Kontroversi seputar DM Gestasional(DMG)– Panduan yang Mana?

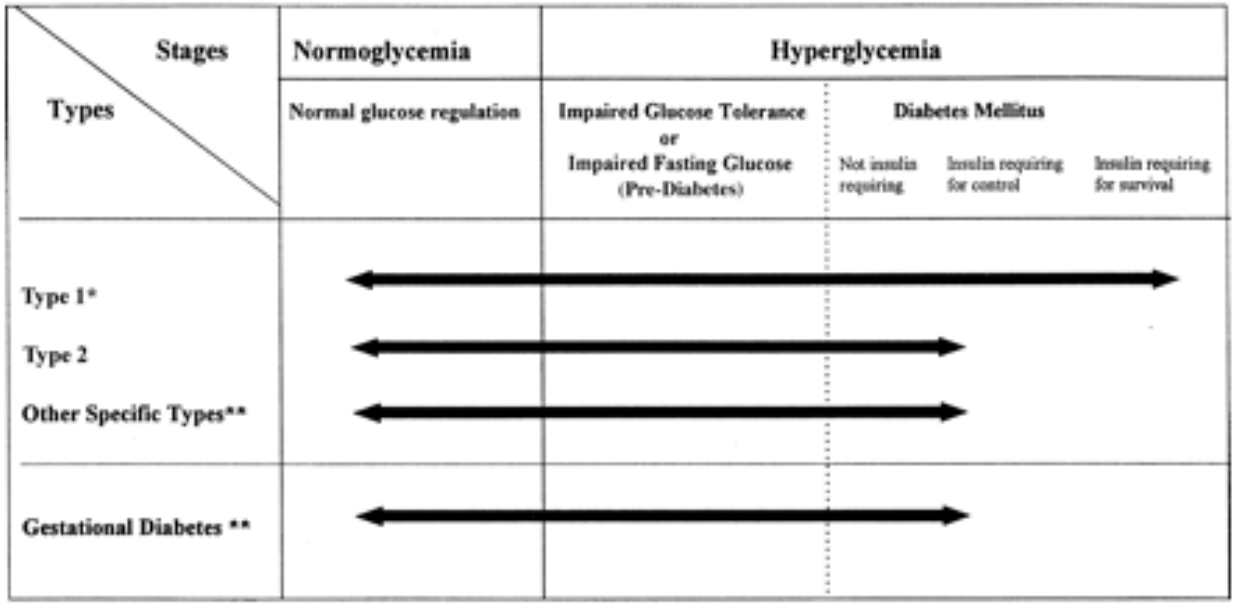
Hermanto TJ

Makasar 27 Ag 2016

Diabetes Care januari 2016 supl: DMG tidak bisa diklasifikasi dalam tipe 1 atau tipe 2

American Diabetes Association. Diabetes Care

Diagnosis and Classification of Diabetes Mellitus



Diabetes can be classified into the following general categories:

1. Type 1 diabetes (due to β-cell destruction, usually leading to absolute insulin deficiency)

2. Type 2 diabetes (due to a progressive insulin secretory defect on the background of insulin resistance)

3. Gestational diabetes mellitus (GDM) (diabetes diagnosed in the second or third trimester of pregnancy that is not clearly overt diabetes)

4. Specific types of diabetes due to other causes, e.g., monogenic diabetes syndromes (such as neonatal diabetes and maturity-onset diabetes of the young [MODY]), diseases of the exocrine pancreas (such as cystic fibrosis), and drug- or chemical-induced diabetes (such as in the treatment of HIV/AIDS or after organ transplantation)

Diabetes dalam kehamilan bisa terjadi dalam 2 bentuk yaitu diabetes yang mendahului kehamilan disebut sebagai "preexisting diabetes" atau "pregestational diabetes"(DMPG) dan diabetes yang pertama kali terdiagnosis atau muncul saat kehamilan yang disebut sebagai diabetes gestasional (DMG)

DMG dan DMPG mempunyai ICD yang berbeda

Diabetes Mellitus

ICD-10	E10. –E14.
ICD-9	250
MedlinePlus	001214
eMedicine	med/546
	emerg/134
MeSH	C18.452.394.750

Diabetes Mellitus Gestasional

ICD-10	O24.
ICD-9	648.8
MedlinePlus	000896
MeSH	D016640

ICD diabetes gestasional dan diabetes pragestasional

What Guidelines to Use in Gestational Diabetes: ACOG or ADA?

A Look at Two New Diabetes and Pregnancy Guidelines

Gestational diabetes, if caught early, can be managed without causing harm to the mother or infant. The two new guidelines differ on how and when to screen pregnant women.

Written by Kristin Della Volpe

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Screening and Diagnosis of Gestational Diabetes Mellitus, Where Do We Stand

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Controversies in Screening and Diagnosis of Gestational Diabetes: Cuba's Position

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One-Step Gestational Diabetes Screening Disappoints

— Data don't support alternative to Carpenter-Coustan screening

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A Look at Two New Diabetes and Pregnancy Guidelines

Beberapa Kriteria

Diagnostic criteria	OGTT positivity threshold [mg/dL (mmol/L)]			
	Fasting	1 h	2 h	3 h
O'Sullivan and Mahan[a][14]	110 (6.1)	170 (9.4)	120 (6.7)	110 (6.1)
NDDG[a][11]	105 (5.8)	190 (10.6)	165 (9.2)	145 (8.1)
Carpenter and Coustan[a][15]	95 (5.2)	180 (10.0)	155 (8.6)	140 (7.8)
Strict WHO[b][23]	126 (7.0)	NA	140 (7.8)	NA
Modified WHO[b][6,31]	100 (5.6)	NA	140 (7.8)	NA
HAPO[b][13]	92 (5.1)	180 (10.0)	153 (8.5)	NA

Detection approach				
Selective		Universal		
NICE		WHO, IDF, FIGO, IADPSG, ADA, ACOG, ALAD, DIPSI, Cuba		
Screening method				
Not recommended (diagnostic test only)	Screening, followed by diagnostic test as needed	Two-step (screening and diagnostic test)		
WHO, IDF, FIGO, IADPSG, ADA, NICE, DIPSI	ALAD, Cuba[a]	ACOG, Spain		
Screening test				
Fasting plasma glucose	O´Sullivan test	None		
ALAD, Cuba	ACOG, Spain	WHO, IDF, FIGO, IADPSG, ADA, NICE, DIPSI		
Time window for diagnostic test (OGTT)				
Weeks 24–28		Weeks 28–32		
WHO, IDF, FIGO, IADPSG, ADA, ACOG, ALAD, NICE, DIPSI, Spain		Cuba[b]		
Grams of glucose in OGTT				
100 g		75 g		
ACOG, Spain		WHO, IDF, FIGO, IADPSG, ADA, ALAD, NICE, DIPSI, Cuba		
Number of times blood glucose measured in OGTT				
One	Two	Three	Four	
DIPSI	ALAD, NICE, Cuba	WHO, IDF, FIGO, IADPSG, ADA	ACOG, Spain	
GD diagnostic criteria				
NDDG[11]	Carpenter and Coustan[15]	Strict WHO[23]	Modified WHO[6,31]	HAPO study[13]
Spain	ACOG	DIPSI	ALAD, NICE, Cuba	WHO, IDF, FIGO, IADPSG, ADA
Number of abnormal OGTT values needed for GD diagnosis				
1		≥2		

ACOG Practice Bulletin 137

August 2013

- Recommend the 2-step diagnostic approach to screening using a cutoff for an abnormal 1-hour screen of 135–140 mg/dL and 2 abnormal values on the 3-hour oral glucose tolerance test that includes a fasting value.
- No consensus on 135 vs. 140 for 1-hr (Lower if practice in high risk population area)
- In addition: Early screen for >/= 30 BMI and/or 1st degree relative

(Brown, 2014)

ACOG - 2013

- Early pregnancy screening of women at high risk for pregestational diabetes and GDM
- At 24 to 28 weeks, uniform screening for GDM via a twostep regimen consisting of:
- A 50-g, 1-hour glucose challenge test, which may be administered in the fasting or nonfasting state. A threshold value of ≥ 135 mg/dL or ≥ 140 mg/dL can be used at the discretion of the provider.
- A 100-g, 3-hour OGTT is performed. Two abnormal values meeting or exceeding the values are required for the diagnosis.

Moore n Catalano 2014

- The new IADPSG criteria for GDM diagnosis have been adopted widely globally and in the United States by the ADA, but substantial controversy remains because of the increased numbers of women with GDM who will be diagnosed—up to 18%, from 8% to 10% with the 3-hour OGTT system.
- Currently, the American College of Obstetricians and Gynecologists (ACOG) has not endorsed the IADPSG recommendations

NIH

- ..at present there is insufficient evidence to adopt the IADPSG onestep approach. They supported the continued use of the twostep protocol while recommending further study, including a cost-benefit comparison with the one-step test and research examining the potential short- and long-term benefits and risks for mother and child.
- Accordingly, ACOG subsequently issued a practice bulletin affirming the continued use of the two-step protocol for diagnosis of GDM.

DMG: Batasan

- Gangguan toleransi glukosa berbagai tingkat yang muncul atau pertama kali terdiagnosis saat hamil ini
- Trimester 3
- Patofisiologinya belum jelas - diinduksi oleh kehamilannya – perubahan hormon – TNF alfa?

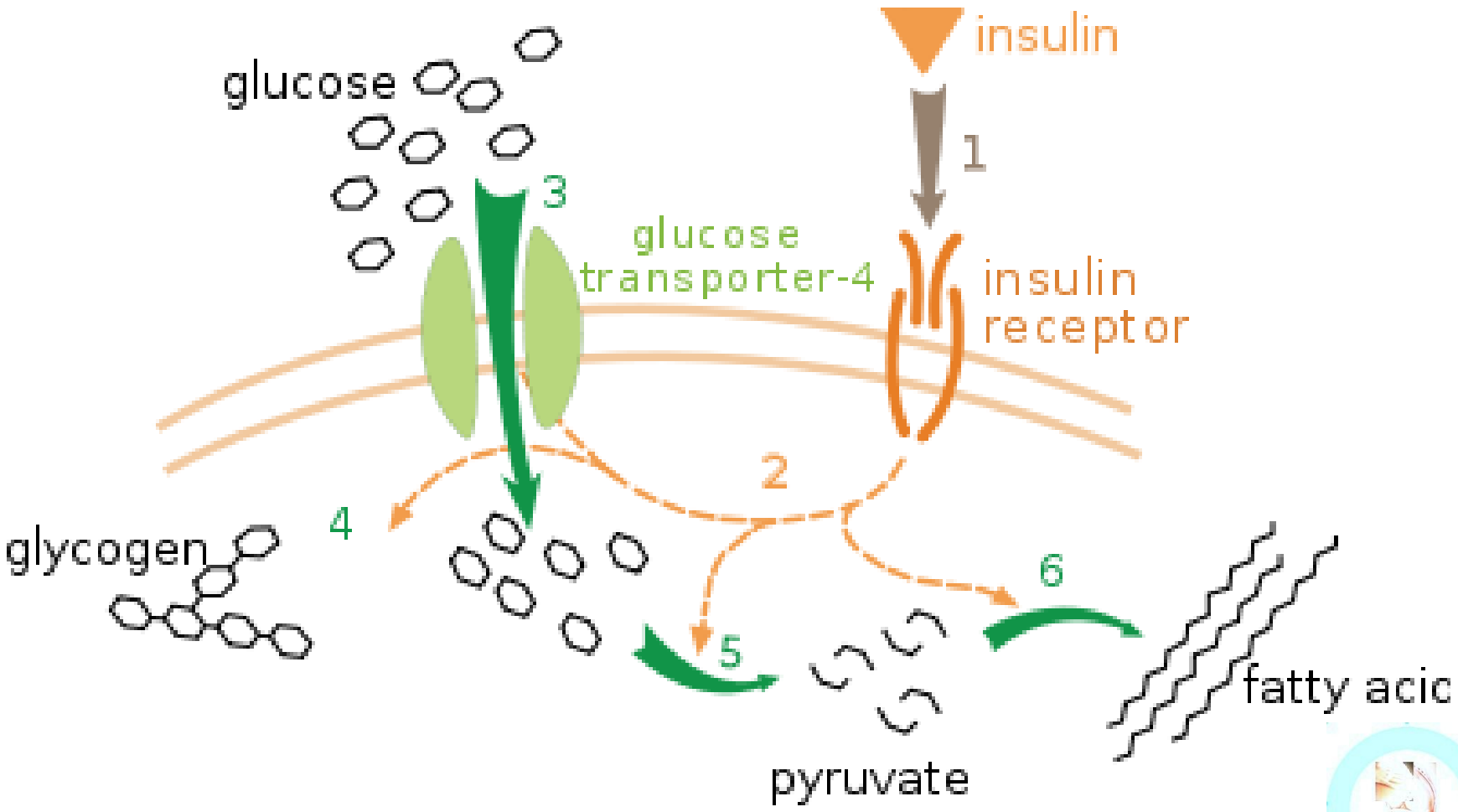
DMG

- Wanita hamil yang menjadi terkena diabetes
- Tidak dapat diklasifikasi menjadi tipe lain
- Diklasifikasi menjadi dua: A1 dan A2 dg batas gula puasa 95 mg %
- Terjadi di trimester 3
- Tanpa gejala

Angka Kejadian

Berkisar antara 2 % - 14 % di berbagai RS di luar negeri. Didapatkan peningkatan kejadian diabetes jenis ini karena adanya peningkatan penderita obese yang disebut sebagai diabesity – diabetes yang diinduksi proses obesitas. Di RS dr Soetomo terjadi peningkatan kejadian dari 1,99 % pada tahun 1991 menjadi 4 % pada tahun 2010

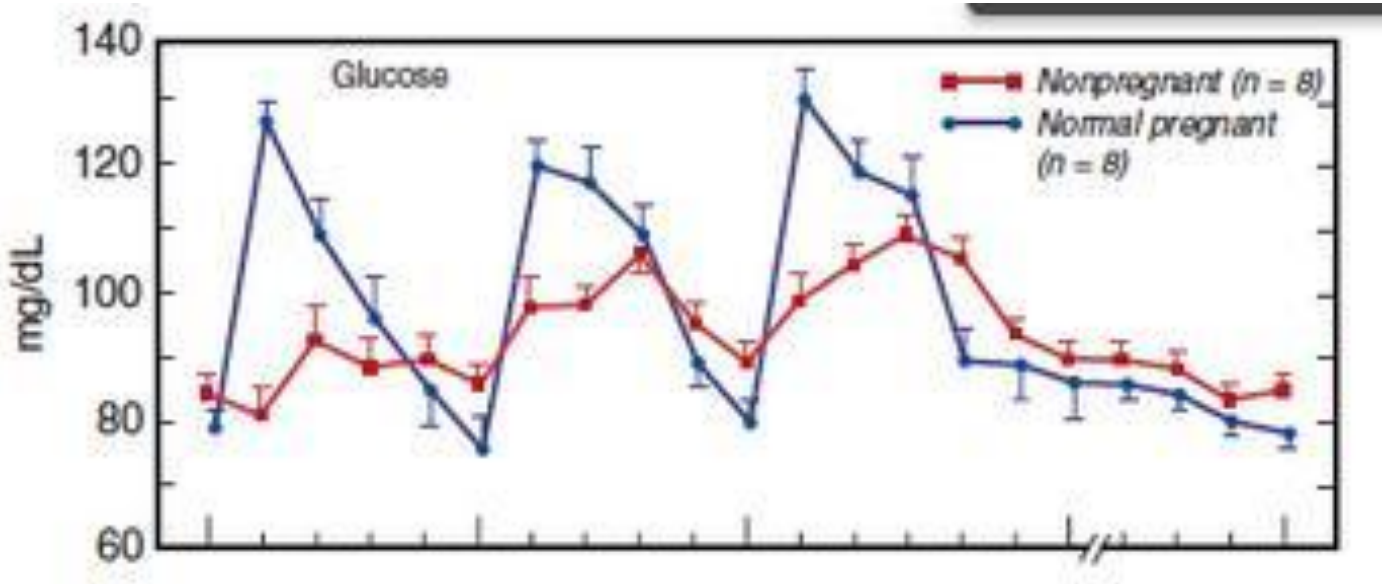
Patofisologi

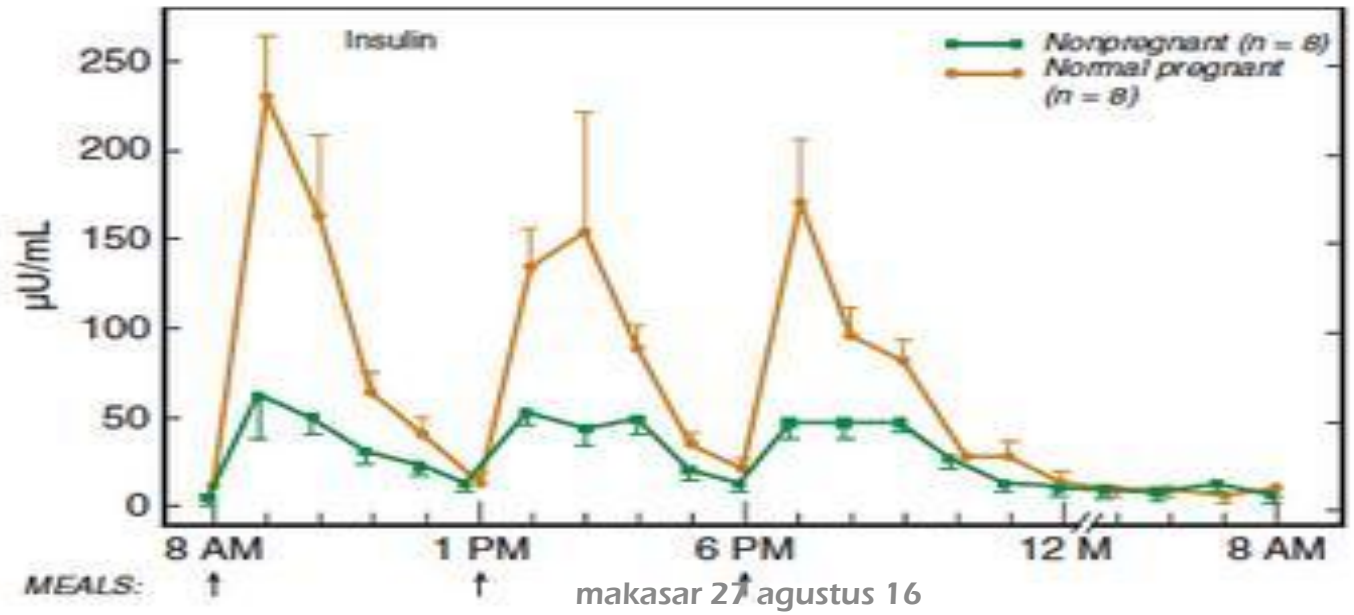


Hamil = Diabetogenic state

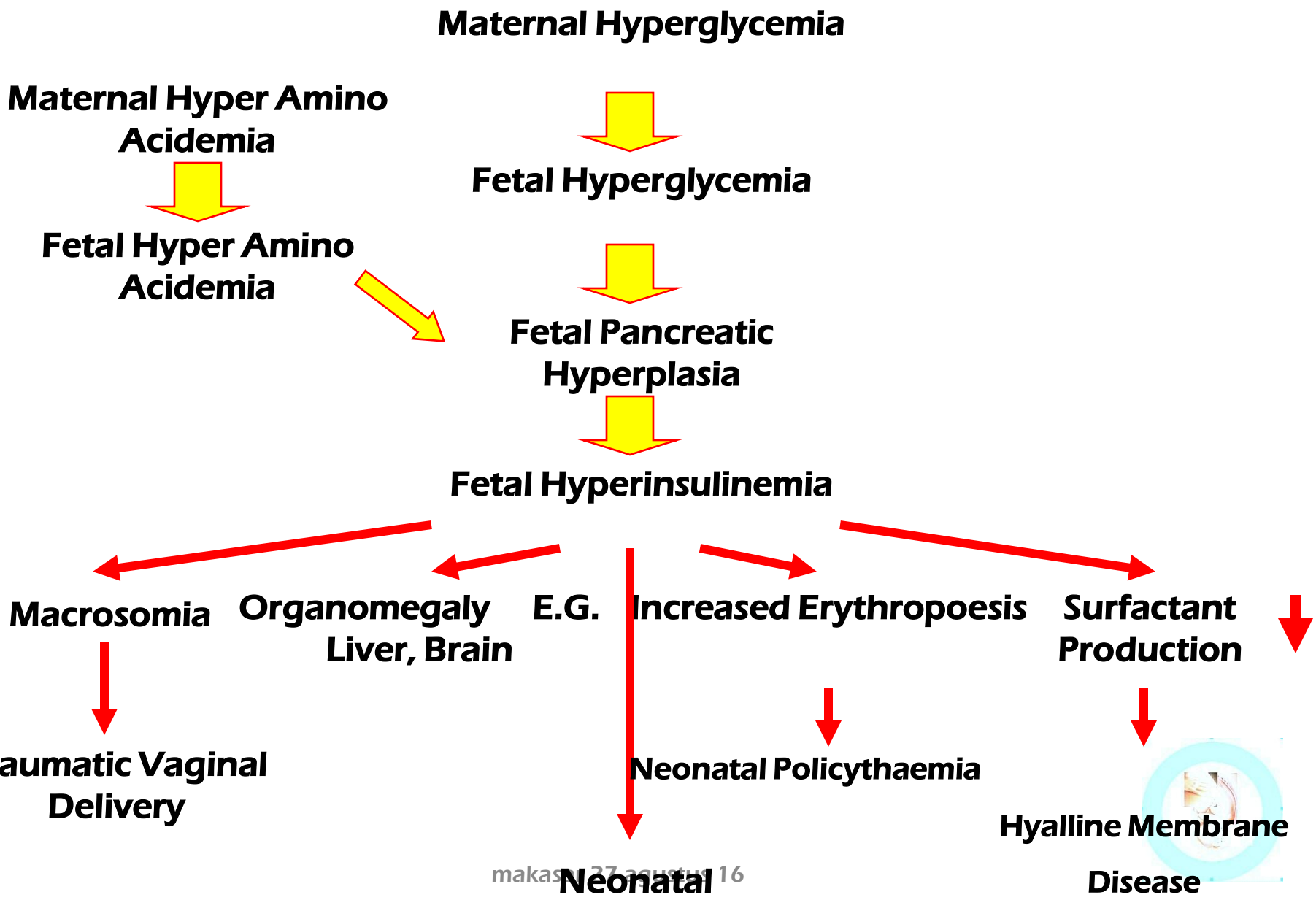
- Insulin resistence
- Fasilitated anabolism
- Accelerated starvation

- Sehingga tidak sama dengan kondisi pria

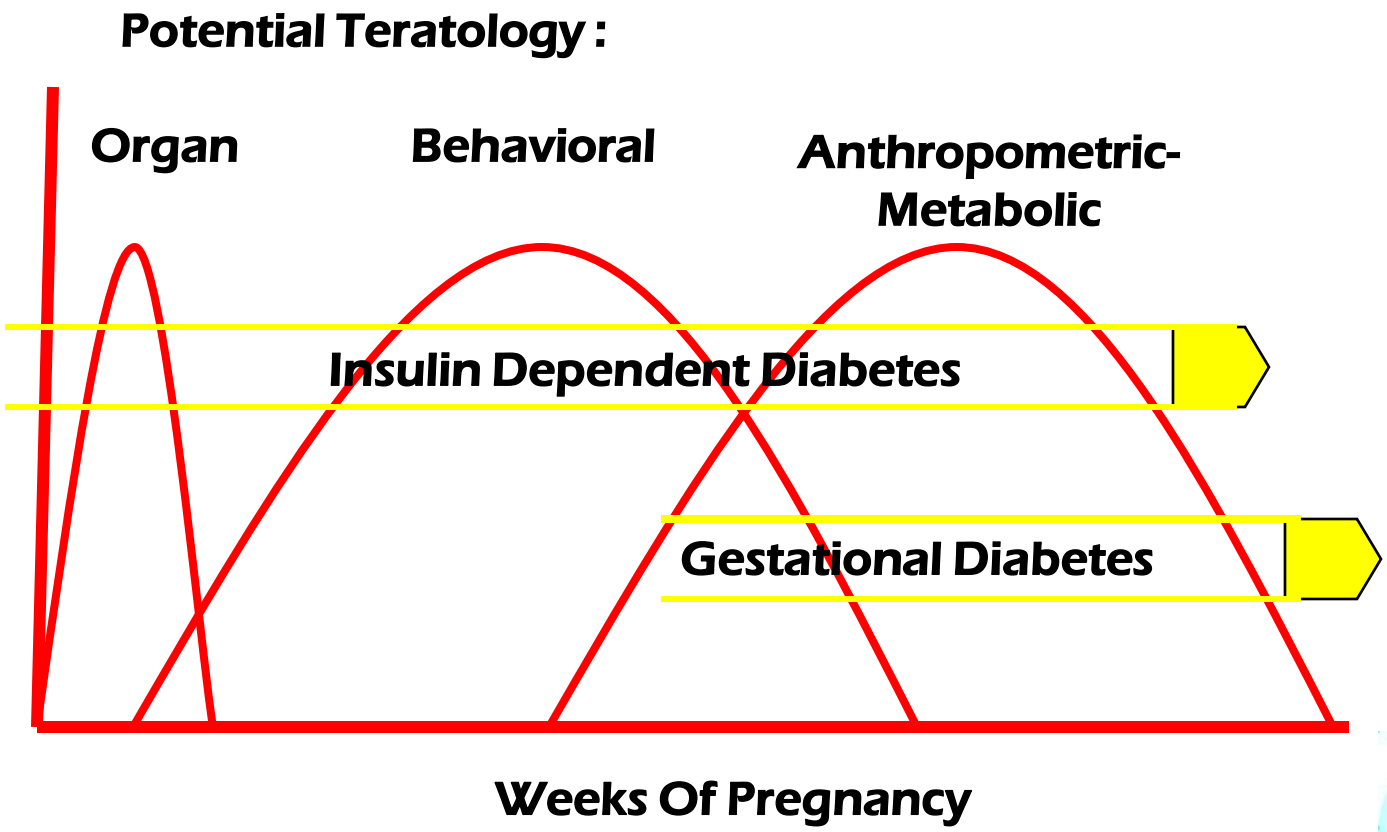

Glucose
Nonpregnant (n = 8)
Normal pregnant (n = 8)
mg/dL
140
120
100
80
60


Insulin
Nonpregnant (n = 8)
Normal pregnant (n = 8)
µU/mL
250
200
150
100
50
0
8 AM
1 PM
6 PM
12 M
8 AM
MEALS:

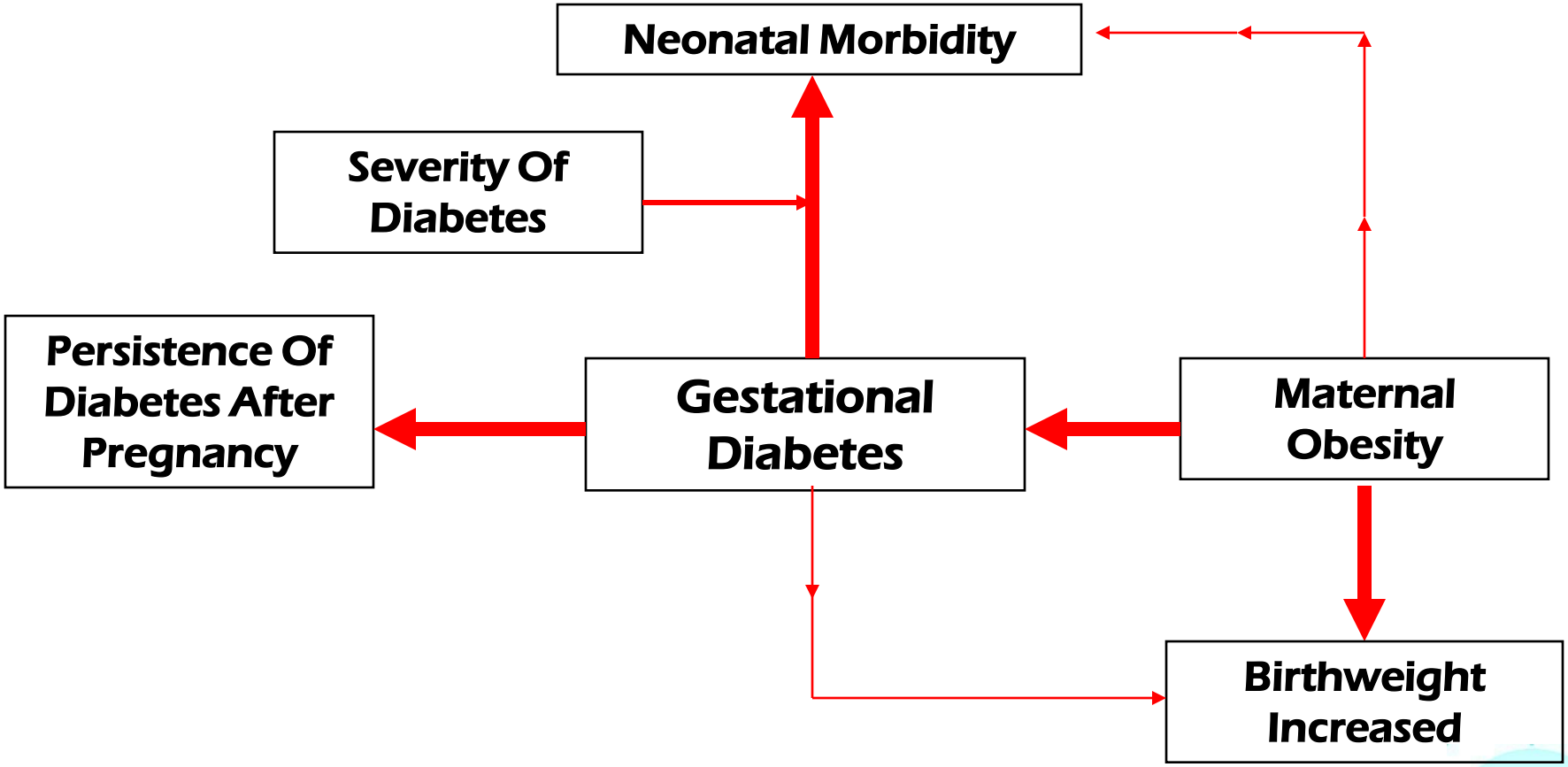
HIPOTESIS PEDERSEN 2



HIPOTESIS FREINKEL: KELAINAN BAWAAN JANIN PADA DMG SAMA DENGAN KEHAMILAN NORMAL



Maresh : Obesitas Ibu Yang Lebih Berperan Terhadap Berat Badan Bayi Dibanding Kadar Glukosa



Diagrammatic representation of the associations in gestational diabetes among obesity, severity of the diabetes, and defined neonatal outcome indices. Thick lines is string association : thin lines is possible association.

Komplikasi Jangka Pendek

- Untuk Ibu
  - Sama dengan populasi normal
- Untuk Neonatus
  - Makrosomia dengan segala akibatnya
  - Kelainan Bawaan Janin dan Sudden unexpected fetal death – frekuensinya sama dengan populasi normal kecuali bila disertai obesitas

Komplikasi Jangka Panjang

Fetal nutrient demand
Fetal size and growth trajectory

Maternoplacental nutrient supply
Nutrient availability and partitioning
Placental size and transfer capabilities
Uteroplacental blood flow

Fetal adaptations and developmental changes if demand greater than maternoplacental supply
Alterations in fetal body composition
Growth of specific organs
Alterations in fetal endocrine status
Fetal cardiovascular adaptations

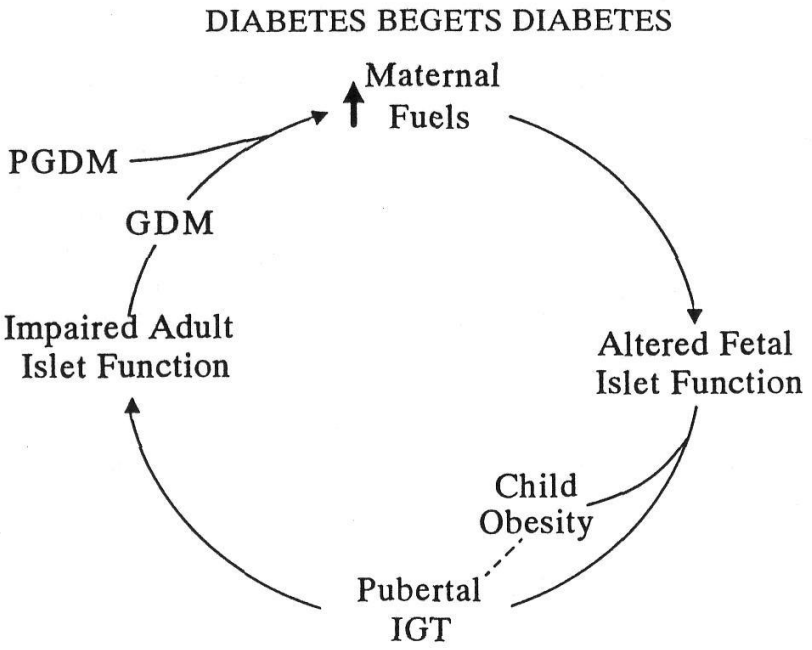


FIGURE 2. Diabetes begets diabetes: the alterations of maternal fuel metabolism lead to altered fetal islet function (hyperinsulinism). This intrauterine event predisposes to, or identifies risk for childhood obesity and adolescent IGT, GDM, and later DM. Reproduced from *Diabetes in Women*. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2004 with permission.

Cunningham et al 2014

- Lebih dari 50 % penderita DMG akan menderita overt diabetes dalam 20 tahun berikutnya dan obesitas dan diabetes untuk bayinya
- Tatalaksana postpartum dini dapat mengurangi kejadian ini

Barker: Fetal Origin of Adult Diseases

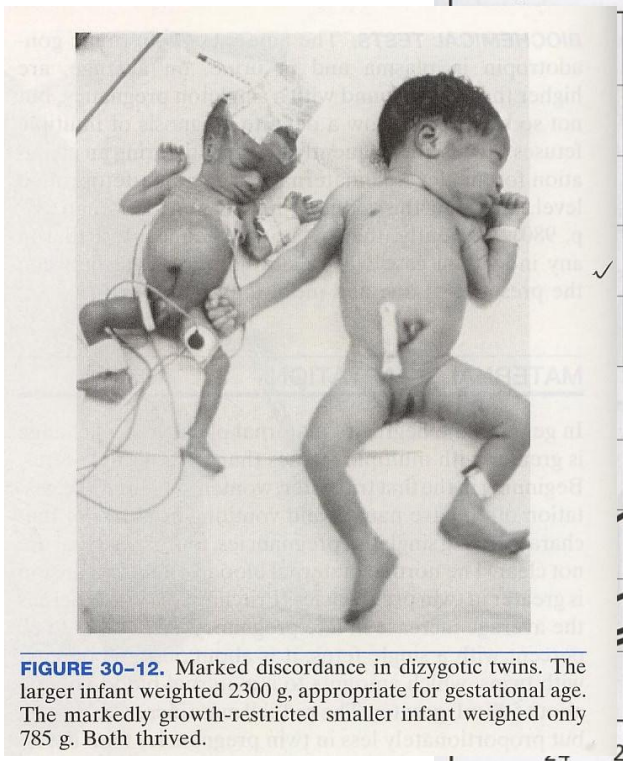
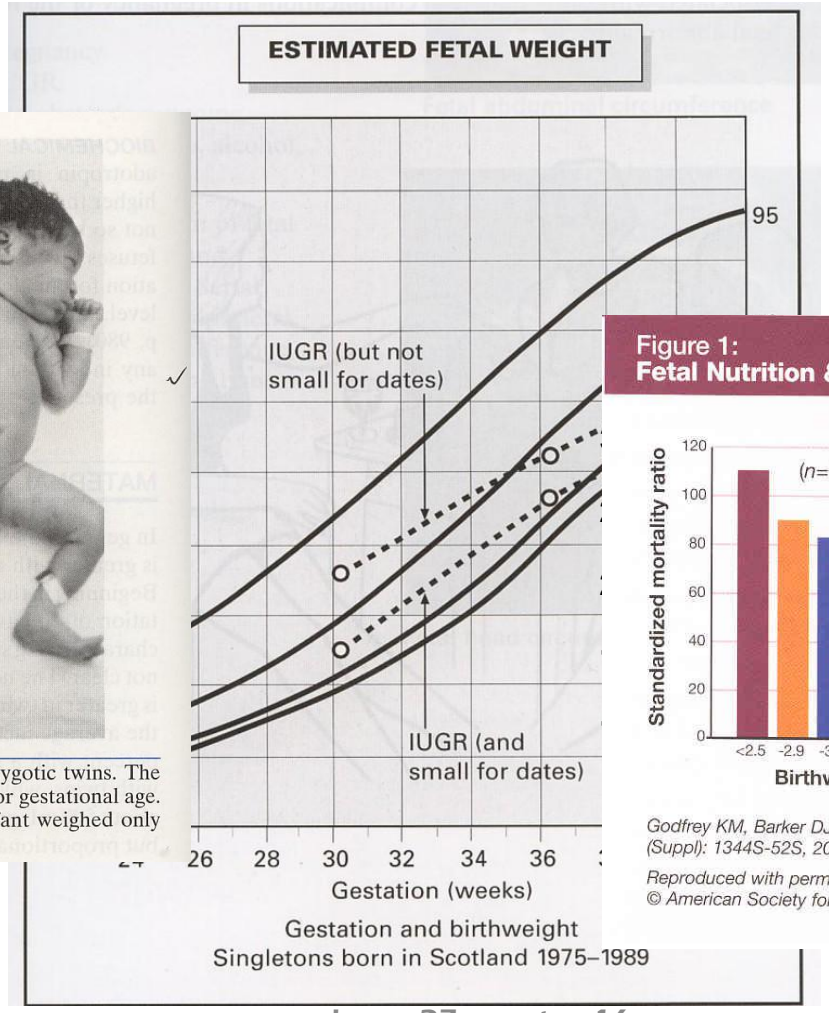
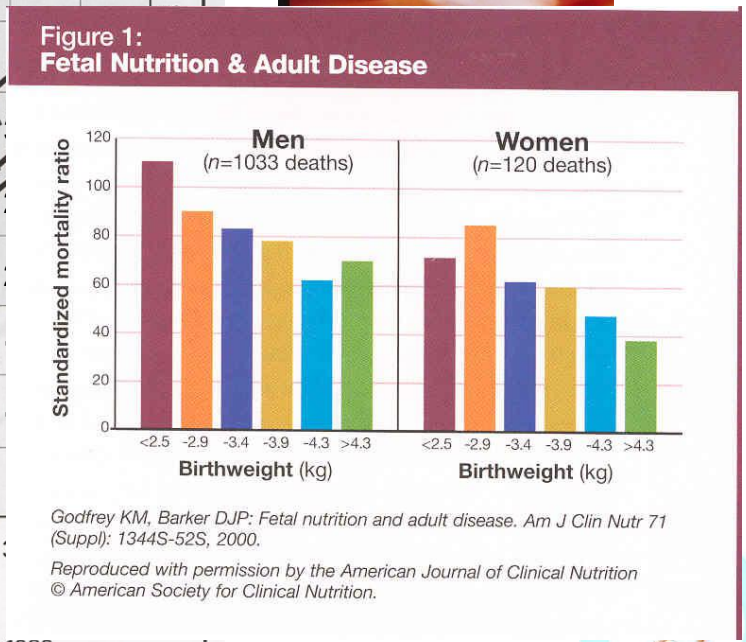


FIGURE 30–12. Marked discordance in dizygotic twins. The larger infant weighted 2300 g, appropriate for gestational age. The markedly growth-restricted smaller infant weighed only 785 g. Both thrived.



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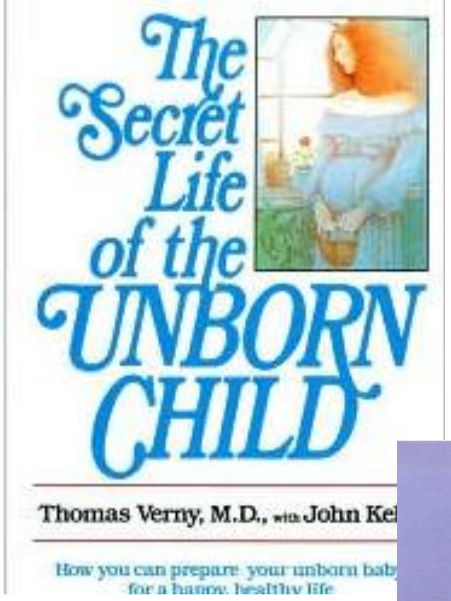
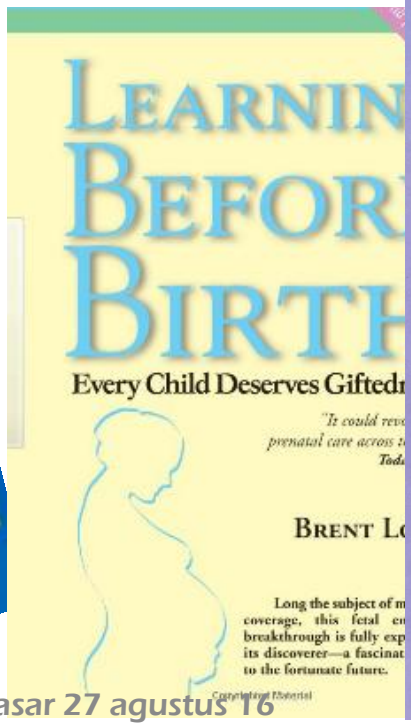

The Secret Life of the UNBORN CHILD
Thomas Verny, M.D., with John Kel
How you can prepare your unborn baby for a happy, healthy life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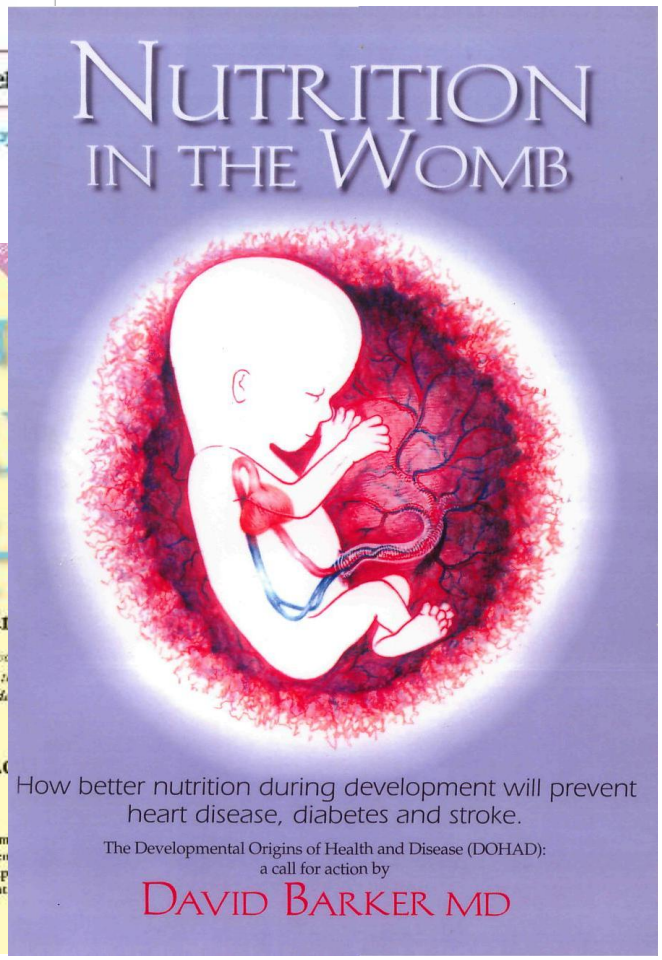
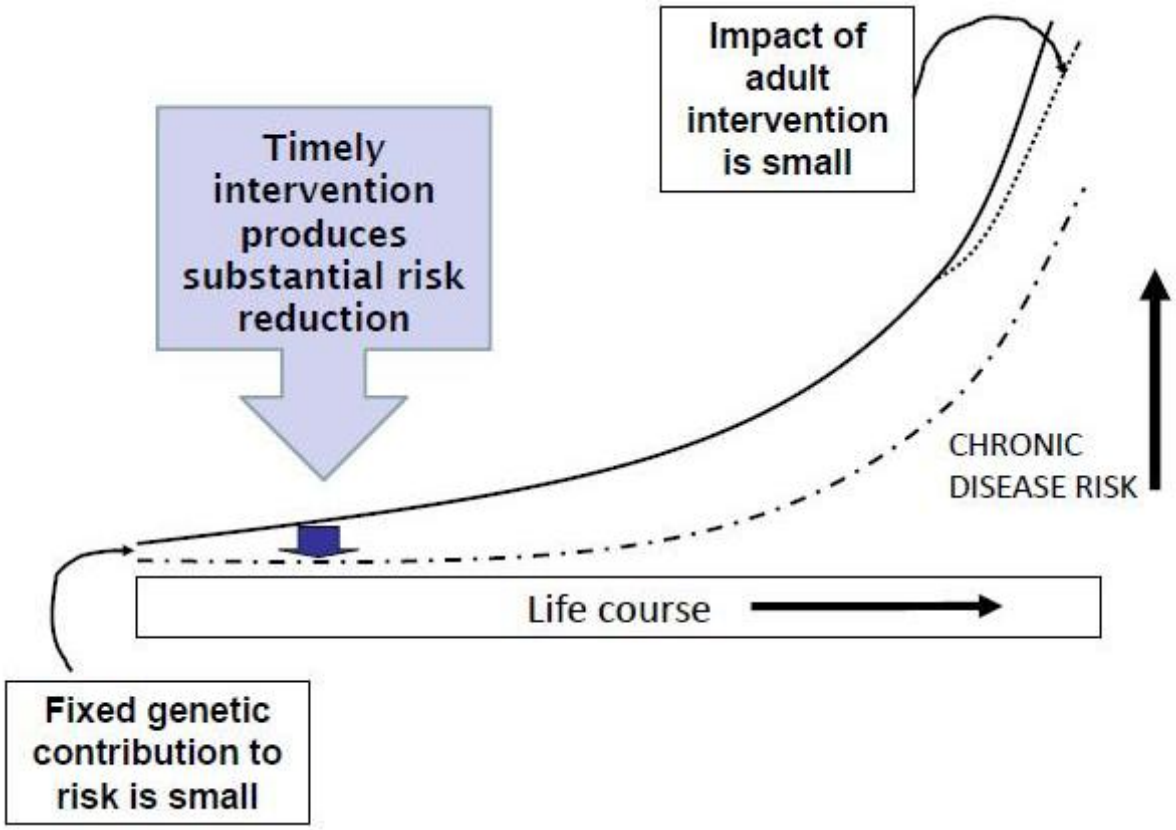
BEFOR
BIRTH
Every Child Deserves Giftedn
BRENT L


NUTRITION IN THE WOMB
How better nutrition during development will prevent heart disease, diabetes and stroke.
The Developmental Origins of Health and Disease (DOHAD): a call for action by
DAVID BARKER MD

Gluckman, Hanson: DOHaD



Skrining dan Diagnosis: 2 langkah

Skrining dilakukan dengan melakukan OGCT (oral glucose challenge test) dengan beban 50 gram pada semua wanita hamil 24 – 28 minggu dan 1 jam kemudian diukur glukosa plasma venous, bila didapatkan nilai ≥ 135 mg % maka dilakukan OGTT(oral glucose tolerance test) dengan beban 100 g dan diukur glukosa puasa, jam 1, 2 dan 3. Bila 2 angka terlampaui, diagnosis diabetes gestasional ditegakkan.

American Diabetes Association recommendation(2010 – Januari 2012) – Skrining risiko pada kunjungan pertama

- Risiko tinggi(tes dilakukan secepatnya)
  - Obesitas berat
  - Riwayat DMG pada kehamilan sebelumnya
  - Riwayat melahirkan bayi besar
  - Adanya glukosuria
  - Adanya polycystic ovarian syndrome
  - Riwayat diabetes pada keluarga dekat

Risiko Rendah

- Semua wanita harus dilakukan srining pada usia kehamilan 24-28 minggu
  - Usia < 25 tahun
  - BMI normal sebelum kehamilan
  - Termasuk kelompok etnis risiko rendah
  - Tidak ada riwayat diabetes pada keluarga dekat
  - Tidak ada riwayat gangguan toleransi glukosa
  - Tidak ada riwayat obstetris yang jelek

Nilai positif dalam mg/dL (mmol/L)

- Puasa 95 (5.3)
- 1 jam 180 (10.0)
- 2 jam 155 (8.6)
- 3 jam 140 (7.8)

Tatalaksana medis – langsung insulin?

- Diet
- Olah raga
- Bila gagal baru insulin bukan OAD
- Pemantauan gula darah setiap hari?/ setiap 2 minggu
- Target gula darah: 120/ 90 mg %
- Pengendalian gula postpartum sangat penting

ACOG 2014

ACOG: Metformin ineffective as part of medical nutrition therapy

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02 May 14
Conference Essentials

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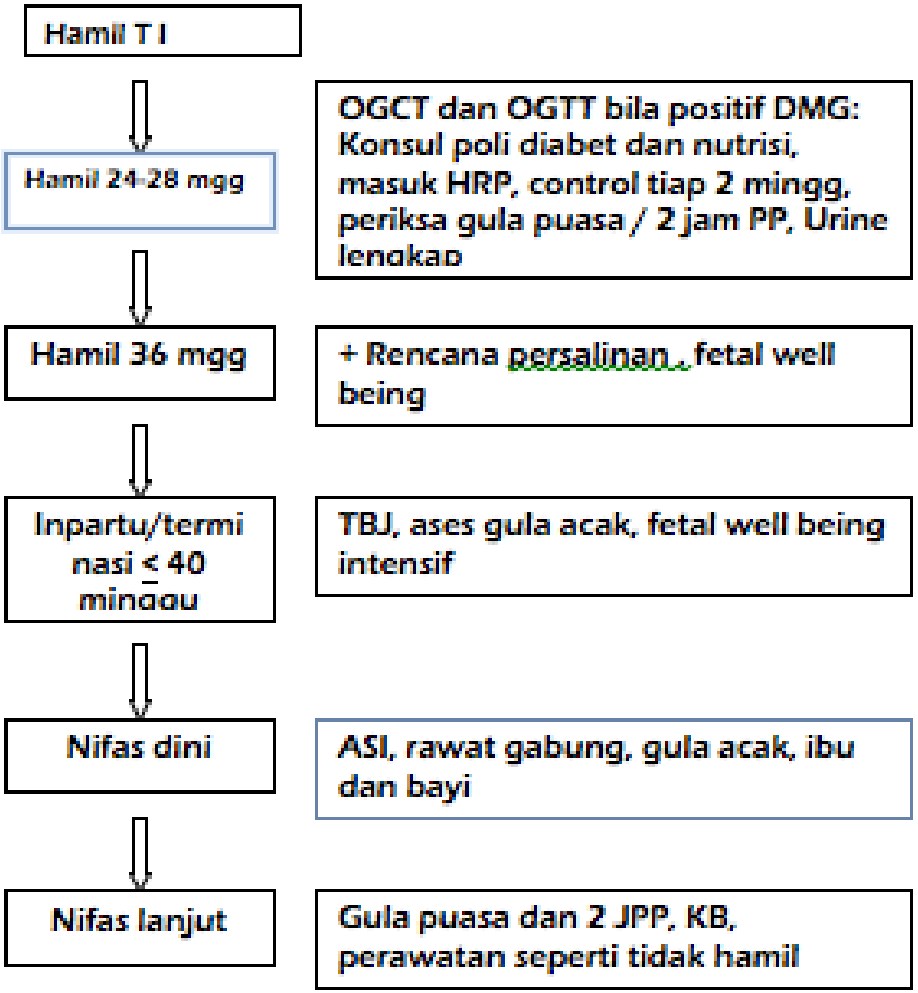
Tatalaksana Obstetris

- Dating trimester 1
- Deteksi makrosomia
- Terminasi 39 minggu
- Tanpa kortikosteroid
- Pervaginam – P sesar hanya atas indikasi obstetris
- ASI sangat dianjurkan
- IUD postpartum

Algoritma Tatalaksana DMG



PENUTUP

- DMdK: klasifikasi, Skrining dan diagnosis, tatalaksana obstetris mirip yang dianjurkan ACOG: metode 2 langkah – skrining dan diagnosis
- Dipilih panduan dari ACOG karena mengadopsi adaptasi maternal, lebih nyaman dan lebih irit
- Merupakan contoh nyata FOAD – DOHaD

KEPUSTAKAAN

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