

Výsledky chemického vyšetření moči a močového sedimentu při infekci močových cest

If a urinary tract infection is suspected, we examine the urine chemically and evaluate the urinary sediment, among other things. In indicated cases, we also use urine culture tests with evidence of antibiotic susceptibility.

Chemical examination of urine

In the **chemical examination of urine**, we can find a number of abnormalities in urinary tract infections:

Alkaliuria

Some bacteria (eg *Pseudomonas*, *Klebsiella*) break down urea into ammonia by the enzyme urease. This alkalinizes the urine. Therefore, we should always think about a urinary tract infection if the pH of the urine is higher than 6.5. However, more acidic urine does not rule out a urinary tract infection.

Nitrites

In particular, gram-negative bacteria (mainly *E. coli*, *Proteus*, *Klebsiella*, *Aerobacter*) can reduce nitrates to nitrites. Nitrite detection is thus an indirect sign of bacteriuria. This test is very specific, but its sensitivity is only around 50%.

Hematuria

It is detectable in most urinary tract infections. The presence of peroxidases in bacteriuria can also cause a positive blood test for urine. Unfortunately, the test is not very specific.

Leukocyturia

It also accompanies a large proportion of urinary tract infections. Quantitative examination of urinary sediment is more sensitive than chemical examination of urine.

Proteinuria

The amount of protein in the urine in urinary tract infections varies from concentrations that cannot be determined by basic techniques to values around 2 g / l.

Other findings in chemical examination of urine

In urinary tract infections, false positives of bilirubin, urobilinogen and ketone bodies are often false.

It follows that the result of a chemical urine test can be very abundant in urinary tract infections. On the other hand, we also encounter bacteriuria with a completely normal chemical finding. Therefore, any combination of results between these two extremes is compatible with the diagnosis of urinary tract infection. However, the following applies:

- If there are positive nitrites, the urinary tract infection is almost certain (specificity > 95%). Quite often, however, in a urinary tract infection, nitrites remain negative (sensitivity around 50%).
- In 98% of urinary tract infections, at least one of the parameters of hematuria, leukocyturia, nitrites, proteinuria is positive. With the exception of nitrites, however, the finding is often caused by another cause and urinary tract infection must therefore be confirmed by further examination (microscopically and by culture).

Sediment examination

Higher erythrocyte and leukocyte counts are usually found in urinary **sediment** for urinary tract infections; in these parameters, the sediment examination is more sensitive than the chemical examination. Furthermore, there are usually higher numbers of **epithelial cells** corresponding to the site of inflammation, and of course we find a larger number of **bacteria**.



Diagnostic strips

Links

References

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