

Free essay on urinary tract infections

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Introduction

The urinary system is the filter mechanism used for flushing out toxic wastes and excess water out of the human body. Consisting of the two kidneys, the bladder, ureters and the urethra, the urinary system helps not only in discharging wastes from the body but also helps in regulating blood pressure and blood volume. The kidneys are two bean shaped organs positioned near the middle of the back on both sides of the spinal column. The kidneys produce urine by processing around 200 quarts of blood every day, and the amount of urine varies among individuals depending on the intake of water and age (NKUDIC, 2012). The urine passes through the tubes called ureters and deposits in the bladder. When the bladder becomes full, we feel the pressure to urinate. The urine flows out of the body through a tube called the urethra located below the bladder. When a bacterium enters the urethra through the rectum or skin or from the bloodstream and infects the bladder, it leads to acute cystitis, and when acute cystitis spreads to the kidneys, it grows into a condition called acute pyelonephritis.

What are the symptoms of acute cystitis and acute pyelonephritis?

Acute cystitis is an infection of the bladder caused by bacteria. The tube that helps the bladder pass urine is called urethra. When bacteria enter the urethra from skin, rectum or from the lower intestines and travel into the bladder, it leads to the urinary tract infection medically known as acute cystitis (Riley, 2014). Typical symptoms of acute cystitis include frequent and strong need to pass urine, burning sensation while passing urine,

passing small quantity of urine, cramps in the pelvic area, abdomen and lower back, malodorous urine with streaks of blood, fatigue and fever (Riley, 2014). Accidental daytime wetting is the possible symptom of acute cystitis in children, and mental confusion and mental changes are the only signs of UTI observed in elderly patients.

When the urinary tract infection spreads to the kidneys, it leads to the development of a more serious life-threatening condition called acute pyelonephritis. The bacteria and viruses causing the infection of kidneys may come from the bladder or through the bloodstream from other areas of the body. The symptoms of acute pyelonephritis include fever, nausea or vomiting, mild, moderate or severe costovertebral angle pain, frequent painful urination, small quantity of urine and bloody and foul-smelling urine (Fulop, 2014). The symptoms of acute pyelonephritis observed in children include fever, feeding difficulty and vomiting. Elderly patients show the symptoms of mental confusion, hallucination and incoherent speech (Fulop, 2014).

Which symptoms are alike and which are different?

Most of the symptoms including fever, frequent urination, passing of small quantity of urine, cramps in the pelvic area, abdomen and lower back, fatigue and foul-smelling and bloody urine are common between acute cystitis and acute pyelonephritis. The symptoms of painful urination associated with acute pyelonephritis differ from the symptoms of burning discomfort while urinating observed with acute cystitis.

How do health care providers differentiate between the two problems?

Since the identifying symptoms between acute cystitis and acute pyelonephritis are similar, the two are often misdiagnosed, resulting in a wrong treatment. When the symptoms of life-threatening acute pyelonephritis are mistaken for simple UTI or bladder infections, the consequences could be fatal and dangerous. It is, therefore, important for the healthcare providers to differentiate between the two problems so that a proper diagnosis can be made.

The most tell-tale sign of a difference between acute cystitis and acute pyelonephritis is the severity of pain during urination. In the case of acute cystitis, the patient suffers from burning sensation while passing urine, but in the case of acute pyelonephritis, the patient suffers from severe pain while passing urine. The tests, performed to diagnose both acute cystitis and acute pyelonephritis, are also similar. Some common tests include urine analysis, urine culture, computed tomography, ultrasound and x-rays. All of these tests help identify the diseases clearly. The urine sample collected from the patient is sent for urine analysis, which clearly indicates if there is any trace of bacterial or virus infection in the urine. When necessary, healthcare providers conduct urine culture that helps identify the particular bacteria causing the infection. Though many viruses and bacteria cause acute pyelonephritis, the most common organism found to be the cause of infection is *Escherichia coli* (NKUDIC, 2012). In the case of acute cystitis, the most common bacteria include *Staphylococcus aureus*, *Mycobacterium tuberculosis* and *Candida* species (Dulczak, and Kirk, 2005).

In order to be accurate in diagnosis, healthcare providers also perform Computed tomography (CT) scanning and Magnetic resonance imaging (MRI) to find out traces of renal infection (Dulczak, and Kirk, 2005).

Dimercaptosuccinic acid (DMSA) scintigraphy is a procedure in which a radioactive material is injected into the vein of a patient's arm, and special cameras are used to capture pictures of radioactive material when it passes through the kidney. This helps reveal any renal scarring associated with acute pyelonephritis. DMSA is particularly very helpful in making the diagnosis of pyelonephritis. Usually, when patients don't respond to the treatment of UTI infections within 72 hours, this test is conducted to find out deeper complications (Dulczak, and Kirk, 2005).

Is there an age or gender group that is at higher risk for either problem?

Acute cystitis or UTI is most common among women than men. The female urethra is comparatively quite shorter than that of men. The female urethra is only 1.5 inches long compared to 8 inches in men, and as a result, bacteria from the rectum can easily travel into the urethra of women.

Furthermore, young women are prone to catch UTI within 24 hours of a sexual intercourse. Sometimes the contraceptives like diaphragms, used by women for birth control, also lead to the development of UTI. Women going through menopause are also more likely to develop UTI. Menopause leads to the loss of estrogen, which thins the walls of the urinary tract reducing its ability to fight bacteria (The New York Times, 2014). Men, on the other hand, are prone to develop acute cystitis once they cross 50 years of age and develop prostate problems. Acute pyelonephritis too is more common among

women than men. Especially, sexually active women have the higher risk of developing acute pyelonephritis compared to celibate women. Just like acute cystitis, acute pyelonephritis too is more common among men over 50 years of age when they develop prostate problems (NKUDIC, 2012).

References

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