

# Bilirubin - Questions and Casuistry

**Make sure to read all the correct answers thoroughly!**

Click on the blue button "expand" to see the answers with further explanations



 For more information see *Jaundice (icterus)*.

## Questions

### 1. Which type of bilirubin has a toxic effect on the basal ganglia?

- A — conjugated (direct) bilirubin
- B — unconjugated (indirect) bilirubin bound to albumin by van der Waals force
- C — bilirubin that is covalently bound to albumin
- D — free-of-bound bilirubin (does not bind to albumin)

### 2. Ligandin is a small protein enabling:

- A — conjugation of bilirubin and glucuronic acid, first creating bilirubin glucuronide and then diglucuronide
- B — transfer of bilirubin on the intracellular site into the smooth ER of a hepatocyte
- C — transfer of conjugated bilirubin through the "bile pole" to the primary bile capillaries
- D — a covalent bond between bilirubin molecule and albumin

## Answers

## Casuistry

### 1. Jaundice in an adult patient

A 42-year old man with severe icterus, abdominal pain localized in the upper right abdominal area, pale, fever, and shivers.

#### Lab. test results:

- ALP = 8,4  $\mu$ kat/l
- cholesterol = 7,9 mmol/l (5-nukleotidáza - zvýšená hodnota)
- AST = 0,64  $\mu$ kat/l
- total bilirubin = 421  $\mu$ mol/l
- prothrombin time: prolonged, physiological after intravenous application of vitamin K

#### Questions:

1. **According to the clinical evidence given, what is probably the origin of jaundice (icterus) in the patient?**
2. **Why is the prothrombin time prolonged?**
- 3.

## Answers

### 2. Patient with jaundice and nausea

A patient has been admitted for an unintentional significant weight loss in a short period of time, severe nausea, vomiting, and later on developed jaundice and hepatomegaly

#### Lab. test results:

- total bilirubin = 342  $\mu\text{mol/l}$
- conjugated bilirubin = 171  $\mu\text{mol/l}$
- ALP = 2,2  $\mu\text{kat/l}$
- AST = 12,4  $\mu\text{kat/l}$
- ALT = 11,2  $\mu\text{kat/l}$
- albumin = 22 g/l
- $\gamma$ -globulin = 23,8 g/l (34 % of total proteins)

### Questions:

1. **According to the clinical evidence, what is probably the cause of his condition; are there any other examinations you would suggest for a better differential diagnosis?**

### Answer

## References

### Related Articles

- Icterus
- Hepatitis B
- Differential Diagnosis of Icterus

### Source

- MASOPUST, Jaroslav – PRŮŠA, Richard. *Patobiochemie metabolických drah*. 1. edition. Prague : Charles University, 1999. 125–126 pp. pp. 182. ISBN 80-238-4589-6.