

Pathophysiology lab questions

Laboratory evaluation of kidney diseases

1. Some weeks after having a sore throat and high fever, the patient has developed edema. His blood pressure is increased.

Urinalysis:

volume: 450 ml/day
protein: +++ (3 g/day)
sediment: 50–100 erythrocytes/HPF, leukocytes rarely
creatinine clearance: 30 ml/min

What is the presumable diagnosis?

2. Laboratory findings of a patient with massive edemas:

serum total protein: 40 g/l
serum cholesterol: 8 mmol/l
ESR: 28 mm/h
blood pressure: 125/80 mmHg

Urinalysis:

quantity: 1800 ml/day
protein: +++++ (12 g/day)
sediment: 1–2 leukocytes/HPF, erythrocytes rarely, a lot of hyaline casts

What is the presumable diagnosis?

3. A febrile patient complains of lumbar pain.

Urinalysis:

protein: ++
pus: +++
sediment: a lot of leukocytes, some erythrocytes, epithelial cells,
a lot of bacteria, leukocyte casts
C_k: 100 ml/min
ESR: 38 mm/h

What is the presumable diagnosis?

4. Laboratory findings of a patient include the following:

Urinalysis:

sediment: 3–5 erythrocytes/HPF, rarely leukocytes;
the erythrocytes are isomorphic;
there is a minimal proteinuria;
the urinary protein electrophoresis does not show selectivity in the
proteinuria;
C_k: 120 ml/min

What can be the probable diagnosis: glomerular hematuria or urinary tract bleeding?

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5. After receiving a massive dose of aminoglycoside antibiotic, a patient with no prior symptoms of kidney disease develops a body weight gain of 3 kg over a period of 3 days. He does not void urine spontaneously. The total volume of urine collected by catheterization is 200 ml/day. Other laboratory results:

serum creatinine: 440 $\mu\text{mol/l}$
serum urea: 28.5 mmol/l
plasma K^+ : 6.2 mmol/l

What is the most likely diagnosis?

6. The serum glucose level is 15 mmol/l in a diabetic ketoacidosis. GFR is markedly decreased (20 ml/min). Tubular function tests are negative. No glucose can be detected in the urine (by repeated tests).

How is this possible?

7. Laboratory findings of a patient:

Urinalysis:

color:	straw-yellow	pus:	+++
transparency:	turbid (nubecula)	blood:	+
quantity:	400 ml (present), 1600 ml/day	glucose:	neg
specific gravity:	1022	acetone:	neg
protein:	50 mg/day	ubg:	norm
		bilirubin:	neg

Urinary sediment:

20–30 epithelial cells, 30–40 WBC, 3–4 RBC, per high power field

Further data:

body temperature: 38°C, WBC: 12 G/l, RBC: 4.5 T/l, ESR: 2 mm/h
creatinine clearance: 120 ml/min, cultivation of *E. coli*: positive

What is the most likely diagnosis?