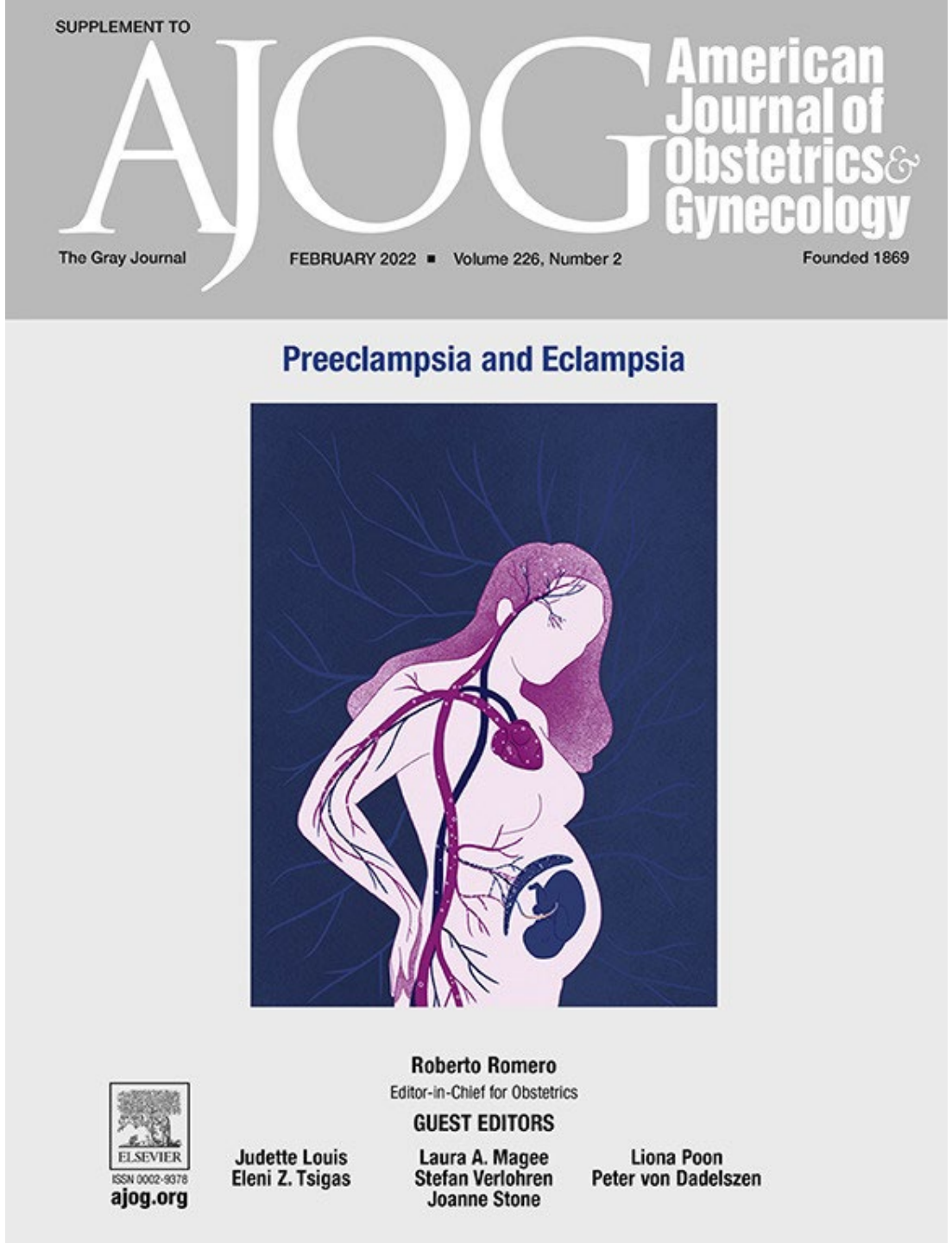
長庚紀念醫院
Chang Gung Memorial Hospital

Preeclampsia/Eclampsia

2022/9/18

林口長庚紀念醫院 產科
許晉婕醫師

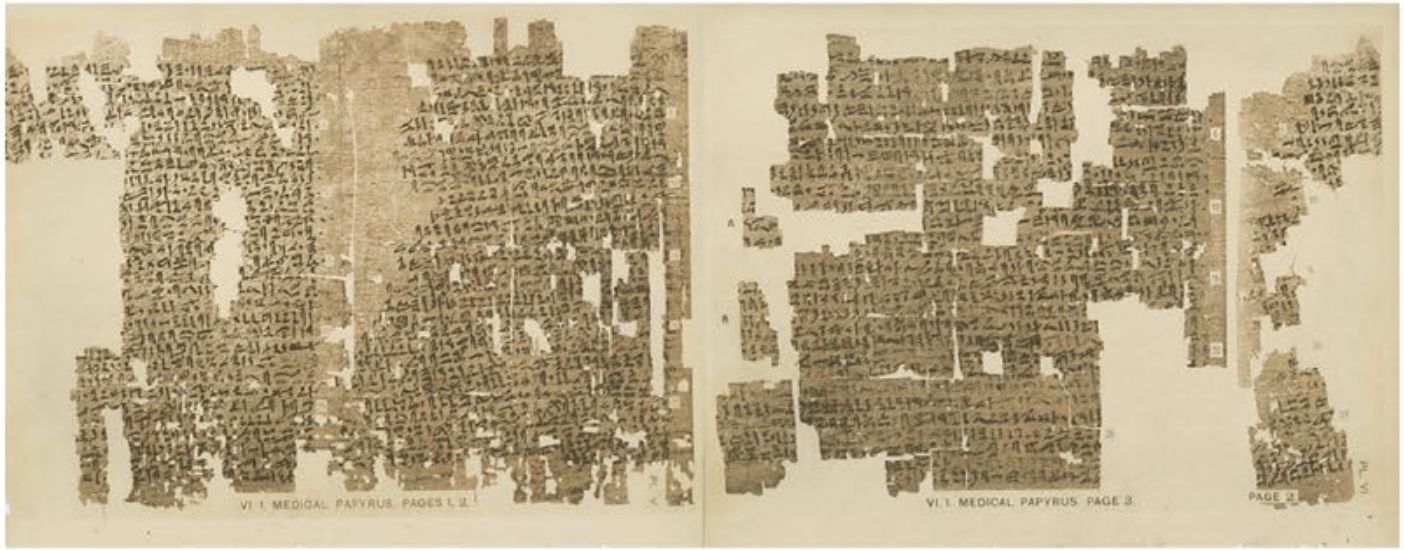


https://www.ajog.org/issue/S0002-9378(21)X0016-6#

2022/February　可完整下載39篇文章

FIGURE 1
The Kahun Gynaecological Papyrus

A



The Kahun Gynaecological Papyrus (1850-1700 BC)

B

PRESCRIPTION No. XXXIII.

To prevent a woman from biting [*her tongue* (?)]*:*
beans, pound ..... (26) .....
..... upon her jaws (?) the day of birth; it is a cure of biting excellent truly millions of times.

l. 25. *iwiit* for *iwriit* (v. 31), cf.  vi. 3, 12; = *iwr*, vi. 12.

1893 by Frederick Griffiths

Erez O, Romero R, Jung E, Chaemsaithong P, Bosco M, Suksai M, Gallo DM, Gotsch F. Preeclampsia and eclampsia: the conceptual evolution of a syndrome. Am J Obstet Gynecol. 2022 Feb;226(2S):S786-S803. doi: 10.1016/j.ajog.2021.12.001. PMID: 35177220; PMCID: PMC8941666.

FIGURE 2
First description of albuminuria in eclampsia

CASES

OF

PUERPERAL CONVULSIONS,

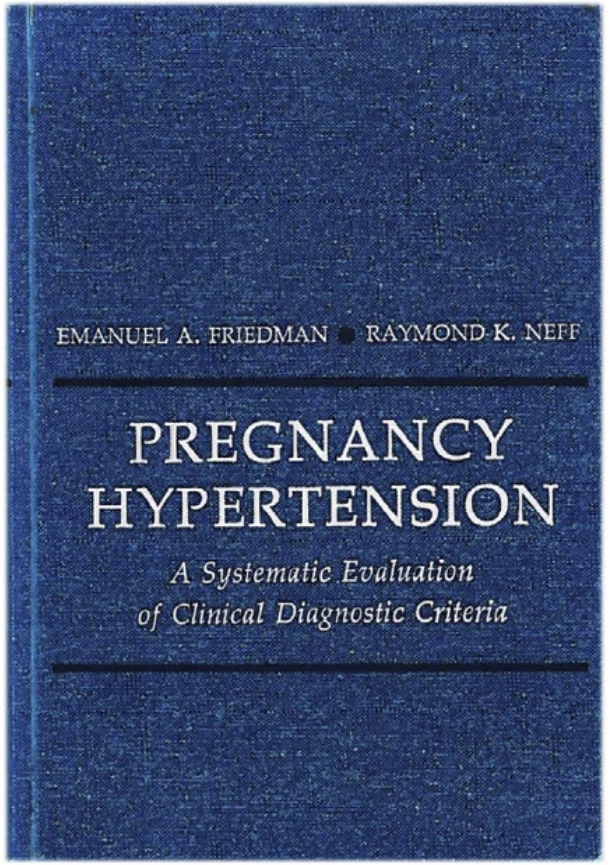
WITH REMARKS.

BY JOHN C. W. LEVER, M.D.

THE following Fourteen Cases of Puerperal Convulsions, out of Seven thousand four hundred and four women attended by the Pupils attached to the Lying-in-Charity of Guy's Hospital, have occurred between the years 1834 and 1843.

The symptoms which marked their course, and the principles which guided their treatment, present no new or extraordinary feature; but the coincidence of an albuminous condition of the urine, in nine out of ten cases in which that secretion was examined, is a fact which, so far as my investigations and inquiries have extended, has not been previously remarked.

FIGURE 6
The book cover of "Pregnancy hypertension: a systematic evaluation of clinical diagnostic criteria" authored by Emanuel A. Friedman and Raymond K. Neff and published in 1977



Erez O, Romero R, Jung E, Chaemsaithong P, Bosco M, Suksai M, Gallo DM, Gotsch F. Preeclampsia and eclampsia: the conceptual evolution of a syndrome. Am J Obstet Gynecol. 2022 Feb;226(2S):S786-S803. doi: 10.1016/j.ajog.2021.12.001. PMID: 35177220; PMCID: PMC8941666.

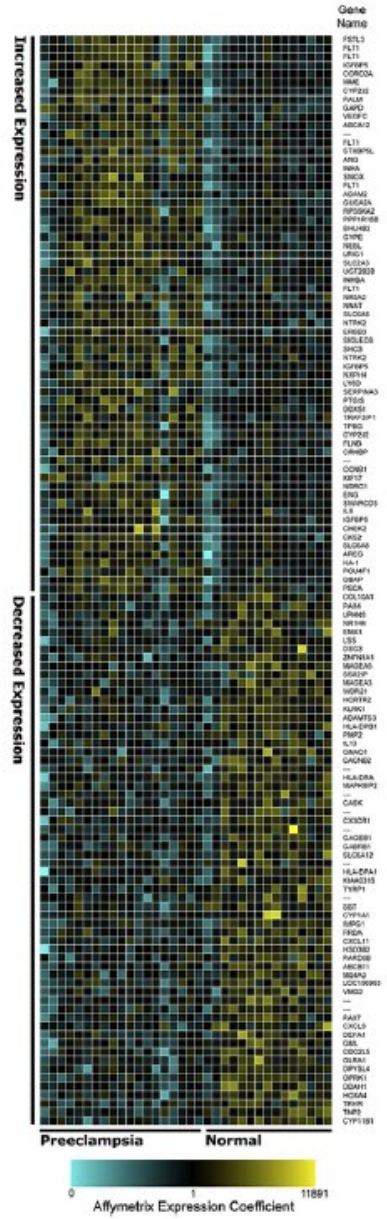
Discovery of antiangiogenic factors in the pathogenesis of preeclampsia

S. Ananth Karumanchi, MD
Towia Libermann, PhD

SUPPLEMENTAL TABLE
Differential expression of genes by Bayesian analysis (upregulated in preeclampsia in yellow and downregulated in preeclampsia in blue)

Affy Probe	Probability	Fold	Gene Symbol	Gene Name
33900_at	0.99992	3.849	FSTL3	follistatin-like 3 (secreted glycoprotein)
990_at	0.99990	3.233	FLT1	fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)
991_g_at	0.99989	2.727	FLT1	fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)
1601_s_at	0.99986	3.254	IGFBP5	insulin-like growth factor binding protein 5
36317_at	0.99982	3.767	CORO2A	coronin, actin binding protein, 2A
1389_at	0.99982	2.299	MME	membrane metallo-endopeptidase (neutral endopeptidase, enkephalinase, CALLA, CD10)
38566_at	0.00495	0.730	COL10A1	collagen, type X, alpha 1(Schmid metaphyseal chondrodysplasia)
31740_s_at	0.00488	0.637	PAX4	paired box gene 4
33359_at	0.00485	0.547	LPHN3	latrophilin 3
38519_at	0.00476	0.483	NR1H4	nuclear receptor subfamily 1, group H, member 4
33046_f_at	0.00473	0.492	EMX1	empty spiracles homolog 1 (Drosophila)
39108_at	0.00472	0.616	LSS	lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)
33693_at	0.00451	0.499	DSG3	desmoglein 3 (pemphigus vulgaris antigen)
834_at	0.00436	0.615	ZNFN1A1	zinc finger protein, subfamily 1A, 1 (Ikaros)

FIGURE
Heatmap of up-regulated and down-regulated genes in preeclampsia



YOU'RE HERE: HOMEPAGE > CLINICAL RESOURCES > ISUOG EXPERT VOICES > EXPERT VOICE: PRE-ECLAMPSIA

Expert Voice: Pre-eclampsia

BOOKMARK THIS PAGE

Pre-eclampsia (PE) is condition that affects 2–5% of pregnant women, and as high as 8–12% in some countries in Africa, with 76,000 women globally losing their life to PE every year.

In light of May's World Pre-eclampsia Day, ISUOG has compiled a collection of resources from our community's expert clinicians including, screening for PE, the best strategy for managing hypertension and PE at end of pregnancy, and risk assessment for PE.

Read, Watch and Learn

- Coronavirus (COVID-19) Resources
- ISUOG Guidelines
- Patient Information Series
- Fetal Biometry Calculators
- Resources library search

https://www.isuog.org/clinical-resources/isuog-expert-voices/expert-voice-pre-eclampsia.html?utm_source=CRM+Master+List&utm_campaign=f85eabb46c-MDS+Pre-eclampsia+email+27.05.2227%2F5%2F22+2%3A43+PM&utm_medium=email&utm_term=0_edd678b001-f85eabb46c-124719941

World Pre-eclampsia Day 2022

isuog.org

Every **7 minutes** a woman loses her life due to pre-eclampsia (PE) associated complications

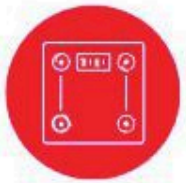
Globally, **76,000** women die each year from PE

500,000 babies die each year from PE through premature delivery - the only cure for the condition

Symptoms of Pre-Eclampsia

Severe headache that won't go away even with medication

Swelling of the face and hands



Weight gain of more than 2 pounds / 1 kg in one week

Difficulty breathing, gasping, or panting

Nausea after mid-pregnancy

Changes in vision (spots, light flashes, or vision loss)

Upper right belly pain / shoulder pain

22 MAY
World Pre-eclampsia Day
#ActEarlyScreenEarly

World Preeclampsia Day
May 22

Outlines 報告大綱

- **Definitions 認識疾病**
  - Chronic hypertension 慢性高血壓
  - Gestational hypertension 妊娠高血壓
  - Preeclampsia 子癇前症
  - Preeclampsia with severe features 子癇前症合併嚴重徵象
  - Eclampsia 子癇症
- **Risk factors and complications of preeclampsia 危險因子及併發症**
- **Screening, prevention and treatment of preeclampsia 篩檢、預防及治療**
- **Cases discussion 實例討論**

什麼是子癲前症？

子癇前症？子癲前症？妊娠毒血症？

正常懷孕的血壓變化

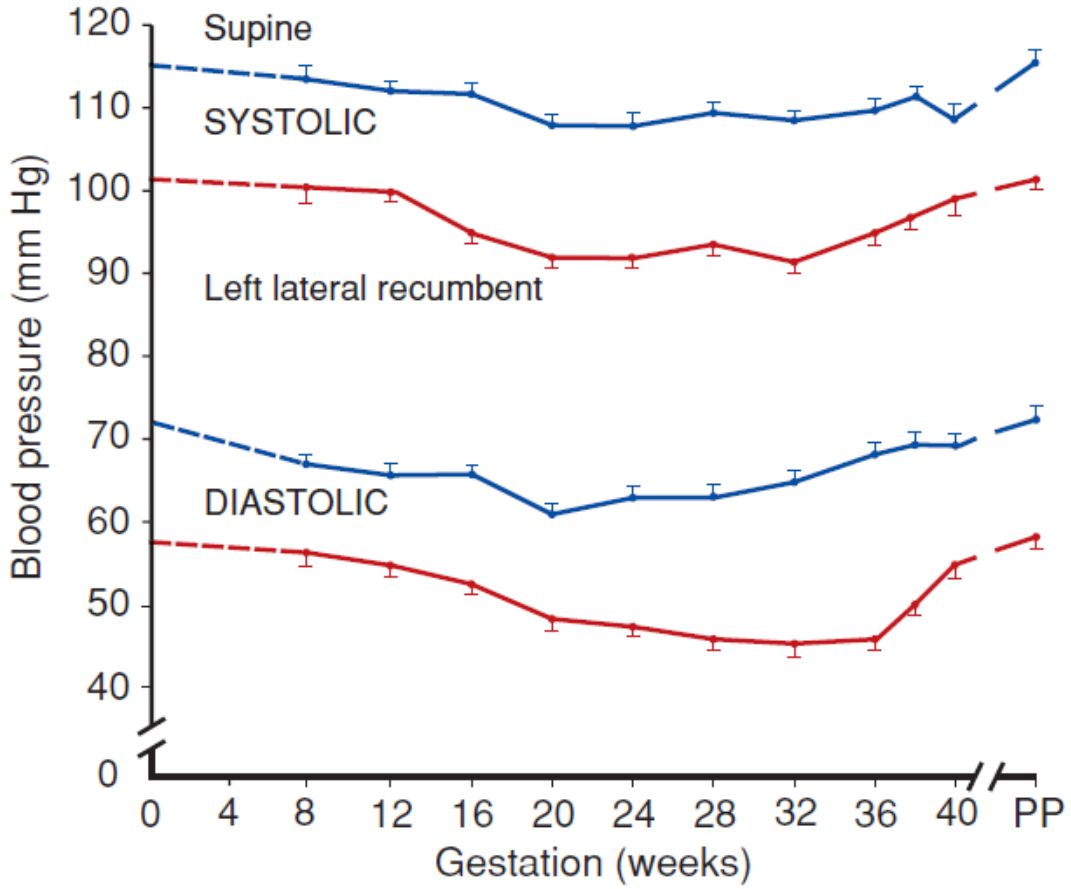
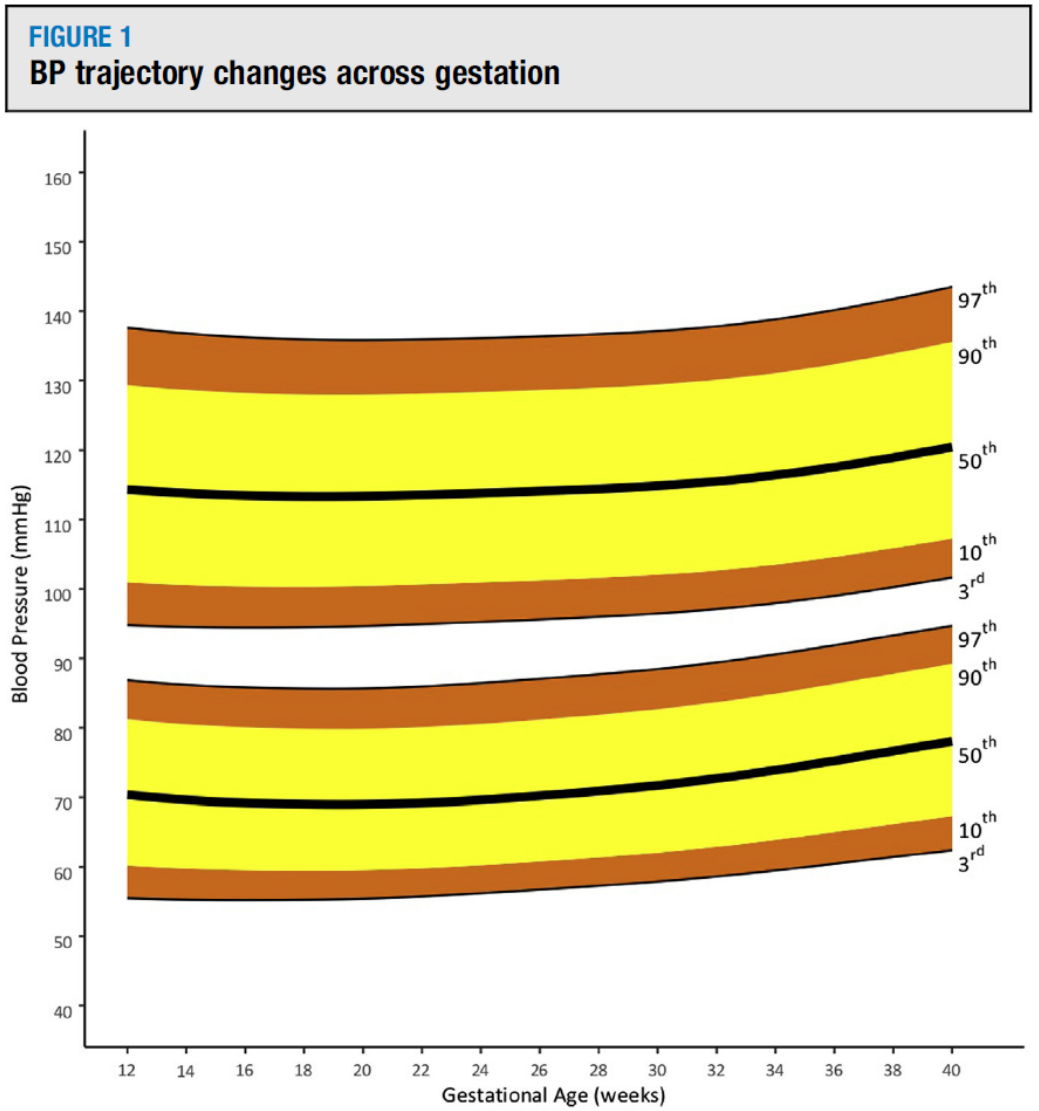


FIGURE 4-11 Sequential changes (±SEM) in blood pressure throughout pregnancy in 69 women in supine (*blue lines*) and left lateral recumbent positions (*red lines*). PP = postpartum. (Adapted from Wilson, 1980.)



BP, blood pressure.

Hurrell. BP assessment in pregnant women. Am J Obstet Gynecol 2022.

妊娠高血壓疾病的異常變化

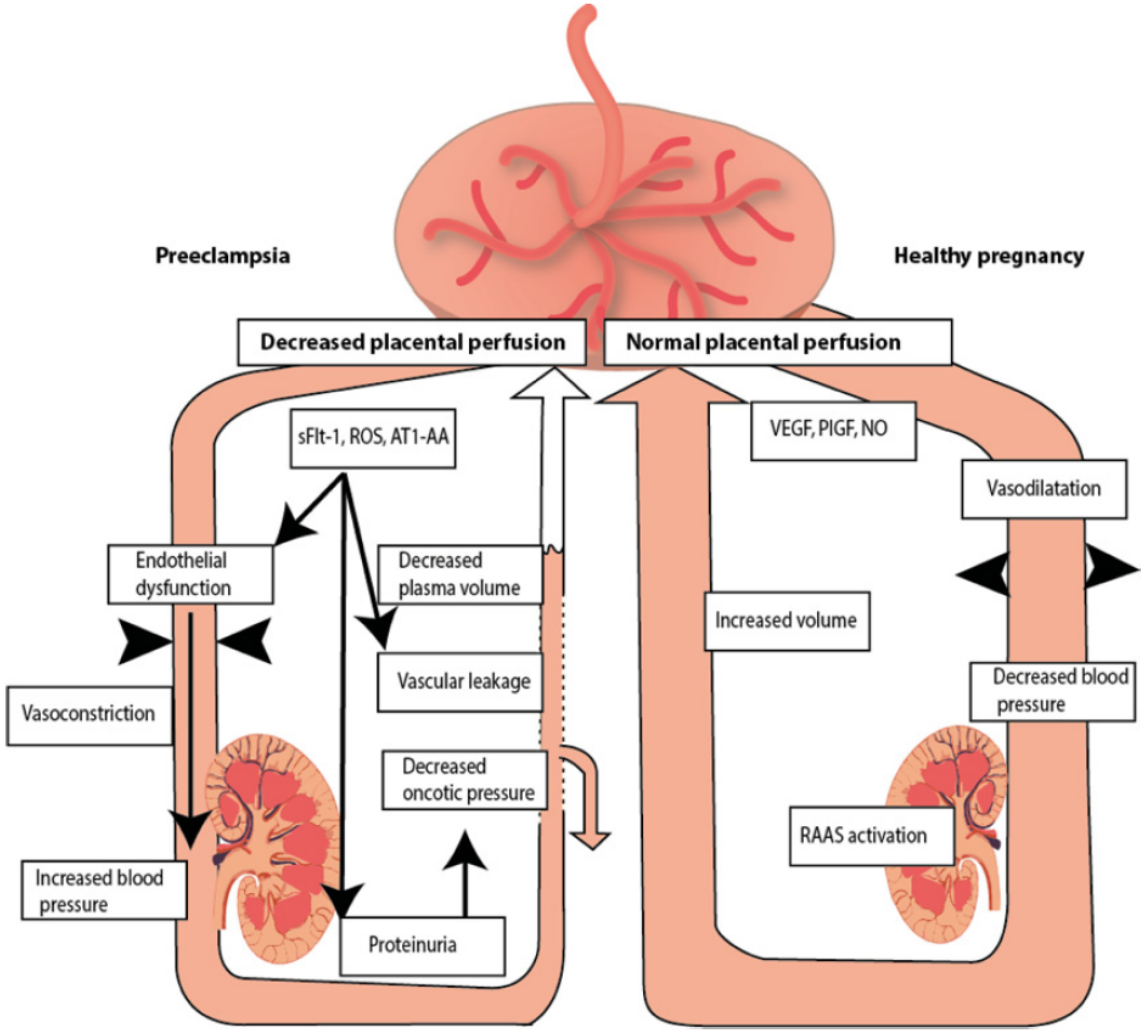


Figure 1 **Vascular system and perfusion of the placenta in a pre-eclamptic and a healthy pregnancy**
In pre-eclampsia endothelial dysfunction leads to increased vascular resistance, blood pressure elevation, increased vascular permeability and a decrease in oncotic pressure. This will further decrease circulating volume and diminish placental perfusion. In response, the placenta will produce more anti-angiogenic vasoactive factors such as sFlt-1, AT_1-AA and ROS, causing further vasoconstriction and deterioration of placental perfusion.

Verdonk K, Visser W, Van Den Meiracker AH, Danser AH. The renin-angiotensin-aldosterone system in pre-eclampsia: the delicate balance between good and bad. Clin Sci (Lond). 2014 Apr;126(8):537-44. doi: 10.1042/CS20130455. PMID: 24400721.

Chronic Hypertension 慢性高血壓

- The American College of Cardiology (ACC) and the American Heart Association (AHA), 2017
- **Non-pregnant adult or at the first-trimester visit**
- Elevated blood pressure: SBP 120-129 mmHg and DBP <80 mmHg
- Stage 1 hypertension: SBP 130-139 mmHg or DBP 80-89 mmHg
  - Increased risk of preeclampsia, gestational diabetes, small for gestational age
  - AJOG: conservative treatment, closely monitor
- **Stage 2 hypertension: SBP ≧ 140 mmHg or DBP ≧ 90 mmHg**
  - **13-40% developed superimposed preeclampsia**
  - 0.59% AKI
  - 0.15% pulmonary edema
  - 0.27% stroke/cerebrovascular complications

1. Bello NA, Zhou H, Cheetham TC, Miller E, Getahun DT, Fassett MJ, Reynolds K. Prevalence of Hypertension Among Pregnant Women When Using the 2017 American College of Cardiology/American Heart Association Blood Pressure Guidelines and Association With Maternal and Fetal Outcomes. JAMA Netw Open. 2021 Mar 1;4(3):e213808. doi: 10.1001/jamanetworkopen.2021.3808. Erratum in: JAMA Netw Open. 2021 Apr 1;4(4):e2112000. PMID: 33787907; PMCID: PMC8013820.
2. Hauspurg A, Parry S, Mercer BM, Grobman W, Hatfield T, Silver RM, Parker CB, Haas DM, Iams JD, Saade GR, Wapner RJ, Reddy UM, Simhan H. Blood pressure trajectory and category and risk of hypertensive disorders of pregnancy in nulliparous women. Am J Obstet Gynecol. 2019 Sep;221(3):277.e1-277.e8. doi: 10.1016/j.ajog.2019.06.031. Epub 2019 Jun 27. PMID: 31255629; PMCID: PMC6732036.

Gestational Hypertension 妊娠高血壓

≥20 weeks of gestation AND

SBP≥140 mmHg OR **DBP≥90 mmHg 間隔四小時兩次** OR

SBP≥160 mmHg OR **DBP≥110 mmHg 一次**

- 產後12週應回到正常 → transient hypertension of pregnancy (85%)
- 若無 → chronic hypertension (15%)

Preeclampsia 子癇前症

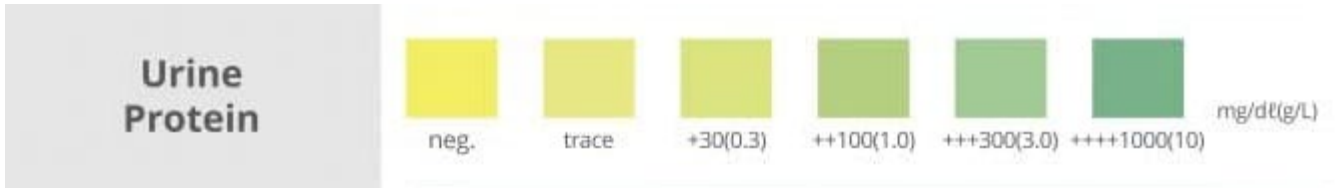
≥20 weeks of gestation AND

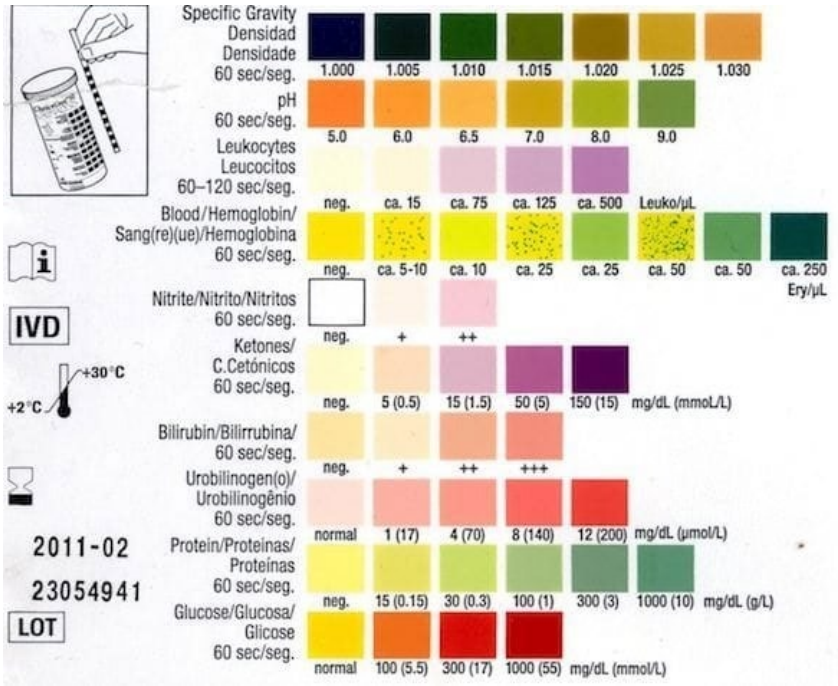
SBP≥140 mmHg OR **DBP≥90 mmHg** 間隔四小時兩次 OR

SBP≥160 mmHg OR **DBP≥110 mmHg** 一次

Proteinuria

- Proteinuria
  - ≥300mg per 24 hour urine collection
  - Protein/creatinine ratio ≥ 0.3
  - Dipstick reading of 2+





Preeclampsia with Severe Features 嚴重子癇前症

≥20 weeks of gestation AND

SBP≥140 mmHg OR DBP≥90 mmHg 間隔四小時兩次 OR

SBP≥160 mmHg OR DBP≥110 mmHg 一次

End-organ dysfunction (腦廢肝剩血) OR SBP/DBP >160/110 mmHg (血壓極高)

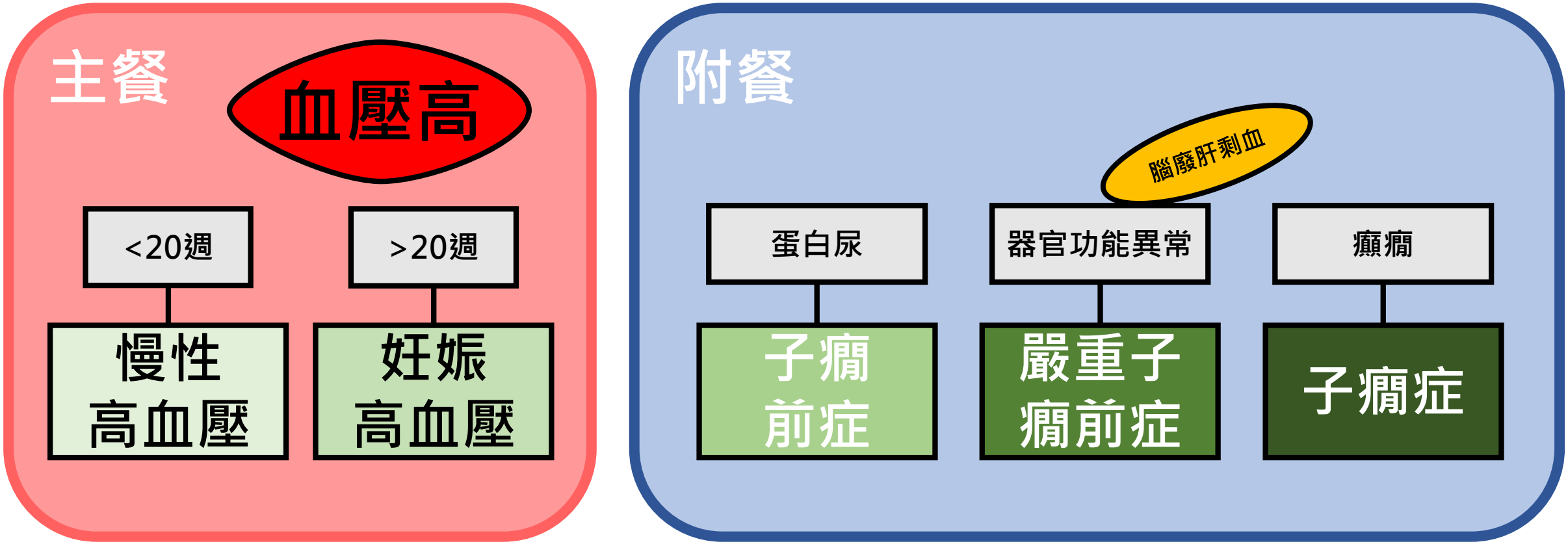
腦	肺	肝	腎	血
頭痛, 視力模糊	肺水腫	右上腹痛, AST/ALT 高兩倍	Cr ≥1.1mg/dL or 高兩倍	血小板 <10萬

Eclampsia 子癲症

≥20 weeks of gestation AND
SBP≥140 mmHg OR DBP≥90 mmHg 間隔四小時兩次 OR
SBP≥160 mmHg OR DBP≥110 mmHg 一次
Seizure (癲癇)

- Differential diagnosis
  - Brain tumor
  - Ruptured aneurysm, ICH
  - Toxin (drug, alcohol, substance)
  - Head trauma
  - Metabolic abnormality (hypocalcemia, hyponatremia, hypoglycemia)

Hypertensive Disorders in Pregnancy



子癲前症會怎樣？
我會不會得到？
該怎麼預防？

可能併發症

- **Obstetric related**
  - Growth restriction
  - Preterm delivery
  - Abruptio placentae
  - Stillbirth
- **Long term maternal outcome**
  - Hypertension
  - Cardiovascular disease (CVD, including coronary heart disease, stroke, and heart failure)
  - Kidney disease
- **Leading cause of maternal mortality (6.4 per 10000 cases of delivery)**

危險因子

Box 1. Risk Factors for Preeclampsia

Nulliparity
Multifetal gestations
Preeclampsia in a previous pregnancy
Chronic hypertension
Pregestational diabetes
Gestational diabetes
Thrombophilia
Systemic lupus erythematosus
Prepregnancy body mass index greater than 30
Antiphospholipid antibody syndrome
Maternal age 35 years or older
Kidney disease
Assisted reproductive technology
Obstructive sleep apnea

ACOG
The American College of Obstetricians and Gynecologists

VOL. 135, NO. 6, JUNE 2020

ACOG PRACTICE BULLETIN

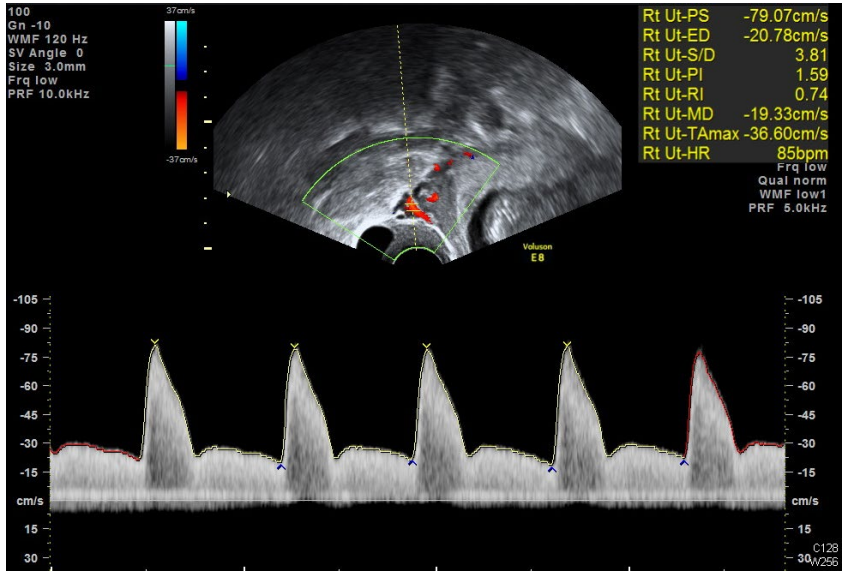
Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 222

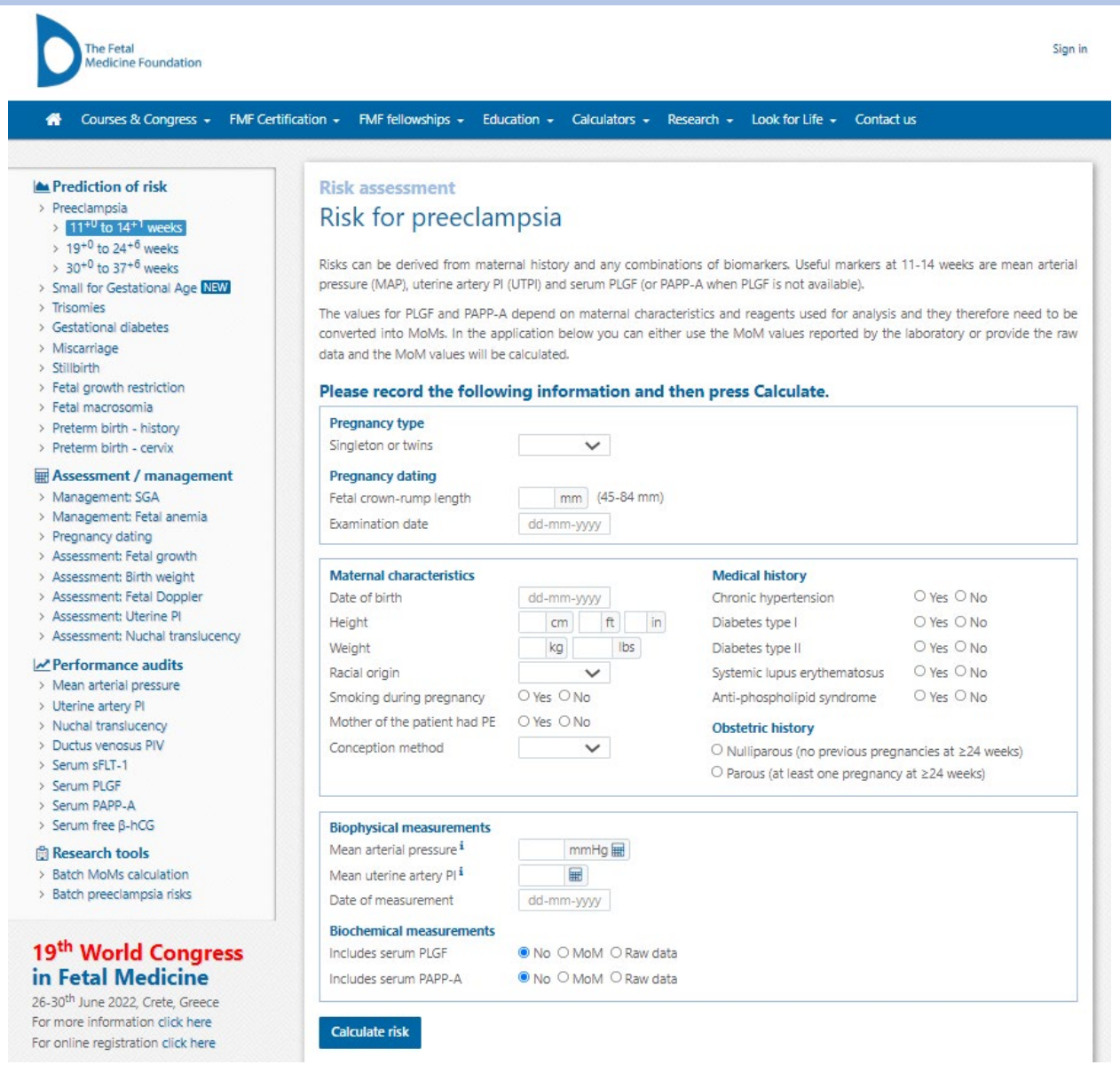
(Replaces Practice Bulletin No. 202, December 2018)

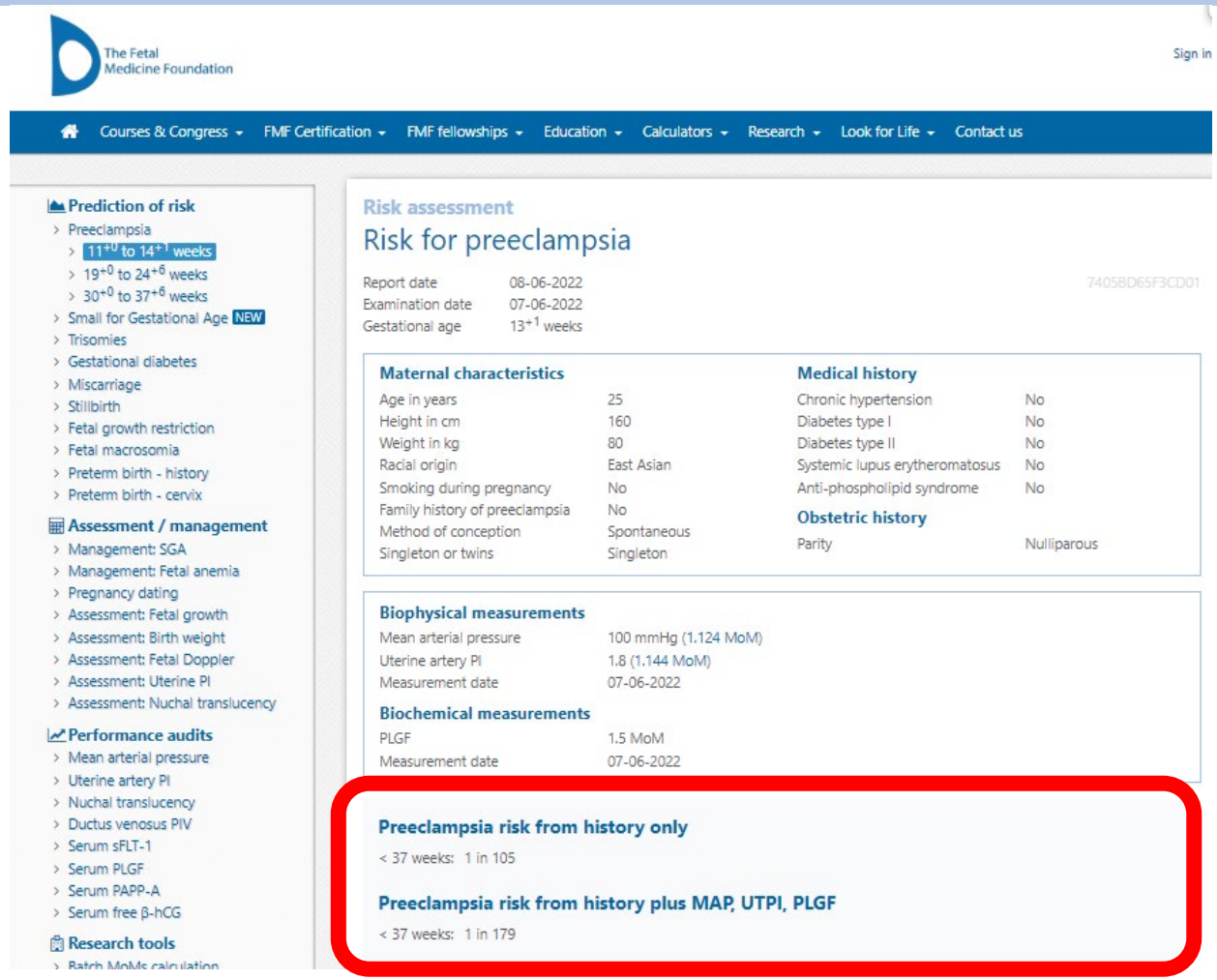
篩檢及預防

- **Fetal Medicine Foundation (FMF) first trimester prediction model**
  - 第一孕期子癲前症篩檢
  - Triple test, 11-14 weeks
  - **Mean arterial pressure (MAP)**
  - **Uterine artery PI (UPI)**
  - **Maternal serum placenta growth factor (PlGF,PAPP-A)**



篩檢及預防





https://fetalmedicine.org/research/assess/preeclampsia/first-trimester

篩檢及預防

- Fetal Medicine Foundation (FMF) first trimester prediction model
  - 11-14 weeks
  - Triple test
  - **Mean arterial pressure (MAP)**
  - **Uterine artery PI (UPI)**
  - **Serum PLGF or PAPP-A**
- 若風險大於1/200，建議GA16週前即給予低劑量Aspirin，直至36週
  - 低劑量：60-150 mg/day
  - 有人吃到生，有人吃到36週
- **History matters!!!**

相關病史之相對風險值

Box 1. Risk Factors for Preeclampsia

Nulliparity (RR: 2.1)
Multifetal gestations (RR: 2.9)
* Preeclampsia in a previous pregnancy **(RR: 8.4)**
* Chronic hypertension **(RR: 5.1)**
Pregestational diabetes (RR: 3.7)
Gestational diabetes
Thrombophilia
Systemic lupus erythematosus (RR: 1.8)
Prepregnancy body mass index greater than 30 (RR: 2.8)
Antiphospholipid antibody syndrome (RR: 2.8)
Maternal age 35 years or older (RR: 1.2)
Kidney disease (RR: 1.8)
Assisted reproductive technology (RR: 1.8)
Obstructive sleep apnea

ACOG
The American College of Obstetricians and Gynecologists

VOL. 135, NO. 6, JUNE 2020

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 222

(Replaces Practice Bulletin No. 202, December 2018)

相關病史之相對風險值

- 22% gestational hypertension下一胎會復發，其中7%會變成preeclampsia
- 36% preeclampsia下一胎會復發，其中16%為gestational hypertension，20%為preeclampsia
- Early onset, severe preeclampsia的復發率高達25-65%

前胎有妊娠高血壓、子癲前症病史
就要給Aspirin!!

篩檢及預防

Table 1. Clinical Risk Factors and Aspirin Use*

Level of Risk	Risk Factors	Recommendation
High†	• History of preeclampsia, especially when accompanied by an adverse outcome • Multifetal gestation • Chronic hypertension • Type 1 or 2 diabetes • Renal disease • Autoimmune disease (ie, systemic lupus erythematosus, the antiphospholipid syndrome)	Recommend low-dose aspirin if the patient has one or more of these high-risk factors
Moderate‡	• Nulliparity • Obesity (body mass index greater than 30) • Family history of preeclampsia (mother or sister) • Sociodemographic characteristics (African American race, low socioeconomic status) • Age 35 years or older • Personal history factors (eg, low birth weight or small for gestational age, previous adverse pregnancy outcome, more than 10-year pregnancy interval)	Consider low-dose aspirin if the patient has more than one of these moderate-risk factors§
Low	• Previous uncomplicated full-term delivery	Do not recommend low-dose aspirin

ACOG
The American College of Obstetricians and Gynecologists

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

Number 222 (Replaces Practice Bulletin No. 202, December 2018)

篩檢及預防

Risk Level	Risk Factors	Recommendation
High **高風險** (RR>3左右)	前胎子癇前症病史(尤其是early-onset) 第一/二型糖尿病 慢性高血壓 多胞胎 腎臟疾病 自體免疫疾病(如APS, SLE)	(8%可能產生子癇前症) 有**任一條件**符合即建議 給予低劑量Aspirin
Moderate **中風險**	初產婦 肥胖(BMI>30) 子癇前症家族史(母親、姊妹) 高齡>35歲 社經背景(黑人、低收入) 個人病史(低出生體重兒、不良孕產史如胎死腹中、前胎大於10年以上) 人工生殖受孕	符合**兩項以上**即建議 給予低劑量Aspirin

US Preventive Services Task Force, Davidson KW, Barry MJ, Mangione CM, Cabana M, Caughey AB, Davis EM, Donahue KE, Doubeni CA, Kubik M, Li L, Ogedegbe G, Pbert L, Silverstein M, Simon MA, Stevermer J, Tseng CW, Wong JB. Aspirin Use to Prevent Preeclampsia and Related Morbidity and Mortality: US Preventive Services Task Force Recommendation Statement. JAMA. 2021 Sep 28;326(12):1186-1191. doi: 10.1001/jama.2021.14781. PMID:

該如何治療子癲前症？

治療

Delivery!

Delivery!!

Delivery!!!

治療

生產才是子癲前症的根本治療!!

- Timing of delivery???
  - ACOG suggested the following approach for delivery of women with **chronic hypertension**:
    - ≥38+0 to 39+6 weeks of gestation for women not requiring medication
    - ≥37+0 to 39+0 weeks for women with hypertension controlled with medication
    - 34+0 to 36+6 weeks for women with severe hypertension that is difficult to control

治療

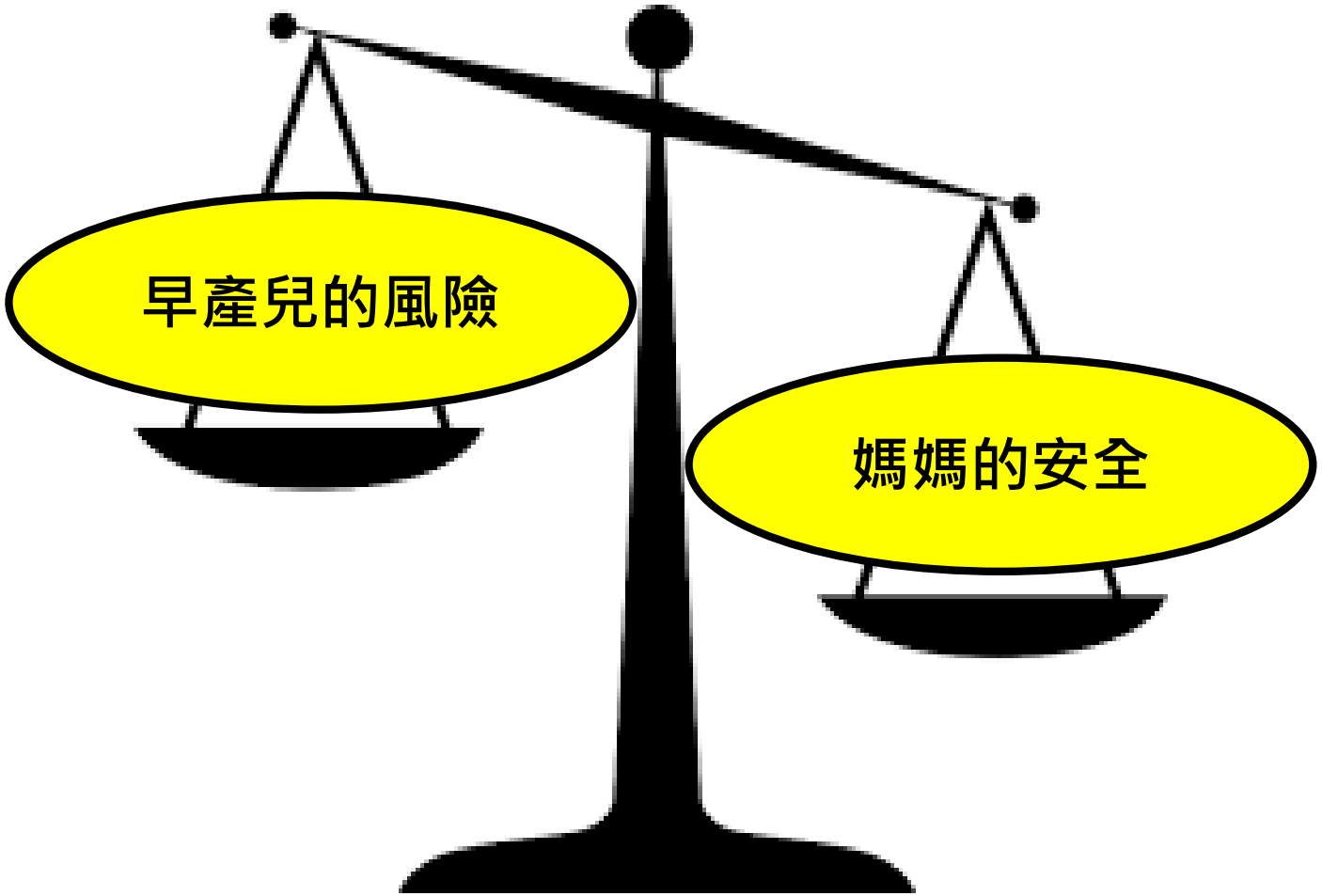
生產才是子癲前症的根本治療!!

- Timing of delivery???
  - We suggest delivery of all patients with **preeclampsia with severe features** who have reached ≥34 weeks of gestation
    - In women with preeclampsia with severe features at **less than 34 0/7 weeks of gestation**, with stable maternal and fetal condition, **expectant management** may be considered.
    - During expectant management, delivery is recommended at any time in the case of deterioration of maternal or fetal condition
    - For preeclampsia with severe features **before the limit of viability**, we recommend **pregnancy termination**

治療

- **Management of hypertension**
  - Regardless of etiology (chronic hypertension, gestational hypertension, preeclampsia), there is consensus among medical organizations that **severe maternal hypertension (systolic blood pressure ≥160 mmHg or diastolic blood pressure ≥110 mmHg) should be pharmacologically treated** in a timely manner to reduce maternal cerebrovascular, cardiac, and renal events as well as death.
    - ACOG has recommended utilizing 140/90 mmHg as the threshold for initiation or titration of medical therapy for chronic hypertension in pregnancy, rather than the previously recommended threshold of 160/110 mmHg
- **Seizure prophylaxis**
  - **$MgSO_4$**

治療



實例討論1

29 y/o female, G2P1 (P1 elective C/S), pregnant at 35+3 weeks (EDC: 2021/10/9)

Denied any systemic disease: no PIH, no GDM, no seizure history

Sent by ambulance due to **seizure attack twice**: once at home, once at ambulance

2021/9/7

- **10:05 arrived DR** T:37.1 P:91 R:18 SBP:137 DBP:106 E:4 V:5 M:6 **急救車推至bedside**
- **10:12 on IV, PCR** NST reactive, bedside sonography, 醫護著黃區裝備
- **10:27 seizure attack** Tongue depressor use
- **10:30 move to 3J for emergent CS** 推病床轉送
- **10:32 arrived 3J CS room** 護理人員壓制並移至手術台，未著防護裝備
- **10:34 seizure subsided** 約束等待麻醫著裝
- **10:38 anesthesia induction** 插管全麻, 手術團隊就位

緩衝區

綠區產房

隔離產房

29 y/o female, G2P1 (P1 elective C/S), pregnant at 35+3 weeks (EDC: 2021/10/9)

Denied any systemic disease: no PIH, no GDM, no seizure history

Sent by ambulance due to **seizure attack twice**: once at home, once at ambulance

2021/9/7

10:40 baby born Apgar score 9 → 10, BBW: 2185g, sent to NICU; **PCR negative**

13:08 sent to ICU BP: 160/110 mmHg, give Labetalol IV, keep $MgSO_4$

13:23 CT: PRES, no ICH BP: 149/94 mmHg

15:47 extubation BP: 141/89 mmHg

urine protein: 4+ (1000mg/dL)
Cr: 0.61 (mg/dL)
AST/ALT: 132/42 (U/L)
platelet: 177k (/uL)

2021/9/7 transfer to ordinary ward Under Labetalol PO 1pc/Q12H; BP: 118/70 mmHg

2021/9/11 discharge BP: 108/63 mmHg

2021/9/17 clinic f/u BP: 119/81 mmHg, DC Labetalol

2021/10/29 clinic f/u BP: 119/73 mmHg

29 y/o female, G2P1 (P1 elective C/S), pregnant at 35+3 weeks (EDC: 2021/10/9)

Denied any systemic disease: no PIH, no GDM, no seizure history

Sent by ambulance due to **seizure attack twice**: once at home, once at ambulance

Date	3/18 10 weeks	4/1 12 weeks	4/29 16 weeks	6/3 21 weeks	7/1 25 weeks	7/29 29 weeks	8/12 31 weeks	8/26 33 weeks
SBP	121	118	114	119	126	114	122	123
DBP	79	71	73	61	75	69	71	72
Urine Protein	-	-	-	-	-	-	-	-

Final Diagnosis:

1. **Pregnancy at 35+3 weeks of gestation with hypertension, proteinuria and general tonic-clonic seizure, favor eclampsia**
2. **Status post emergent cesarean section on 2021/9/7**

Eclampsia management

- Initial steps: call for help, prevent maternal injury, **lateral decubitus position**, prevent aspiration, **oxygen support, monitor vital signs**
- Most eclamptic seizures are **self-limited**
- Magnesium sulfate can **prevent recurrent convulsions**
- Only after **maternal hemodynamic stabilization** should one proceed with delivery.

ACOG
The American College of Obstetricians and Gynecologists

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 222

(Replaces Practice Bulletin No. 202, December 2018)

Eclampsia management

In recurrent seizure

- **2–4 grams of MgSO4 could be administered IV over 5 minutes**
- In cases refractory to MgSO4:
  - ✓**sodium amobarbital** (250 mg IV in 3 minutes)
  - ✓**thiopental**
  - ✓**phenytoin** (1,250 mg IV at a rate of 50 mg/minute).
- **Endotracheal intubation** and assisted ventilation in ICU
- **Head imaging** should also be considered

ACOG
The American College of Obstetricians and Gynecologists

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 222

(Replaces Practice Bulletin No. 202, December 2018)

Seizure of unknown cause

- Initial steps: call for help, prevent maternal injury, **lateral decubitus position**, prevent aspiration, **oxygen support, stabilize vital signs**
- Medication: Ativan, valium, other AEDs
- **Do not put anything in patient's mouth, do not restrain**
- If seizure persists ➔ **consider prompt delivery**
- **Seizure survey: biochemical test, brain imaging, EEG**
- **Consult Neurologist**

ILAE International League Against Epilepsy

UpToDate®

Lessons to Learn

- 毫無預警的eclampsia
- 癲癇發作時的處理
- 防疫下的第一優先考量：保護自己

實例討論2

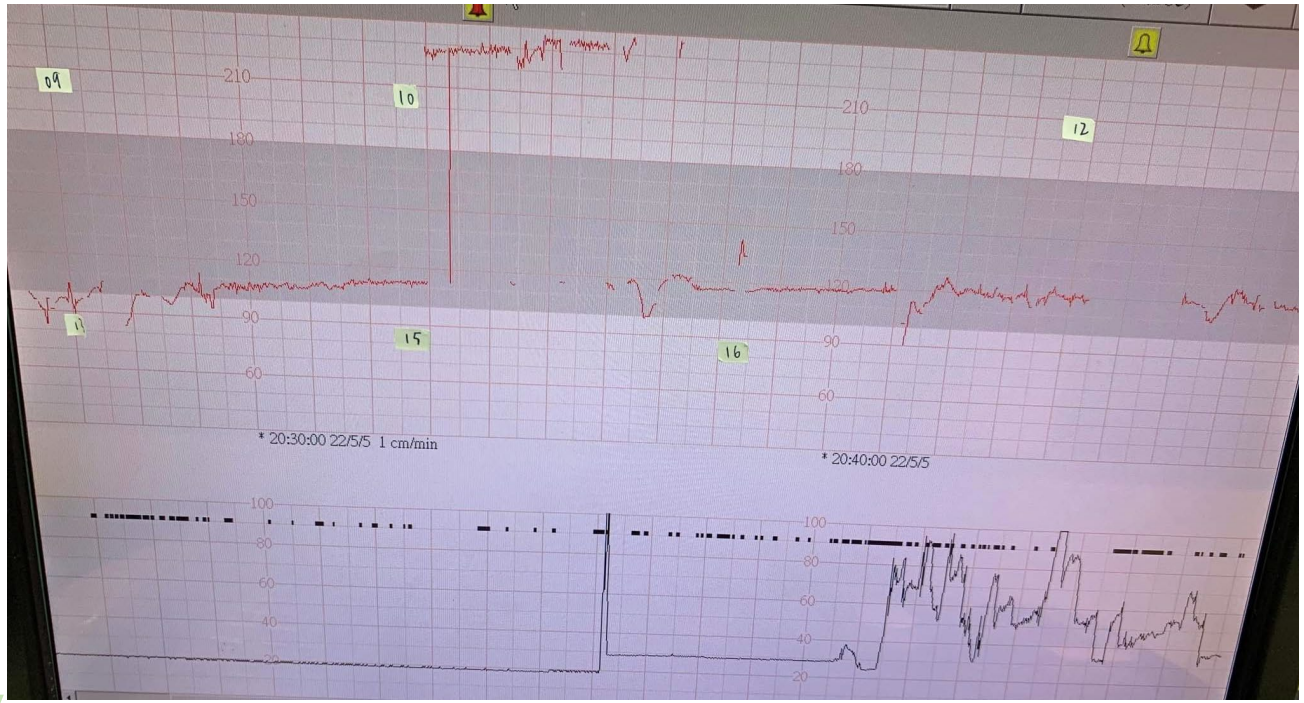
35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

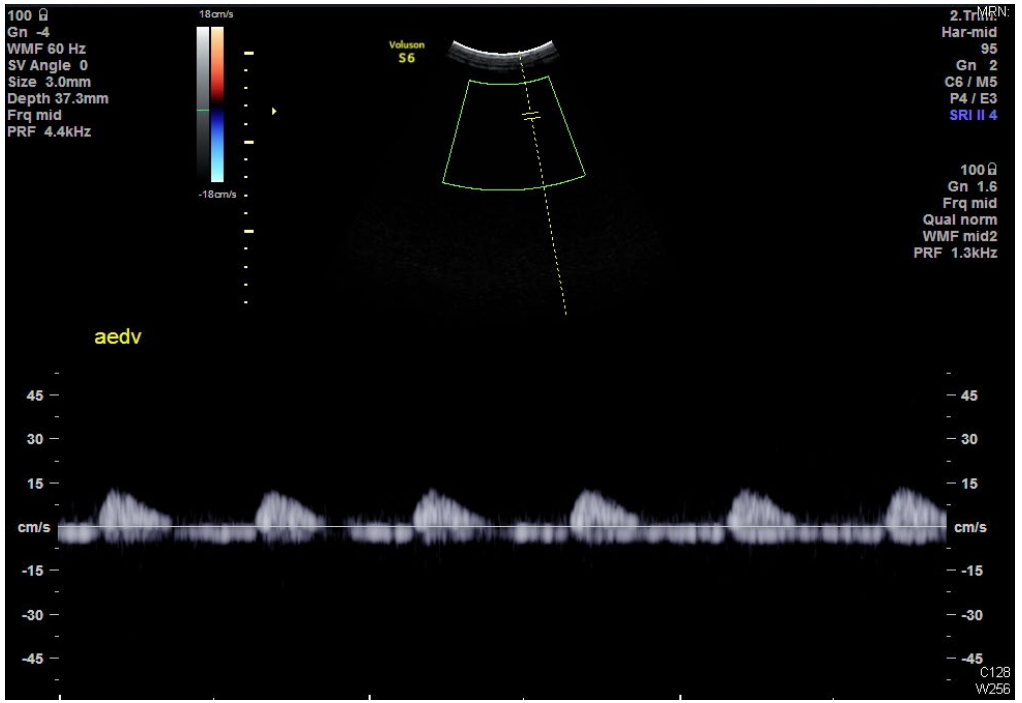
Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

2022/5/5

20:49 arrived DR T:36.6 P:79 R:18 SBP:150 DBP:104 E:4 V:5 M:6





35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

2022/5/5

20:49 arrived DR T:36.6 P:79 R:18 SBP:150 DBP:104 E:4 V:5 M:6

NST: minimal variability; ultrasound: AEDV of UmA
Biophysical profile: 4/10

21:32 arranged emergent CS Apgar score 5 → 7, BBW: 1290 gm, sent to NICU

Post-CS BP: 182/117 mmHg, give Labetalol PO 1pc/Q8H

35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

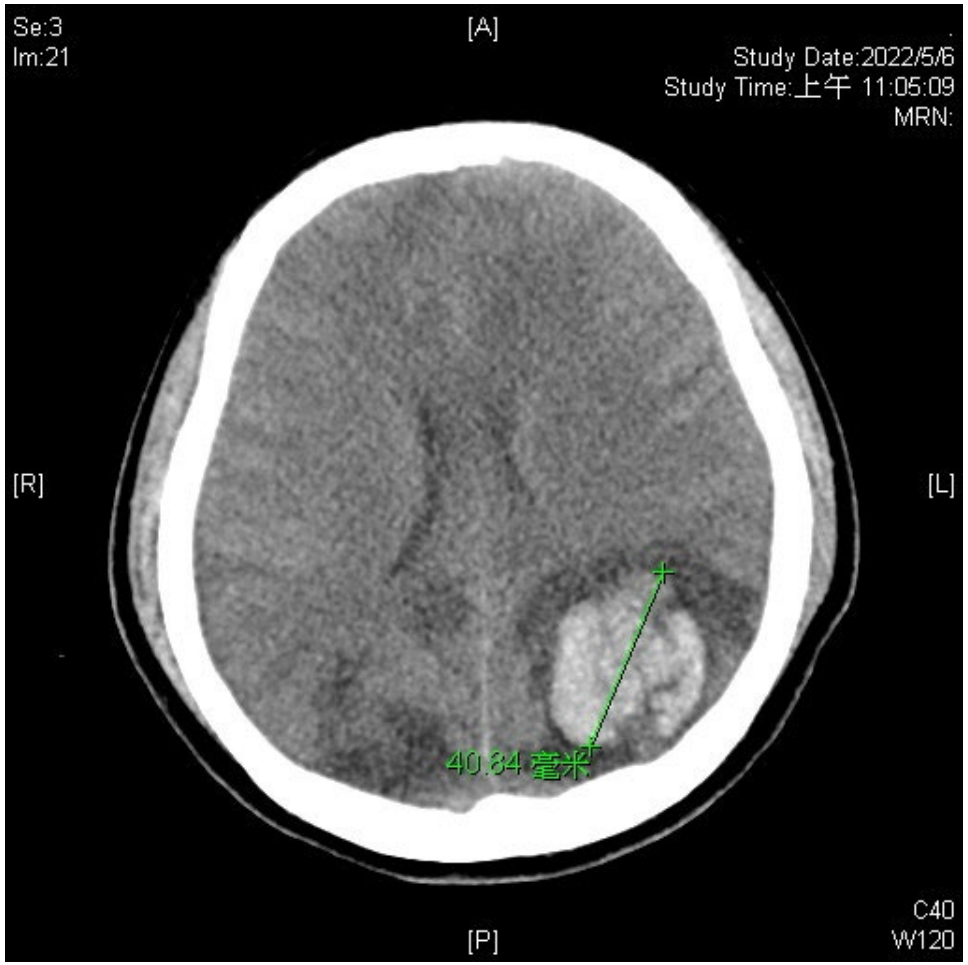
2022/5/6 postCS day 1

- **02:16 BP 190/116 mmHg** — Give Labetalol IV 1st dose → BP 181/114 mmHg
- **06:32 BP 196/112 mmHg** — Give Labetalol IV 2nd dose → BP 166/113 mmHg
- **09:40 BP 210/130 mmHg** — Call MA visit
- **10:17 conscious change** — Emergent CT

35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**



35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

2022/5/6 postCS day 1

- **11:37 consult NS** — ICH without light reflex, suggest emergent craniotomy
- **12:21 emergent craniotomy** — 3-/3-, M1 → decompression → 6+/6+, M6
  Remove clot about 30cc

2022/5/7 admitted at NS ICU/ward

2022/6/1 discharge

Muscle power 3 of bilateral limbs, improved to 4 before discharge
Mild dysphasia, left ptosis with diplopia
可在協助下扶輪椅走路

35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

Final Diagnosis:

1. **Pregnancy at 33+0 weeks of gestation with preeclampsia with severe features, status post emergent cesarean section on 2022/5/5**
2. **Preeclampsia with severe features: liver dysfunction**
3. **Fetal distress with intra-uterine growth restriction**
4. **Postpartum intracranial hemorrhage, left parietal lobe, status post emergent craniotomy**
5. **Hydrocephalus status post VP shunting on 2022/5/25**
6. **Left side ptosis and diplopia, favor 3rd cranial nerve palsy**

35 y/o female, G1P0, pregnant at 33+0 weeks (EDC: 2022/6/23)

Denied any systemic disease; no GDM; gestational hypertension since GA 29 weeks

Came to DR due to **decreased fetal movement for 2 days**

Tracing back to the antepartum visit…

長庚門診護理作業系統 - [部門名稱：產科　使用者： 許晉婕　使用日期：111/06/01　院區: 林口長庚]

視窗(W)

FG2B2028 版本20190711-01

門診產前記錄畫面

病歷號 [redacted] 女 36歲0個月 身高 cm 孕前體重 kg 血型 日期 2022/06/01

LMP EDC CEDC 懷孕次數 生產次數 記錄人員 許晉婕

高危 AMA

胎次 1 返回

	20211103	20211124	20211208	20220105	20220106	20220209	20220309	20220412	20220419	20220426	20220503
週數	8	9	11	15		20	24	29	30	31	32
體重(kg)	63.7	64.4	64.6	67.2		68.8	71.2	76.7	79.1	78.1	79.8
血壓(收縮壓)mm	116	121	138	110		124	127	159,156	193,196	88,187,162	166.150
血壓(舒張壓)mm	72	80	87	43		77	72	97,101	117,131	106,103,88	106.90
尿蛋白	-	-	-	-		-	-	3+	4+	+++	3+
尿糖	-	-	-	-		-	-	Negative	Negative	-	Negative

Lessons to Learn

- 寶寶發出的警訊
  - Daily assessment of fetal kick counts
  - Non-stress test (NST)
  - biophysical profile
  - Doppler ultrasound of umbilical artery
- Timing for delivery 下車的時機
  - Severe hypertension, IUGR
  - **“During expectant management, delivery is recommended at any time in the case of deterioration of maternal or fetal condition.”**
- 產前產後都應積極控制血壓

實例討論3

45 y/o female, G3P1 (P1 CS due to placenta previa in 2018), EDC: 2022/8/5

Previous Hx of GDM, no PIH or seizure history
Denied other systemic disease
Karyotyping/level 2 ultrasound: normal

- **2022/4/25 GA 24 weeks BP: 110/63, UP: (-)** first visit, fair fetal growth
- **2022/5/16 GA 28 weeks BP: 122/71, UP: (-)** OGTT: 99/191/172, GDM Tx: diet control
- **2022/5/30 GA 30 weeks BP: 137/82, UP: (-)** fair fetal growth, E>D
- **2022/6/8 GA 32 weeks BP: 163/77, UP: (3+) Dr.鄭 due to headache**

  Tx: Labetalol + Methyldopa, check SMA12 + ACR

  Lab: Cr 0.8 mg/dL, AST/ALT: 32/12 U/L, Albumin: 2.68 g/dL, ACR: 10492.2 mg/g
- **2022/6/9 GA 32 weeks BP: 139/88, UP: (3+)** admission

45 y/o female, G3P1 (P1 CS due to placenta previa in 2018), EDC: 2022/8/5

Previous Hx of GDM, no PIH or seizure history
Denied other systemic disease
Karyotyping/level 2 ultrasound: normal

2022/6/9　Admission

BP: 177/78 mmHg, no headache
NST: reactive without minimal variability or deceleration
Sona: fair fetal movement, EFW: 2016 gm, breech presentation
Lab: Cr 0.9 mg/dL, AST/ALT: 22/9 U/L, platelet: 182k, **UP: 4+**, **COVID-19 (+)** 囧rz
Tx: Keep Labetalol + Methyldopa, Dexamethasone for fetal lung maturity

2022/6/9 GA 32w6d, stat cesarean section at 3J isolated DR

Pregnancy outcome: male baby, BBW: 1780 gm, Apgar score 7-9, sent to NICU

2022/6/10-6/15 postpartum care

BP: around 140/90, MBD with Labetalol + Amlodipine, arrange CV OPD f/u

45 y/o female, G3P1 (P1 CS due to placenta previa in 2018), EDC: 2022/8/5

Previous Hx of GDM, no PIH or seizure history
Denied other systemic disease
Karyotyping/level 2 ultrasound: normal

2022/6/27 postCS OPD f/u BP: 108/58 mmHg

“醫師，我這一胎怎麼沒吃阿斯匹靈?”

Pregnancy via ET (oocyte donation)

!!! Old age (>40 y/o) !!!

GDM history, r/o type 2 DM

Lessons to Learn

- History matters!!
  - 先問history有沒有risk factors
  - 若無仍應offer preeclampsia screening
- 衛教病人一起注意危險徵兆
  - 照顧身體，自己也有責任
  - 但醫師要講給她知

感謝聆聽

還請前輩先進不吝指教

b9602047@cgmh.org.tw
Dr.許晉婕 ChinChieh Hsu