

**Laboratory evaluation of liver diseases**

1. A 61 year-old man lost 8 kg during the last 4 months. He complains of pruritus and frequently occurring dull epigastric pain. He has noted dark-colored urine, but light-colored stools lately. He has jaundice. The gall bladder is palpable, but non-tender.

Laboratory results:

serum bilirubin: 310  $\mu\text{mol/l}$ , mostly direct

urine Ubg: negative

ASAT: 82 U/l

ALAT: 91 U/l

alkaline phosphatase: 540 U/l

prothrombin time: INR = 2.6

What is the cause of his jaundice? What further tests do you consider?

2. An icteric woman has the following laboratory parameters:

serum indirect bilirubin: 54  $\mu\text{mol/l}$

serum direct bilirubin: 5,1  $\mu\text{mol/l}$

urine bilirubin: negative

ASAT: 19 U/l

ALAT: 22 U/l

LDH: 720 U/l

Ht: 0.33 l/l

plasma haptoglobin and hemopexin concentrations are significantly decreased

What is the cause of her jaundice?

3. A 38 year-old man, who regularly drinks alcohol. He has never been ill before, but he has grown icteric in the last couple of days. He has a temperature, and is a little anemic. His liver is palpable an inch below the ribs, it is slightly tender. Laboratory results:

urine color: dark brown

serum total bilirubin: 150  $\mu\text{mol/l}$

ASAT: 160 U/l

ALAT: 60 U/l

GGT: 490 U/l

MCV: 103 fl

What is the cause of his jaundice?

*Pathophysiology lab questions*

4. A 47 year-old man, who has been on hemodialysis for 5 years before he got his kidney transplantation. He has little body hair, a large, protruding belly, slim extremities and gynecomastia. Laboratory results:  
ASAT: 85 U/l  
ALAT: 76 U/l  
prothrombin time: INR = 2.7; it does not change after vitamin K administration  
albumin: 28 g/l  
K<sup>+</sup>: 3.3 mmol/l  
Ht: 0.36

What is the most likely diagnosis?

5. A 38 year-old woman complains of recurrent, sharp pain in the right upper quadrant of her abdomen. She has been vomiting, has fever and jaundice. Laboratory results:  
serum bilirubin: 50 µmol/l, mostly direct  
Ubg: negative  
ASAT: 180 U/l  
alkaline phosphatase: 640 U/l

What is the cause of her symptoms, and how can you prove the diagnosis?

6. A 25 year-old man has been icteric for a few days. His laboratory values:  
serum indirect bilirubin: 47 µmol/l  
serum direct bilirubin: 4 µmol/l  
ASAT: 18 U/l  
ALAT: 23 U/l  
alkaline phosphatase: 66 U/l  
Ht: 0.48  
Hb: 162 g/l

What is the cause of his jaundice? What further tests are necessary?

7. A 32 year-old man has been complaining of fatigue, malaise and a temperature for a week. His liver is palpable  $\frac{3}{4}$  of an inch below the ribs, it is a bit tender. His laboratory results:  
serum indirect bilirubin: 28 µmol/l  
serum direct bilirubin: 24 µmol/l  
Ubg: increased  
ASAT: 870 U/l  
ALAT: 1180 U/l  
alkaline phosphatase: 310 U/l

What is the most likely diagnosis, and how can you prove it? What further tests are necessary?

*Pathophysiology lab questions*

8. A 28 year-old woman. She is complaining of fatigue, malaise and nausea. Her laboratory results:  
serum total bilirubin: 45  $\mu\text{mol/l}$   
ALAT: 220 U/l  
alkaline phosphatase: 200 U/l  
 $\gamma$ -globulins: 33 g/l ( $\uparrow$ )  
RF and ANA: positive  
What is the most likely diagnosis, and what tests should be done?
9. A 30 year-old woman, who is 164 cm tall, her body weight is 81 kg. She saw her doctor, because she had noted a yellow discoloration of her skin accompanied by itching. She mentions she has had unpleasant gastrointestinal symptoms after meals for a long time: feeling full, having nausea. Physical examination reveals: yellow skin and sclera, spleen is not palpable, liver enlarged by an inch. The right upper quadrant of her abdomen is clearly sensitive on palpation. Laboratory findings:  
serum bilirubin: 150  $\mu\text{mol/l}$   
urine bilirubin: positive  
Ubg: decreased  
ASAT: 53 U/l  
alkaline phosphatase: 710 U/l  
GGT: 390 U/l  
What is the most likely diagnosis?
10. A newborn baby is admitted to the hospital with a complaint of increasing jaundice. The serum bilirubin is 160  $\mu\text{mol/l}$ .  
What can be the cause of the jaundice if this bilirubin is mainly:  
1. direct, or  
2. indirect reacting?