PREECLAMPSIA

- Preeclampsia is a disorder of widespread vascular endothelial malfunction and vasospasm that occurs after 20 weeks’ gestation and can present as late as 4-6 weeks post partum.
- It is clinically defined by hypertension and proteinuria, with or without pathologic edema.
- Affecting at least 5-8% of all pregnancies, it is a rapidly progressive condition characterized by high blood pressure and the presence of protein in the urine. Swelling, sudden weight gain, headaches and changes in vision are important symptoms; however, some women with rapidly advancing disease report few symptoms.
- Globally, preeclampsia and other hypertensive disorders of pregnancy are a leading cause of maternal and infant illness and death. By conservative estimates, these disorders are responsible for 76,000 maternal and 500,000 infant deaths each year.
### Diagnostic Criteria for Preeclampsia

**Hypertension in Pregnancy 2013**

| 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)  
|            | • 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

### ICU

- A 26 year-old P1 female with post cesarean section due to severe preeclampsia, and edema, was admitted to the ICU
- Anthropometry: height: 158 cm, weight: 85 kg.
- How is the nutritional management of patients?
NUTRITIONAL MANAGEMENT

NUTRITIONAL & CLINICAL STATUS

NUTRITION REQUIREMENT
CALORIE, PROTEIN, FAT, etc

COMPOSITION

METHODS/NUTRITION ADMINISTRATION

MONITORING (EFFECT & COMPLICATION)

NUTRITIONAL STATUS

BODY MASSA INDEX =
BODY WEIGHT / HEIGHT ^2

NORMAL CRITERIA: 18.5-22.9 (Asia Pacific)
18.5 – 24.9 (WHO)

BROCA INDEKS =
NORMAL BODY WEIGHT = TB-100 (± 10%)
### Calorie Requirement

- In general, pregnant women need between **2,200** calories and **2,900** calories a day
  - First trimester does not require any extra calories.
  - Second trimester an additional **340** calories a day are recommended.
  - Third trimester, the recommendation is **450** calories more a day than when not pregnant.

- **Indonesia**:
  - Non pregnant woman: **2250 kCal/KgBW/ day.**
  - Pregnant trimester 1 = **2250 + 180 kCal/KgBW/ day.**
  - Pregnant trimester 2 & 3 = **2250 + 300 kCal/KgBW/ day.**
**PROTEIN REQUIREMENT**

- DRI = 46 grams/day (g/d)
- Pregnant = 71 g/d

- RDA = 0.8 g/ Kg of body weight/day
- Pregnant = 1.1/Kg of body weight/day.

- INDONESIA (2013):
  - Non pregnant woman: 56 g/KgBW/day
  - Pregnant = 56 + 20 g/KgBW/day.

**PREVENTION OF PREECLAMPSIA**

- 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
FLUID REQUIREMENT

❖ Emergency phase
  To maintain cardiac filling volume

❖ Replacement phase
  Administer fluid during dehydration

❖ Maintenance phase
  Replacing normal ongoing losses
  ❖ 25 – 55 year-old : 35 mL/kg BW
  ❖ 56 – 65 year-old : 30
  ❖ > 65 year-old : 25

BODY FLUID COMPARTMENT

TOTAL BODY WEIGHT
70 KG

TOTAL BODY WATER
60%  
[42 L]
BODY FLUID COMPARTMENT

TOTAL BODY WEIGHT 70 KG

Plasma 5% [3 L]

Intra Cellular 40% [28 L]

Interstitital 15% [11 L]

Extra Cellular 20% [14 L]

CALORIE REQUIREMENT DURING PREGNANCY

IDEALLY: Indirect Calorimetry

ESPEN guidelines 2006
• 20–25 kcal/kg BW/day, during the acute and initial phase of critical illness
• 25–30 kcal/kg BW/day, during the anabolic recovery phase

ASPEN guidelines 2009
25–30 kcal/kg BW/day
PROTEIN REQUIREMENT

- ICU: 1.2 – 2.0 g/kg BW
- Vascular surgery/major cardiothoracic: 1.5
- Multiple trauma: 1.5 – 2.0
- Luka bakar berat: 1.5 – 2.5
- ARF (without dialysis): 1.0 – 1.2
- ARF (with dialysis): 1.5
- CRRT: 1.5 - 1.8
- Liver failure: 1.0 – 1.2
- IBD: 1.0 – 1.5
- Pancreatitis: 1.0 – 1.5

NUTRITION ADMINISTRATION
NUTRITION THERAPY

- Calories :
- Protein :
- Fluid :
- ORAL / ENTERAL / PARENTERAL
- Monitoring :

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