

# **HIPOGLIKEMIA PADA NEONATUS**

## **BAYI DARI IBU DM**

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# HIPOGLIKEMIA PADA NEONATUS

## DEFINISI HIPOGLIKEMI

Kadar plasma  $< 30\text{mg/dl}$  dlm 24 jam pertama  
atau setelahnya kadar  $< 45\text{ mg/dl}$   
at kadar plasma  $< 40\text{-}45\text{ mg/dl}$  pada aterm maupun prematur

## Insiden

symptomatic hypoglycemia in newborns varies  
from 1.3-3 per 1000 live births

The incidence of hypoglycemia is greater  
in high-risk neonatal groups

Early feeding decreases the incidence of hypoglycemia.

## **MANIFESTASI KLINIS**

- asimptomatik atau simptomatik**
- penurunan kesadaran**
- kejang, hipotoni, reflek primitif menurun**
- muntah**
- unresponsiveness,**
- letargi**
- Hipotermi**

## Latar belakang hipoglikemia neonatus

- sedikit berbeda dengan hipoglikemia pada anak
- Hyperinsulininemia, persistent hyperinsulinemic hypoglycemia of infancy (PHHI), penyebab umum hipoglikemia 3 bulan pertama kehidupan
- atau lebih sering ditemukan pada bayi dari ibu gestasional diabetes

# ETIOLOGI HIPOGLIKEMI

## A. Causes of transient hypoglycemia

1. Perinatal stress
2. Sepsis
3. Asphyxia or HIE
4. Hypothermia
5. Shock
6. Infant of Diabetic Mother
7. maternal drugs such as b-sympatomimetic

## B. Decreases glycogen storage

1. Intra Uterine Growth Retardation or Small for Gestational Age
2. Prematur Infant
3. Postmatur Infant

## C. Causes of recurrent or persistent hypoglycemia

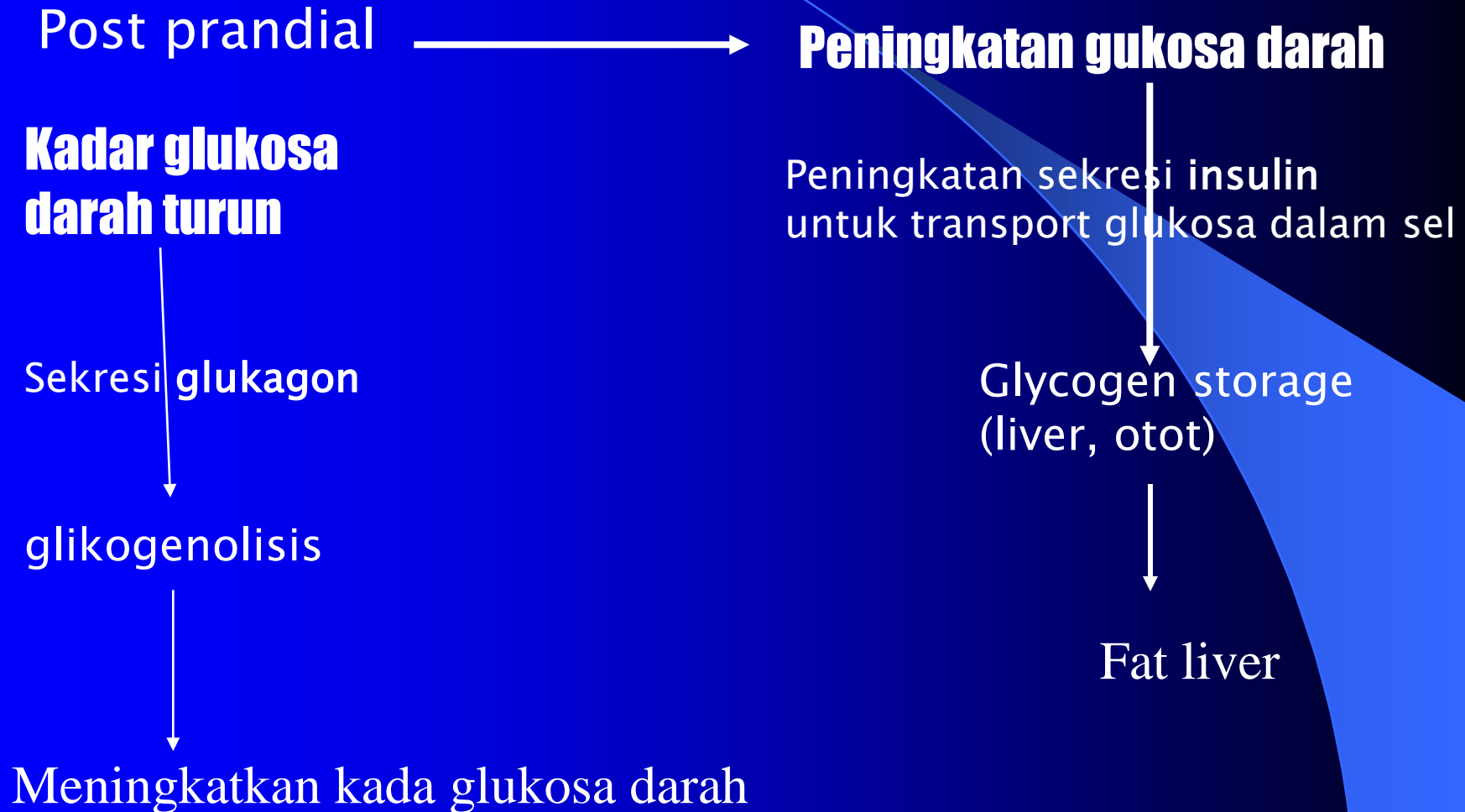
1. Hormone excess hyperinsulinemia
2. Hormone deficiency (GH, ACTH, glukagon, Cortisol, thyroid hormone)
3. Hereditary defect of carbohydrate metabolism
4. Hereditary defect of amino acid metabolism
5. Hereditary defect of fatty acid metabolism

# Patofisiologi hipoglikemia bayi



# Keseimbangan glukosa darah normal

Insulin and glucagon are the important hormones in the immediate feedback control system of glucose.



starvation

**Kadar glukosa**

**darah turun**

Glucose homeostasis is maintained by gluconeogenesis several hours after meals.

Turn over Protein  
(amino acid)  
Fat (gliserol) otot

Hasil katabolisme lemak :  
benda keton,  
acetoacetat,  
b-hydroxybutyrate ,

Glukoneogenesis  
(liver)

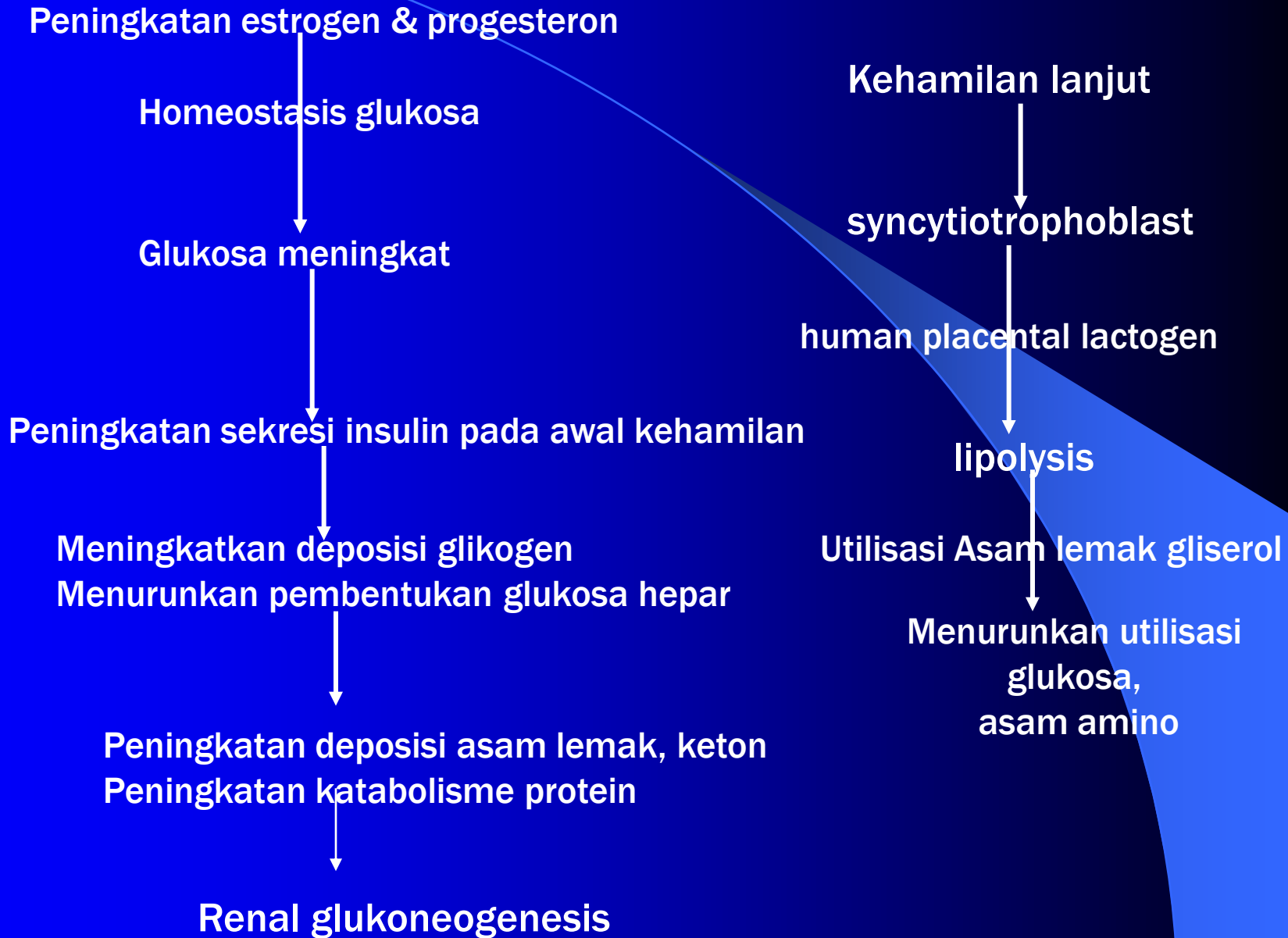
Meningkatkan kadar glukosa darah

Kondisi hipoglikemi yang lama :

- o menstimulasi pelepasan epinefrin
- o Bbrp jam sd hari mestimulasi pelepasan GH, Cortisol
- o dan menurunkan utilisasi glukosa oleh seluruh sel tubuh



# HOMEOSTASI GLUKOSA PADA IBU HAMIL



# HOMEOSTASI GLUKOSA PADA IBU HAMIL

Glukosa, asam amino melauli plasenta

↓  
**fetus**

↓  
**hipreglikemi**

Umur > 20 minggu beta langerhans melepas insulin untuk menjaga homeostasis

↓  
**hiperinsulinemia**

Kombinasi :

Hiperinsulinemia

Hiprglikemia

Peningkatan fat dan glikogen



**Makrosomia**

**Hepatosplenomegali**

**cardiomegali**

**Chronic fetal  
hyperglycemia  
hyperinsulinemia**



**Meningkatkan BMR  
Oxygen consumption**



**insulin**



- inhibit the maturational effect of cortisol on the lung
- production of surfactant from type 2 pneumocytes



**relative hypoxic**



**Peningkatan kapasitas pengangkutan O<sub>2</sub>**



**polisitemia**

## **Hypoglycemia Major long-term sequelae**

- **neurologic damage resulting in mental retardation,**
- **recurrent seizure activity,**
- **developmental delay, and**
- **personality disorders.**
- **impair cardiovascular function.**

# PENATALAKSANAAN

**ASIMPTOMATIK**

**Infus glukosa 6mg/kg/menit**

**cek kadar glukosa 30-60 menit**

**Stabil**

**Cek tiap 2 jam**

**Stabil**

**Cek tiap 4 jam**

**Simptomatik**

**Bolus 2 ml/kg glukosa 10%  
1 ml/menit**

**Infus kontinyu  
glukosa 6mg-8mg/kg/menit**

**Sd kadar > 40-50mg/dl**

**cek kadar glukosa 30-60 menit**

**MET BELAJAR  
TERIMAKASIH**