

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

به نام خداوند بخشنده مهربان

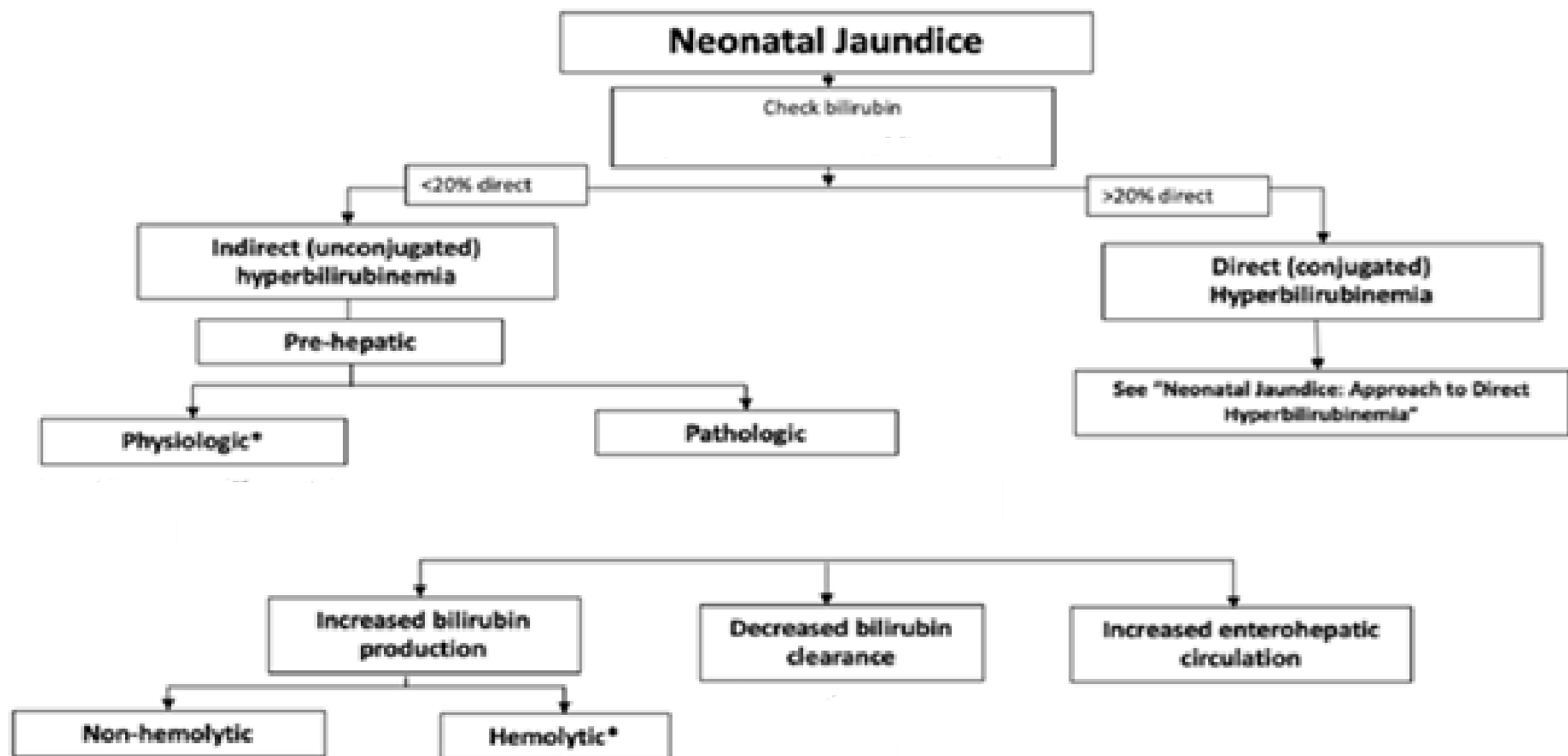
# Breast-milk Jaundice

دکتر محمد کلظمین

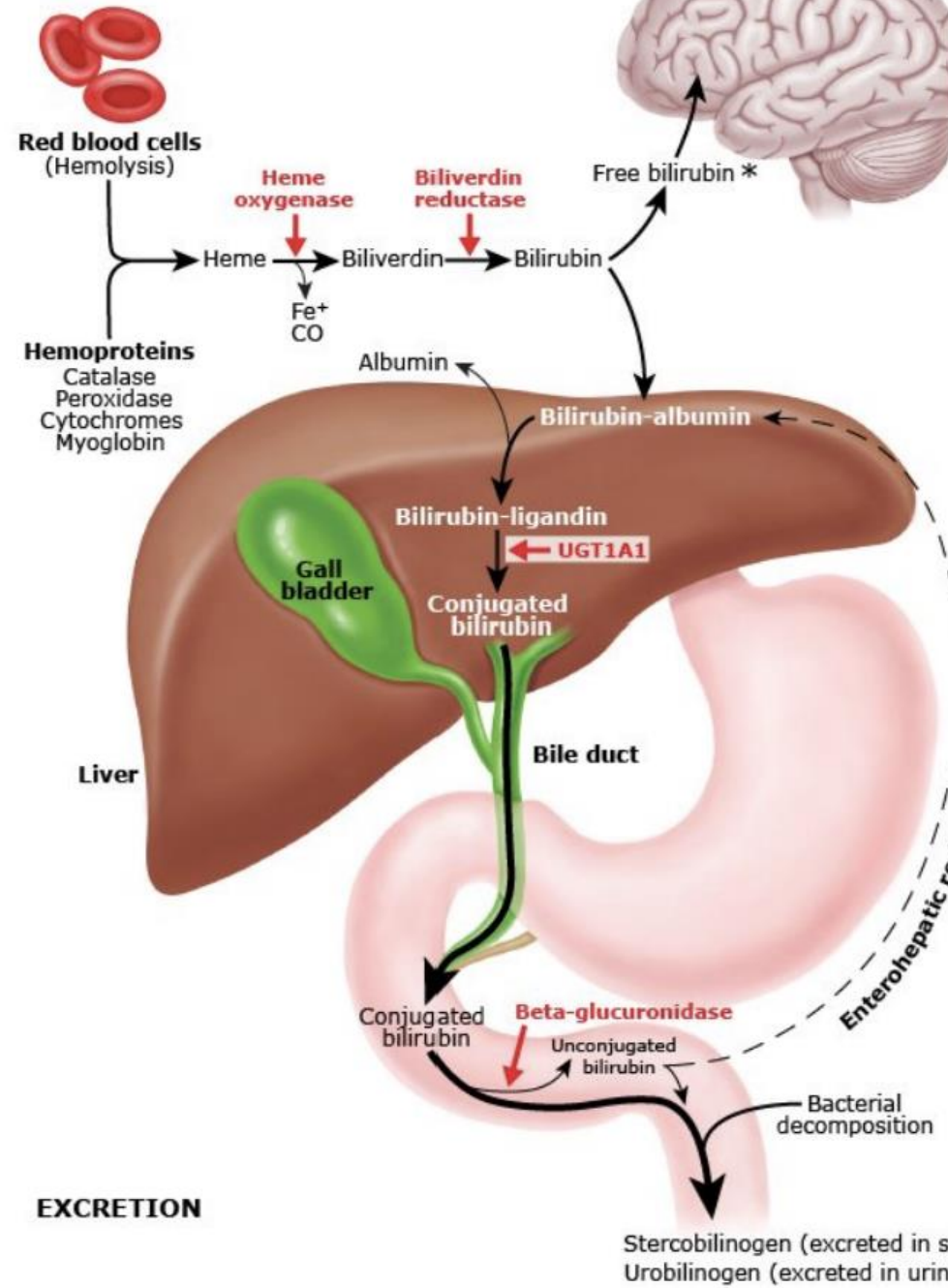
فوق تخصص نوزادان

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# INTRODUCTION:



## PRODUCTION



| CAUSES OF SIGNIFICANT UNCONJUGATED NEONATAL HYPERBILIRUBINEMIA                              | 1 - Week | 2 - week |
|---------------------------------------------------------------------------------------------|----------|----------|
| - Benign neonatal hyperbilirubinemia “physiologic jaundice”                                 | ***      | *        |
| Isoimmune-mediated hemolysis (eg, ABO or Rh[D] incompatibility)                             | ***      | *        |
| Inherited red blood cell membrane defects (eg, hereditary spherocytosis and elliptocytosis) | *        | ***      |
| Erythrocyte enzymatic defects (eg, glucose-6- phosphate dehydrogenase [G6PD] deficiency     | **       | ***      |
| pyruvate kinase deficiency, and congenital erythropoietic porphyria)                        | *        | **       |
| Sepsis                                                                                      | **       | **       |
| polycythemia or sequestration of blood within a closed space, such as in cephalohematomas.  | ***      |          |
| Macrosomic infants of diabetic mothers                                                      | ***      |          |
| Crigler-Najjar syndrome types I and II, Gilbert syndrome                                    | *        | ***      |
| congenital hypothyroidism, galactosemia, and panhypopituitarism,                            | *        | ***      |
| functional or anatomic obstruction                                                          | ***      | **       |
| Breast milk jaundice ,                                                                      |          | ***      |
| Breastfeeding difficulties                                                                  | ***      |          |
| Others,....                                                                                 |          |          |

| CAUSES OF SIGNIFICANT UNCONJUGATED NEONATAL HYPERBILIRUBINEMIA   | 1 - Week | 2 - week |
|------------------------------------------------------------------|----------|----------|
| - physiologic jaundice                                           | ***      | *        |
| - ABO or Rh                                                      | ***      | *        |
| - hereditary spherocytosis and elliptocytosis                    | *        | ***      |
| - G6PD deficiency                                                | **       | ***      |
| - pyruvate kinase deficiency, and porphyria                      | *        | **       |
| - Sepsis                                                         | **       | **       |
| - Polycythemia or sequestration "cephalohematomas".              | ***      |          |
| - Macrosomia " I.D.M"                                            | ***      |          |
| Crigler-Najjar S., Gilbert S.                                    | *        | ***      |
| congenital hypothyroidism, galactosemia, and panhypopituitarism, | *        | ***      |
| functional or anatomic obstruction                               | ***      | **       |
| Breast milk jaundice ,                                           |          | ***      |
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| Others,....                                                      |          |          |

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| functional or anatomic obstruction                                                          | ***      | **       |
| Breast milk jaundice, (0.5% – 2%)                                                           |          | ***      |
| Breastfeeding difficulties                                                                  | ***      |          |
| Others,....                                                                                 |          |          |

# Inadequate milk intake

Breastfeeding difficulties are common during the first week after birth.

## **Maternal breastfeeding complications:**

- Engorgement,
- Cracked nipples,
- Fatigue

## **Neonatal factors:**

- Ineffective suck

# Arias in 1963

prolonged, elevated indirect bilirubin  
in otherwise healthy breastfed  
newborns.

It typically presents:

after the first 3-5 days of life,

peaks within two weeks after birth,

progressively declines to normal levels over 3 to 12 weeks

# The etiology: is unknown

- pregnanediol,  $3\alpha$  - 20  $\beta$  -pregnanediol (In 1960s)
- increased enzyme activity,
- increased free fatty acids in breast milk

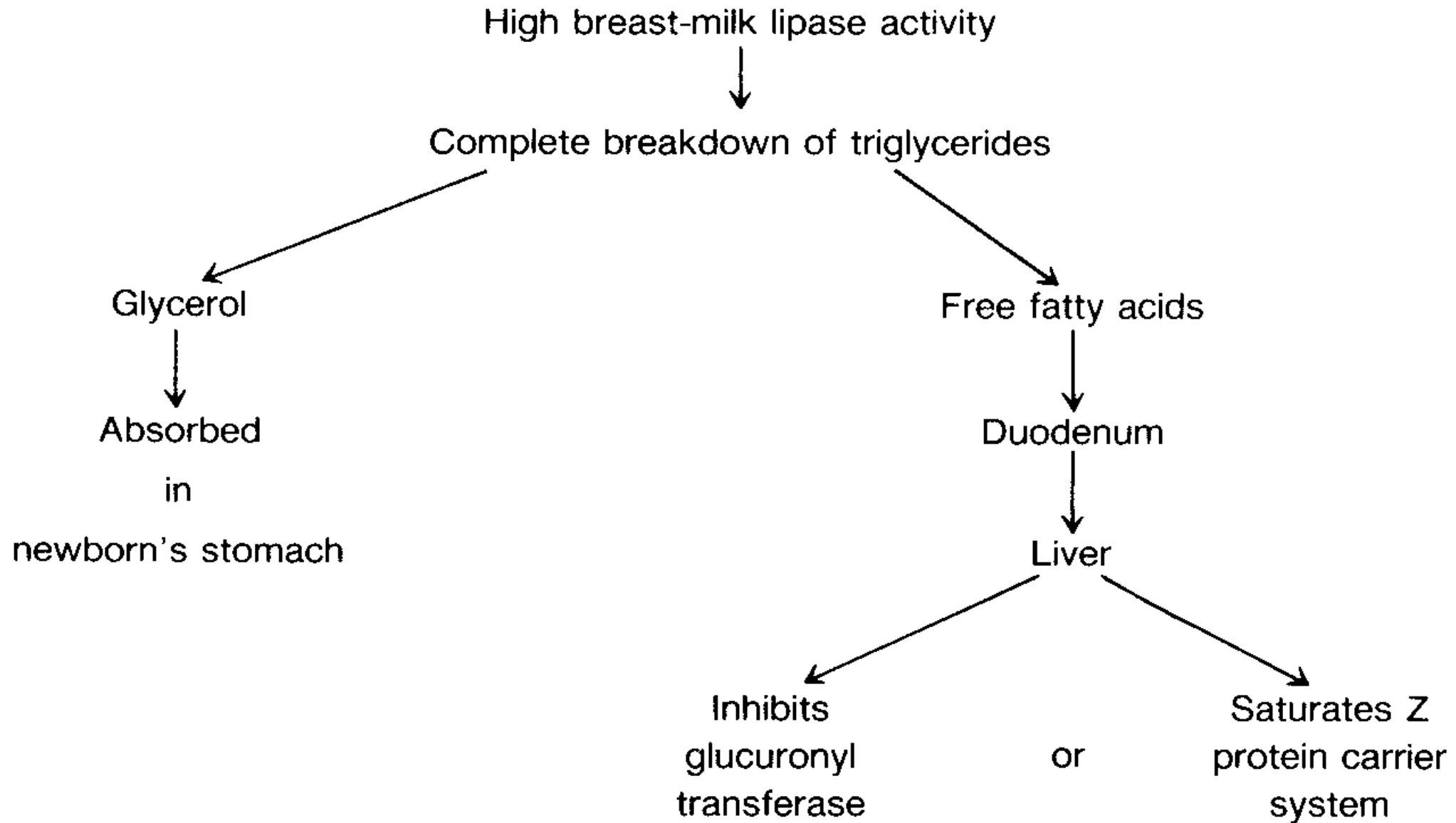
Polymorphic mutation of  
**the UGT1A1 gene**  
( Japanese study)

More recently, researchers:

the breast milk jaundice contains high

levels of enzyme (lipase) activity

and increased levels of free fatty acid



**The syndrome of breast-milk jaundice:**

**which often results in:**

**cessation of breastfeeding,  
maternal anxiety, and guilt,**

# Hyperbilirubinemia:

generally mild

typically, does not require intervention

human milk feeding can continue if the

TSB remains in a safe zone with the

expectation of resolution

by 12 weeks of age

با تشکر

