

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 drinks 4 dl brandy every day. 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⁺: 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

serum total cholesterol: 9.2 mmol/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

liver biopsy: no abnormality

Ht: 0.48

Hb: 162 g/l

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

Pathophysiology lab questions

7. A 28 year-old nurse has been working at a hemodialysis ward for 4 years. She has been complaining of fatigue, malaise and a temperature for a week. Her liver is palpable $\frac{3}{4}$ of an inch below the ribs, it is a bit tender. Her laboratory results:
- serum indirect bilirubin: 28 $\mu\text{mol/l}$
 - serum direct bilirubin: 24 $\mu\text{mol/l}$
 - 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?
8. A 60 year-old decompensated man with an enlarged liver. His laboratory results:
- serum total bilirubin: 30 $\mu\text{mol/l}$
 - Ubg: increased
- How do you explain these findings?
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?