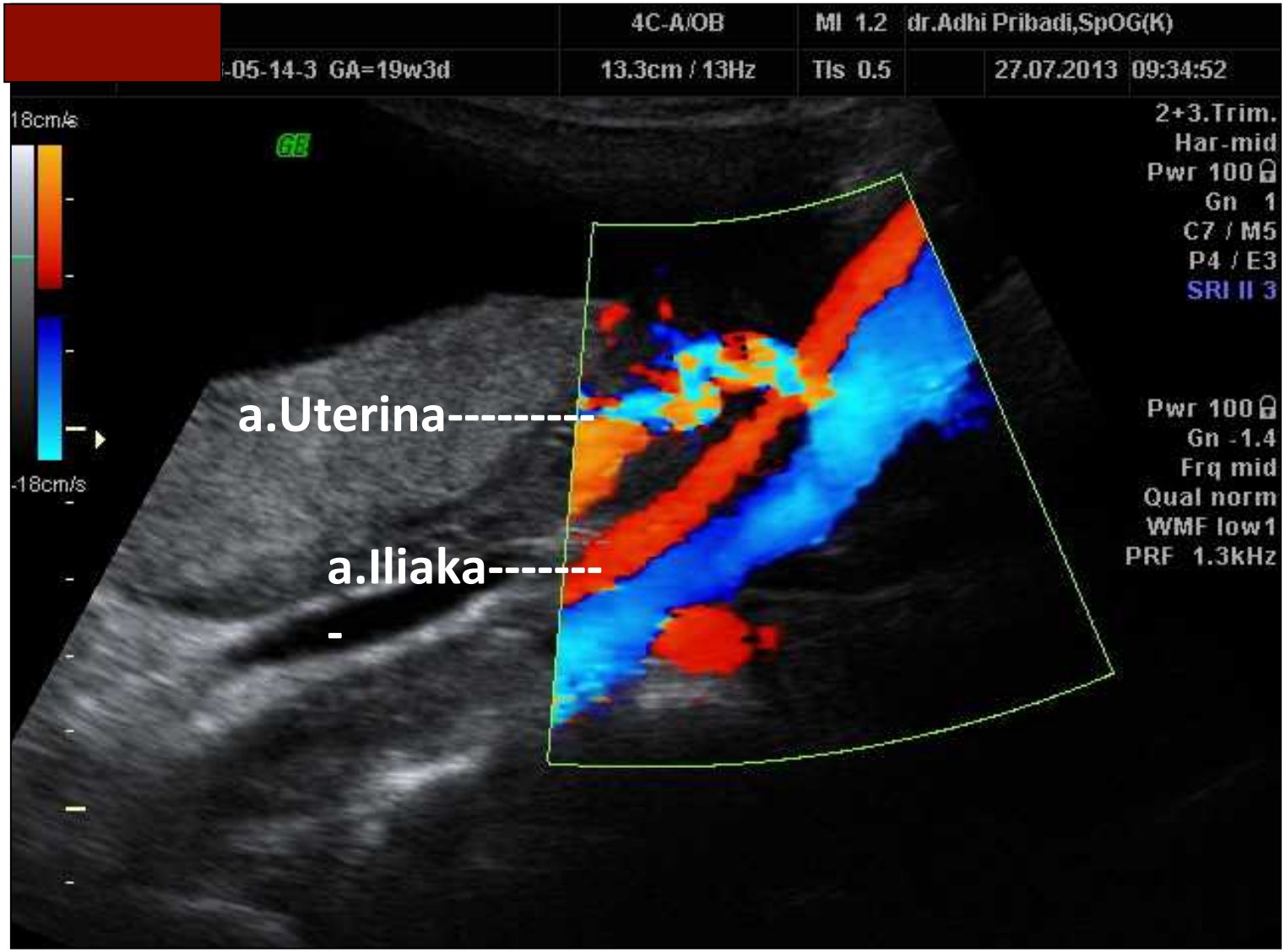
Tingkat deteksi preeklamsi 50-77%

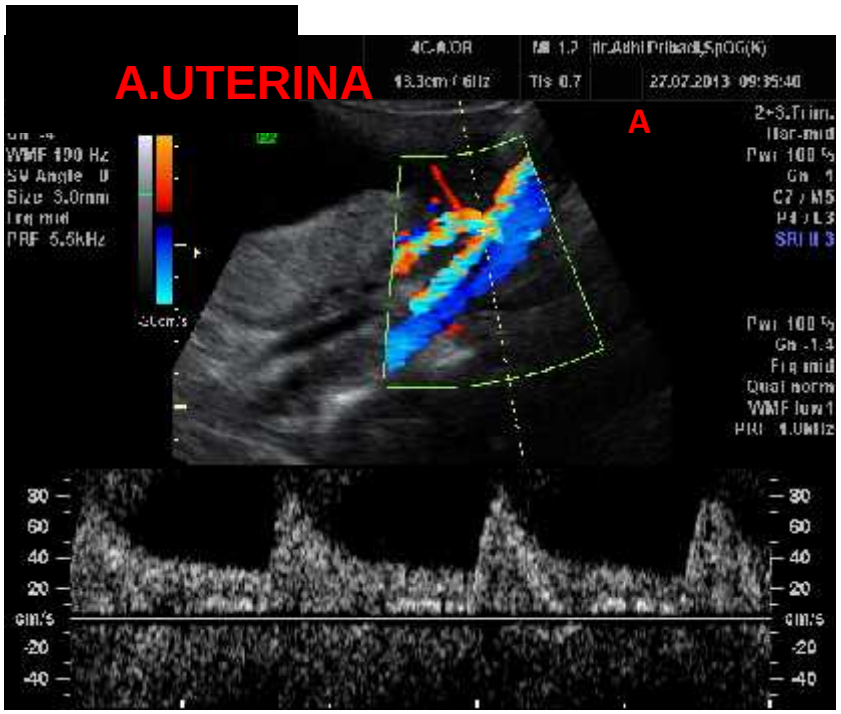
A.Uterina

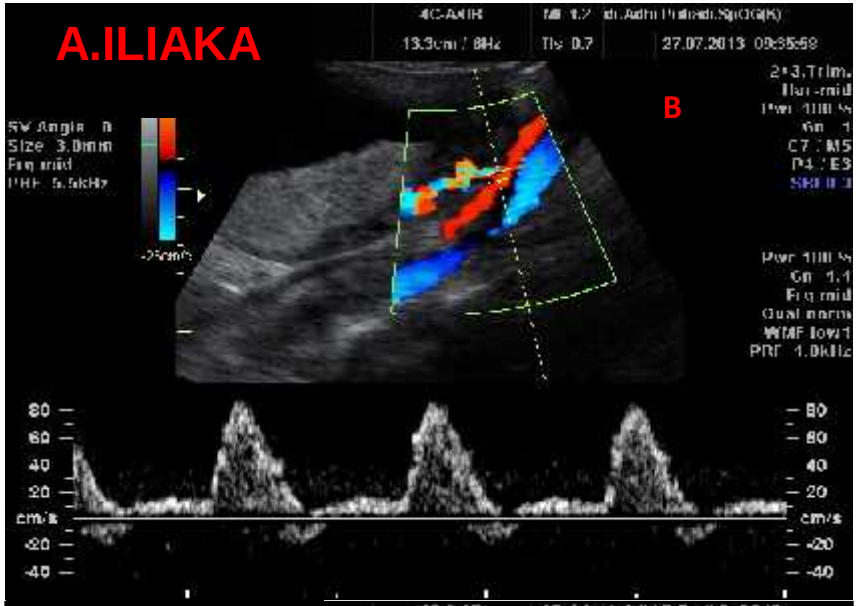

a.Iliaka
V.Iliaka----------
a.uterina

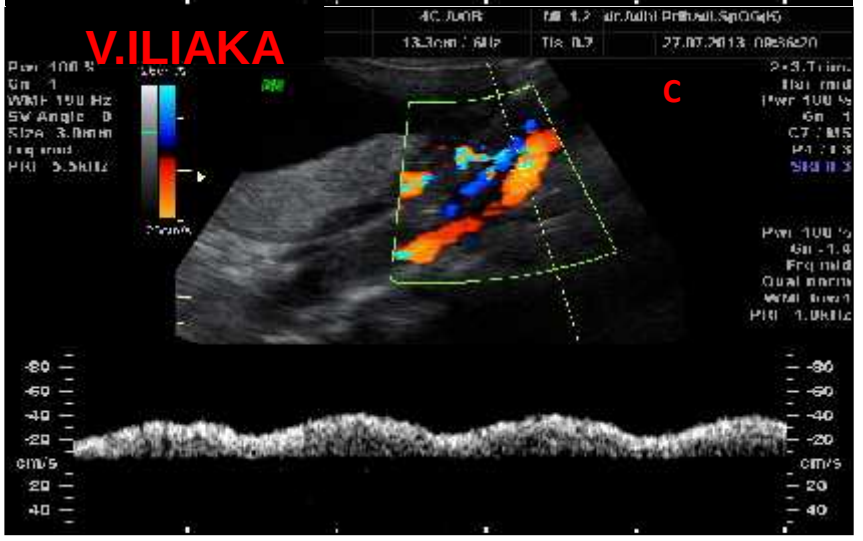

Fallopian tube
Ligament of ovary
Gravid uterus
Broad ligament
Ovarian artery and vein
Ovary
Ureter
Uterine vein
Uterine artery
Internal iliac artery
Position of Cesarean section/ hysterotomy on anterior surface of uterus
Internal pudendal vessels
Vagina
Ligation sites (a, b, c + d)
© Copyright B Lynch'05
Posterior view

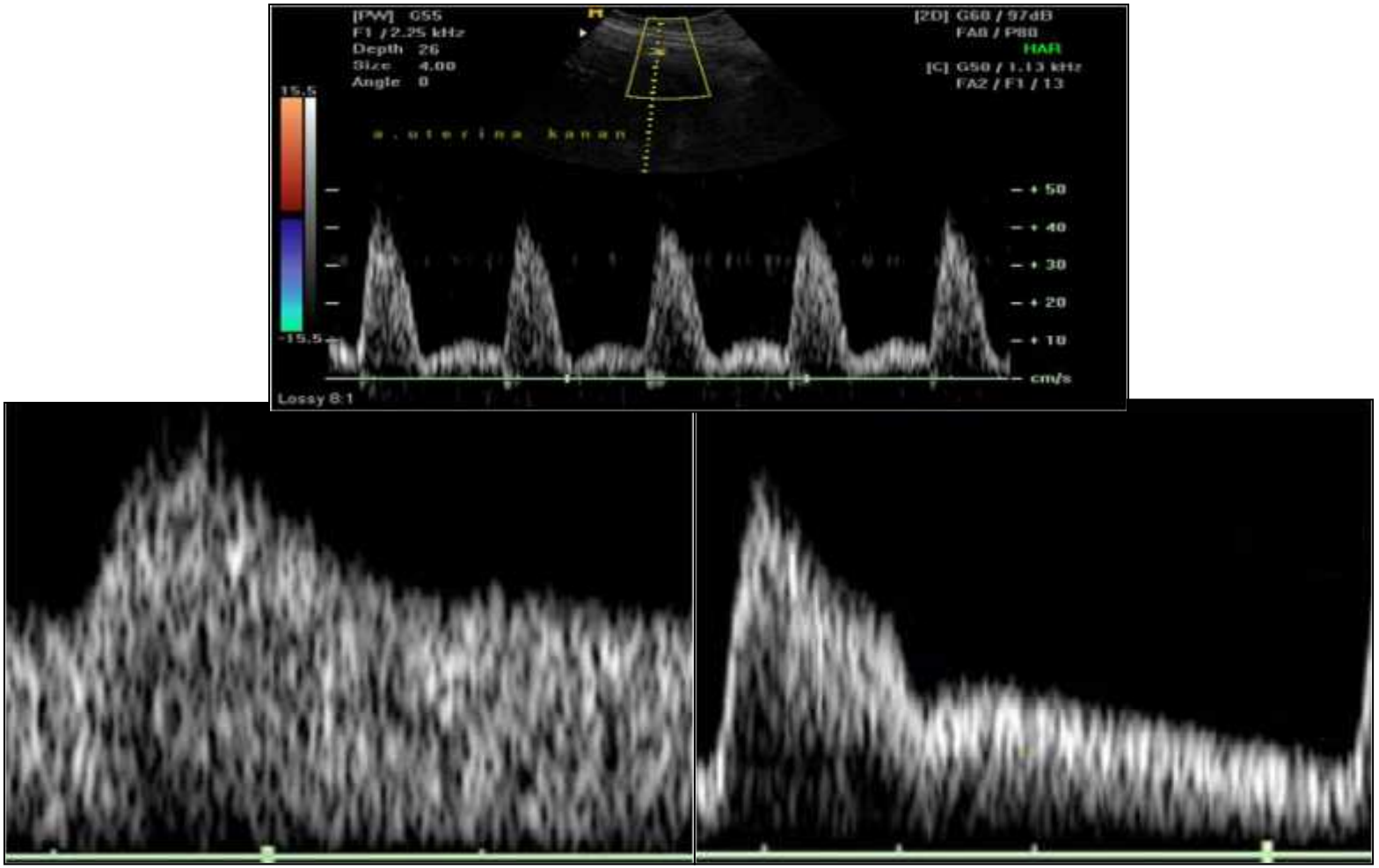

Peletakan
probe


4C-A/OB
MI 1.2
dr.Adhi Pribadi,SpOG(K)
-05-14-3 GA=19w3d
13.3cm / 13Hz
TIs 0.5
27.07.2013 09:34:52
18cm/s
-18cm/s
2+3.Trim.
Har-mid
Pwr 100
Gn 1
C7 / M5
P4 / E3
SRI II 3
Pwr 100
Gn -1.4
Frq mid
Qual norm
WMF low1
PRF 1.3kHz
a.Uterina---------
a.Iliaka--------

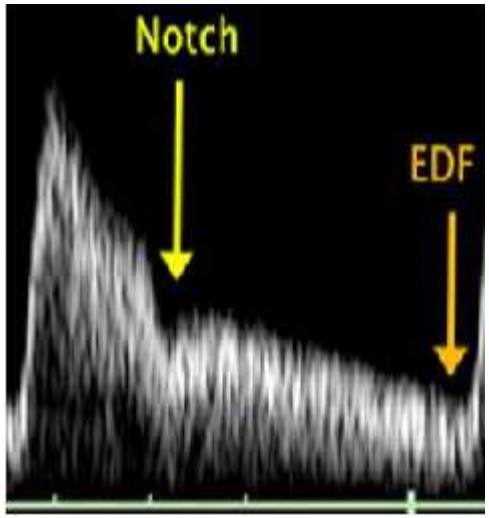

A.UTERINA
A


A.ILIAKA
B

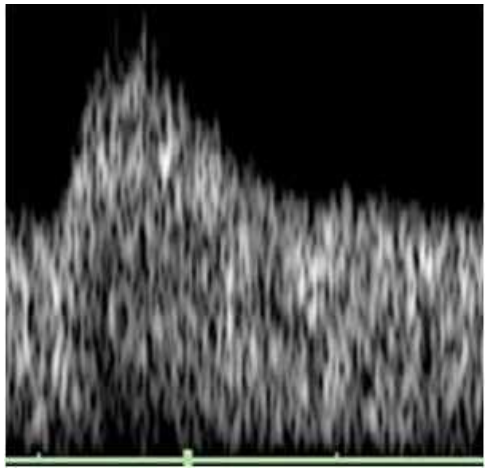

V.ILIAKA
C



Secara umum nilai prediktor untuk terjadinya preeklamsi atau PJT bila RI > 0,68 atau RI lebih dari persentil 90th , atau PI > 1,5, atau terdapat gambaran notch pada trimester kedua



High Impedance



Low Impedance

Preeklamsi dapat ditegakan tanpa hasil proteinuria?

KLASIFIKASI

ACOG 2013

- 1. PREEKLAMSI-EKLAMSI
  - i. Preeklamsi
  - Ii. Preeklamsi Berat
  - Iii. Eklamsi

2. Hipertensi Kronis

3. Hipertensi Kronik yg diperberat preeklamsi

4. Hipertensi Gestasional

Panduan nasional pelayanan kedokteran: preeklamsi (HKFMI 2016)

Diagnosis (ACOG 2014)

- TD: Sistolik ≥ 140 mmHg , Diastolik ≥ 90 mmHg, >20 mg (dalam 2 kali pengukuran selang 4 jam pd ibu yg sebelumnya normal)

- Bila termasuk PEB
  (Sistolik ≥ 160 mmHg , Diastolik ≥ 110 mmHg)
  Penegakan diagnosis dapat dilakukan segera.

- Proteinuria
  i. Dipstik min (+) atau urin > 300 mg

DIAGNOSIS (ACOG 2014)

PEB (kriteria lainnya)

1. Trombositopenia < 100.000
2. Gangguan fungsi hati
3. Insufisiensi renal, kreatinin > 1,1 mg/dl
4. Edema paru
5. Gangguan serebral atau gangguan visual
6. Proteinuria tidak harus ada

Cat: bila sarana yang ada untuk pemeriksaan hanya protein urin, proteinuria masih dapat digunakan

PNPK 2016

Tekanan Darah	• Tekanan sistolik lebih dari atau sama dengan 140 mmHg atau tekanan diastolik lebih besar atau sama dengan 90 mmHg dalam dua kali selang 4 jam setelah usia kehamilan 20 minggu , pada wanita yang memiliki tekanan darah normal sebelumnya • Tekanan sistolik lebih dari atau sama dengan 160 mmHg atau tekanan diastolik lebih besar atau sama dengan 110 mmHg, hipertensi dapat dikonfirmasi dalam waktu singkat/ segera (menit) agar pemberian obat anti hipertensi dapat segera diberikan
dan	
Proteinuria	• Kadar protein pada protein tamping 24 jam lebih besar i atau sama dengan 300 mg Atau • Rasio protein-kreatinin lebih besar atau sama dengan 0,3 mg/dL • Pembacaan dipstik 1+ (digunakan hanya apabila metode kuantitatif tidak

(Lanjutan)

	tersedia)
Atau apabila tidak adanya	proteinuria, ditemukan onset baru hipertensi dengan diikuti oleh onset baru satu dari penemuan berikut:
Thrombocytopenia	• Jumlah platelet kurang dari 100.000/microliter
Insufisiensi Renal	• Konsentrasi serum kreatinin lebih dari 1,1 mg/dL atau konsentrasi kreatinin meningkat dua kali tanpa disertai penyakit ginjal yang lain
Kegagalan Fungsi Hati	• Peningkatan konsentrasi transaminase hati dua kali lipat dibandingkan normal
Edema Paru	
Gangguan pengelihatan dan gejala serebral	

(Lanjutan)

Kriteria minimal preeklampsia:

- TD ≥140/90 mmHg setelah kehamilan 20 minggu
- Ekskresi protein dalam urin ≥ 300 mg/24 jam atau ≥ +1 dipstik, rasio protein:kreatinin ≥ 30 mg/mmol

Kriteria preeklampsia berat: (preeklampsia dengan minimal satu gejala dibawah ini)

- Sistolik ≥ 160 mmHg atau diastolik ≥ 110 mmHg
- Trombositopenia : trombosit < 100.000
- Gangguan fungsi hati : peningkatan kadar transaminase 2x nilai normal, nyeri perut kuadran kanan atas atau nyeri epigastrium yang berat yang tidak berespon dengan pengobatan dan hal tersebut bukan disebabkan diagnosis penyakit lain
- Tanda insufisiensi renal, serum kreatinin> 1,1 mg/dl atau meningkat dua kali tetapi tidak ada penyakit ginjal lain sebelumnya
- Adanya edem paru

Kapan pengakhiran persalinan pada preeklamsi?

≥34 minggu

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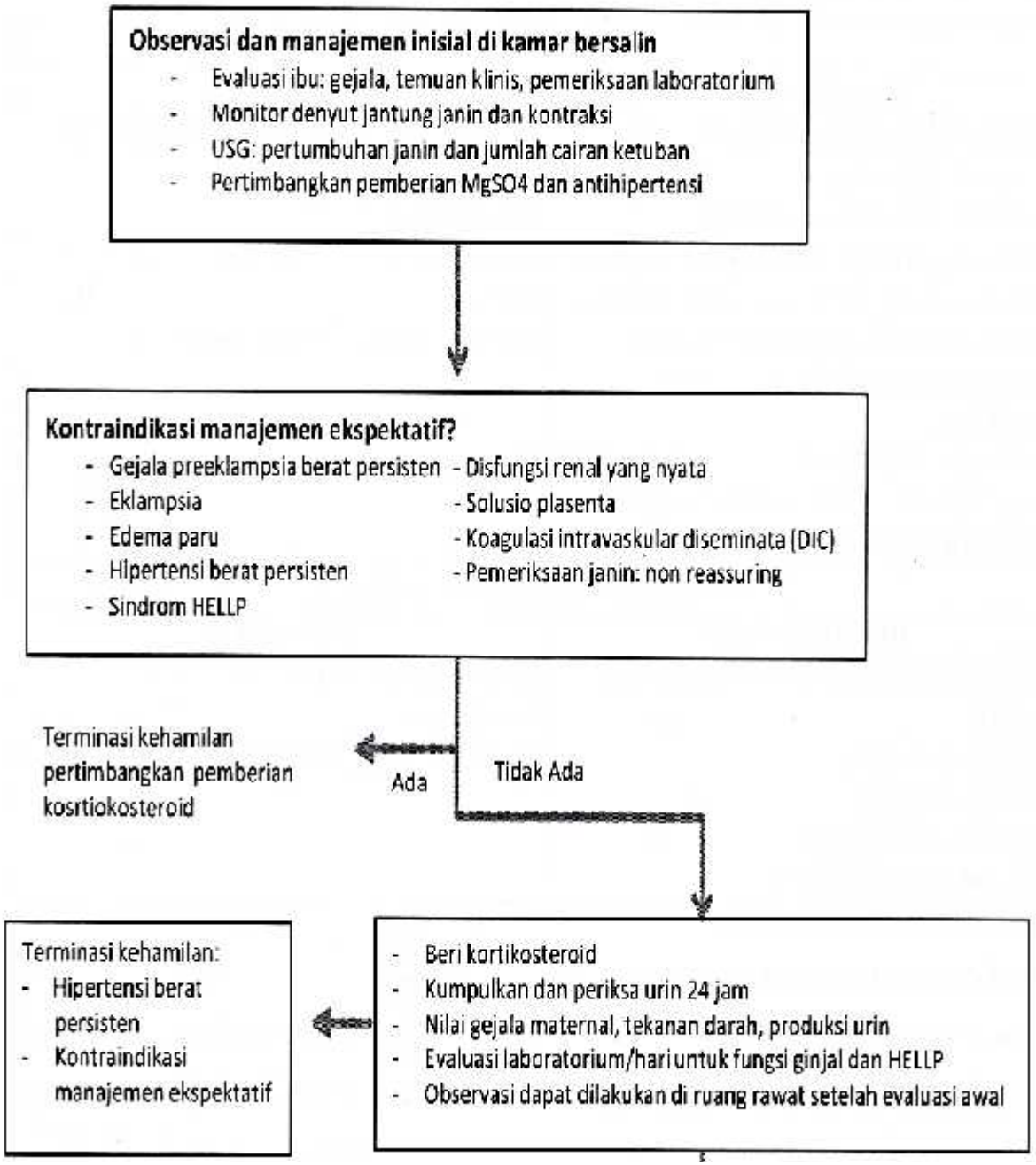
Bagan 1. Manajemen Ekspektatif



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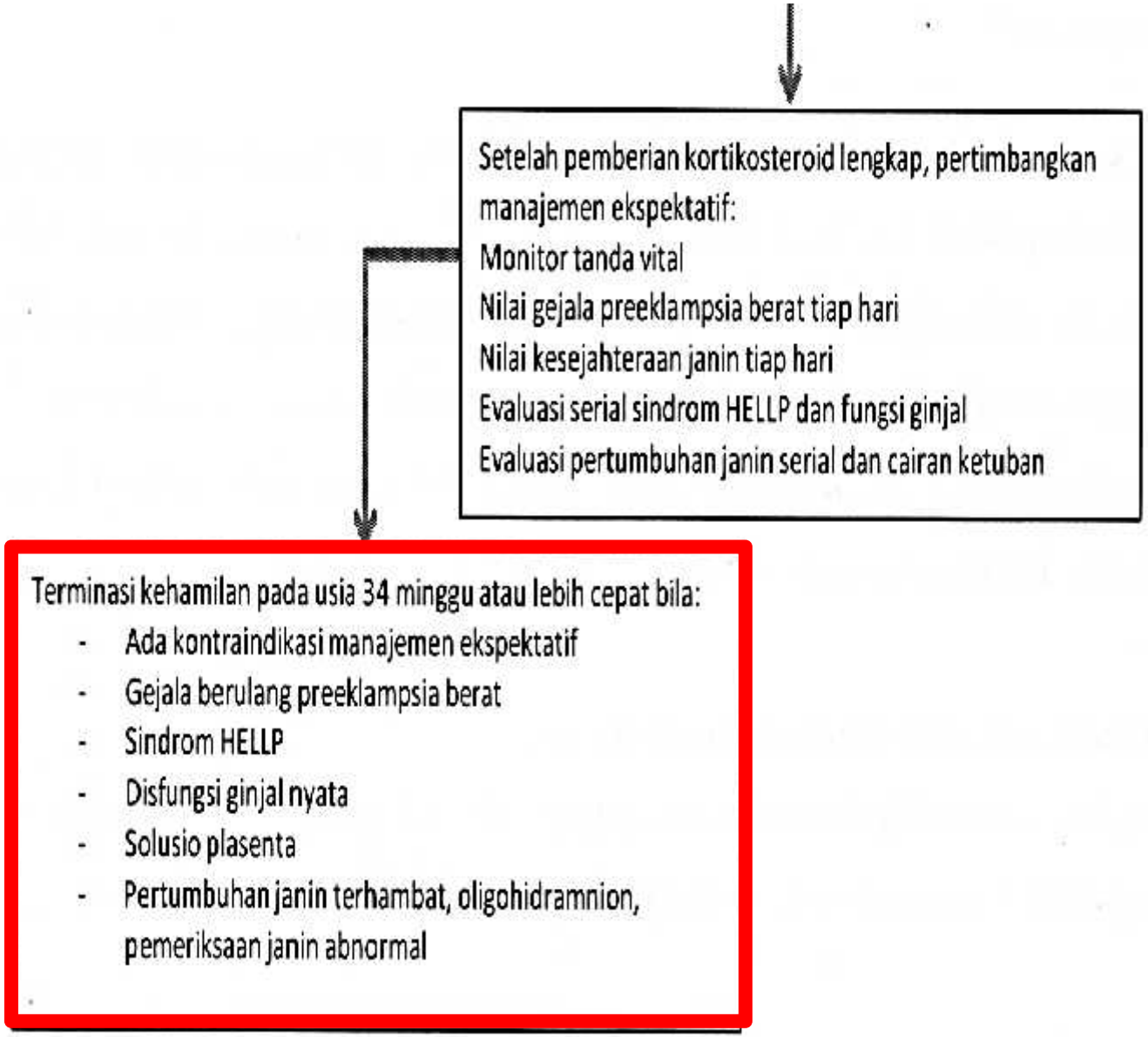

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Tabel 5. Kriteria manajemen konservatif atau terminasi kehamilan pada pasien preeklampsia berat

Terminasi kehamilan	
Data klinis maternal	Data klinis janin
Kardiovaskular: tekanan darah diastolik tidak terkontrol > 110 mmHg Perdarahan retinal atau ablasio retina Ginjal: gangguan fungsi seperti oliguria peningkatan kreatinin serum (<2 mg/dl), atau penurunan *creatinine clearance*, proteinuria > 3 g/24 jam CVS: kejang, koma, amaurosis atau gangguan penglihatan Trombosit < 100.000/mm3 Hepar: SGOT atau SGPT > 2x batas normal dan nyeri ulu hati atau kuadran kanan atas	Pertumbuhan janin terhambat melalui pemeriksaan USG dengan tanda gawat janin Oligohidramnion Profil biofisik < 6 Solusio plasenta Doppler a. umbilikalis: *absent* atau *reversed*
Manajemen konservatif masih kontroversi	
Data klinis maternal	Data klinis janin
Kardiovaskular: tekanan darah terkontrol (< 110 mmHg) Ginjal: proteinuria < 3 CVS: tidak ada gejala Trombosit > 100.000/mm3 Klinis dan hemodinamik stabil	Pertumbuhan janin baik Profil biofisik > 6 Belum ada tanda maturitas janin

Obat antihipertensi mengurangi kemungkinan eklamsi?

Terapi Antihipertensi

PNPK HKFM Indonesia 2016:

1. Indikasi utama pemberian obat antihipertensi pada kehamilan adalah mencegah kelainan serebrovaskular.
2. Mencegah hipertensi berat dan pemberian antihipertensi tambahan
3. Berhubungan dengan kejadian PJT

Istirahat atau bed rest merupakan upaya pencegahan preeklamsi?

Pencegahan

- WHO recommendation 2011

Box 1: Interventions that are recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
In areas where dietary calcium intake is low, calcium supplementation during pregnancy (at doses of 1.5–2.0 g elemental calcium/day) is recommended for the prevention of pre-eclampsia in all women, but especially those at high risk of developing pre-eclampsia.	Moderate	Strong

Kalsium 1,5-2 gr pada asupan yang rendah < 20 mg

PRINSIP KALSIUM: carroli G (1994), Levine (1997)

Intraseluler:

kalsium menstimulasi otot halus untuk kontraksi

Ekstraseluler:

mengaktivasi membran fosfolipase untuk memproduksi prostaglandin dan meningkatkan rasio prostasiklin-tromboksan

I. Pencegahan

- WHO recommendation 2011

Box 1: Interventions that are recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Low-dose acetylsalicylic acid (aspirin, 75 mg) for the prevention of pre-eclampsia and its related complications should be initiated before 20 (+0) weeks of pregnancy.	Low	Weak

Aspirin 75 mg diberikan dibawah 20 minggu

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions. √	Low	Weak
Strict bedrest is not recommended for impro outcomes in women with hypertension (with in pregnancy.		
Restriction in dietary salt intake during pregr preventing the development of pre-eclampsi not recommended.		
Vitamin D supplementation during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications.	Very low	Strong
Individual or combined vitamin C and vitamin E supplementation during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications.	High	Strong
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications.	Low	Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended.	Very low	Weak

Istirahat bukan pencegahan primer

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or without proteinuria) in pregnancy. √	Low	Weak
Restriction in dietary salt intake during pregna preventing the development of pre-eclampsia not recommended.		
Vitamin D supplementation during pregnancy prevent the development of pre-eclampsia an		
Individual or combined vitamin C and vitamin during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications.	High	Strong
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications.	Low	Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended.	Very low	Weak

Bed Rest total tidak memperbaiki luaran kehamilan

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or without proteinuria) in pregnancy.	Low	Weak
Restriction in dietary salt intake during pregnancy with the aim of preventing the development of pre-eclampsia and its complications is not recommended.	Moderate	Weak
Vitamin D supplementation during pregnancy is no prevent the development of pre-eclampsia and its		
Individual or combined vitamin C and vitamin E su during pregnancy is not recommended to prevent pre-eclampsia and its complications.		
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications.	Low	Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended.	Very low	Weak

√

Diet rendah garam tidak membantu upaya pencegahan

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or without proteinuria) in pregnancy.	Low	Weak
Restriction in dietary salt intake during pregnancy with the aim of preventing the development of pre-eclampsia and its complications is not recommended.	Moderate	Weak
Vitamin D supplementation during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications. √	Very low	Strong
Individual or combined vitamin C and vitamin E supplementa during pregnancy is not recommended to prevent the develo pre-eclampsia and its complications.		
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications.		
The use of corticosteroids for the specific purpose of treating with HELLP syndrome is not recommended.		

Vit D tidak direkomendasikan dalam upaya pencegahan

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or wit in pregnancy.		Weak
Restriction in dietary salt intake during pregnancy preventing the development of pre-eclampsia and not recommended.		Weak
Vitamin D supplementation during pregnancy is no prevent the development of pre-eclampsia and its		Strong
Individual or combined vitamin C and vitamin E supplementation during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications.	High	Strong
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications.	Low	Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended.	Very low	Weak

Vit C dan E tidak direkomendasikan dalam upaya pencegahan

√

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or without proteinuria) in pregnancy.	Low	Weak
Restriction in dietary salt intake during pregnancy preventing the development of pre-eclampsia and not recommended.		Weak
Vitamin D supplementation during pregnancy is no prevent the development of pre-eclampsia and its		Strong
Individual or combined vitamin C and vitamin E su during pregnancy is not recommended to prevent pre-eclampsia and its complications.		Strong
Diuretics, particularly thiazides, are not recommended for the prevention of pre-eclampsia and its complications. √	Low	Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended.	Very low	Weak

Diuretik (thiazide) tidak direkomendasikan dalam upaya pencegahan

Box 2: Interventions that are not recommended for prevention or treatment of pre-eclampsia and eclampsia

Recommendation	Quality of evidence	Strength
Advice to rest at home is not recommended as an intervention for the primary prevention of pre-eclampsia and hypertensive disorders of pregnancy in women considered to be at risk of developing those conditions.	Low	Weak
Strict bedrest is not recommended for improving pregnancy outcomes in women with hypertension (with or without proteinuria) in pregnancy.	Low	Weak
Restriction in dietary salt intake during pregnancy with the aim of preventing the development of pre-eclampsia and its complications is not recommended.	Moderate	Weak
Vitamin D supplementation during pregnancy is not recommended to prevent the development of pre-eclampsia and its complications	Very low	Strong
Individual or combined vitamin during pregnancy is not recom pre-eclampsia and its complic		Strong
Diuretics, particularly thiazides prevention of pre-eclampsia ar		Strong
The use of corticosteroids for the specific purpose of treating women with HELLP syndrome is not recommended. √	Very low	Weak

Kortikosteroid tidak direkomendasikan untuk pengobatan HELLP sindrom

Minyak Ikan ?

Kontrasepsi merupakan upaya pencegahan preeklamsi?

DETEKSI DINI
&
PENCEGAHAN

PRAKONSEPSI

Faktor Risiko:
Penyakit ginjal /hipertensi
Diabetes pregestasional
SLE/artritis rheumatoid
Thrombofilia
Hipertiroid yang tidak terkontrol
Sindrom polikistik ovarium
Usia diatas 40 tahun
Usia dibawah 20 tahun
Obesitas/resistensi insulin
BMI>35
BBLR maternal
Maternal preterm

INTERVENSI

Terapi
Normalisasi
Stabilisasi
Kontrasepsi

DETEKSI DINI & PENCEGAHAN

PRAKONSEPSI

TRIMESTER I

Protein Plasenta
- PlGF
- Sflt-1

11-13 mg
Plgf : 34 pg/ml (N)
25 pg/ml (ABN)

Intervensi
- Aspirin 75 mg
- Kalsium 1,5-2 gr

TRIMESTER II

Doppler a.Uterina
- 18 minggu
- 24 minggu

24-28 mg
Sflt-1: Plgf : 38
(Cobas,dkk, 2008)

Intervensi: < 20 mg
- Aspirin 75 mg
- Kalsium 1,5-2 gr

TERIMA KASIH