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Urinary Tract Infections in Women

Definition

The urinary tract makes and stores urine, one of your body's liquid waste products. The kidneys produce 1.5 to two quarts of urine every day by removing waste and water from the blood. The urine travels from the kidneys down two narrow tubes called ureters. It is then stored in a balloon-like container called the bladder.

Female Anatomy

The urinary system consists of the kidneys, ureters, bladder, and urethra. The kidneys, a pair of fist sized organs, are located below the ribs toward the middle of the back. The kidneys remove liquid waste from the blood in the form of urine; keep a stable balance of salts and other substances in the blood. Narrow tubes called ureters carry urine from the kidneys to the bladder in the lower abdomen.

Like a balloon, the bladder's elastic walls relax and expand to store urine and contract and flatten when urine is emptied through the urethra. (Note: In the male, the urine goes through the prostatic portion of the urethra before entering the penile urethra.) The typical adult bladder can store about 1 1/2 cups of urine (12 ounces) but with a great deal of variability from patient to patient.

In an adult, the bladder can hold 10 to 20 ounces of urine, about as much liquid as in one can of soda. When the bladder is about half full, you may begin to feel the need to empty it by urinating. Urine is carried out of the body through the urethra, a tube that begins at the bottom of the bladder. The end of the urethra is near the top of the vagina in women. In men, the urethra passes through the prostate gland and exits at the tip of the penis.

Normal urine contains no bacteria, but bacteria do cover the skin and are present in large numbers in the rectal area and in bowel movements. Bacteria may, at times. When this happens, the bacteria cause infection and inflammation of the bladder. Bladder infection, also called **cystitis**, is the most common urinary tract infection.

If the bacteria travel upward from the bladder through the ureters and reach the kidneys, you may develop a kidney infection, also known as **pyelonephritis**. Kidney infections are much less common but often more serious than bladder infections.

Every year, eight to 10 million visits to doctors occur because of urinary tract infections.

Cause

Some people, mainly women, develop urinary tract infections because they are prone to such infections the way other people are prone to getting coughs or colds. Urinary tract infections are much less common in men and children than in adult women.

A urinary tract infection in a man or child may be the sign of an abnormal urinary tract. For this reason, when men or children are found to have a urinary tract infection, they may be referred to a urologist, a specialist in diseases of the urinary system and the male reproductive system, for additional tests and x-rays.

At-risk Groups

A number of factors may increase a person's risk of getting a urinary tract infection. Some of these factors include:

- Having certain diseases, such as diabetes, or an abnormal urinary system.
- Recently having had a medical instrument inserted into the urethra.
- Sexual contact.

Symptoms

When you have a urinary tract infection, the lining of the bladder and urethra becomes irritated, just as the inside of your nose or throat does when you have a cold. Common symptoms include:

- Pain in the abdomen and pelvic area.
- A feeling of needing to constantly urinate.
- Inability to urinate.
- Burning sensation during urination.
- Incontinence.
- Urine with an unpleasant odor or cloudy appearance.
- Low back pain.
- Fever.
- Chills.

In infants or young children, symptoms may include irritability, lack of appetite, fever, loose bowel movements, or just not seeming healthy.

Kidney infections produce fever and back pain much more commonly than do bladder infections. If a kidney infection is not treated promptly, the bacteria may spread to the bloodstream and cause a life-threatening infection.

Complications

Urinary tract infections in most adults can be successfully treated without causing long-term problems.

Young children have the greatest risk for kidney damage from urinary tract infections. Such

damage may lead to poor kidney function, high blood pressure, and other problems. For this reason, it is important that children with urinary tract infections receive prompt treatment and careful checkups.

Pregnant women with a history of repeated urinary tract infections should have their urine tested often. Urinary tract infections during pregnancy can cause serious kidney infections in the mother and possible risks for the baby.

Diagnosis

Your doctor will try to find out if you have a urinary tract infection by examining samples of your urine under a microscope. If an infection is present, the physician may also perform a urine culture, a process in which bacteria from infected urine are grown in a laboratory. The germs can then be identified and tested to see which drugs will provide the most effective treatment. It often takes a day or two to complete this testing.

The symptoms of a urinary tract infection may resemble those of other urinary tract diseases. If no infection can be found or the infection won't go away, your doctor may refer you to a urologist to find out why. Other problems that the urologist may look for are:

Urethritis, which may be either an inflammation or an infection of the urethra. When infection is present in the urethra, the condition often is due to bacteria passed by sexual contact.

Interstitial cystitis, a bladder irritation found mainly in adult women. Its cause is not known.

Urinary stones, which sometimes develop in the bladder, irritating it and causing symptoms similar to those of a urinary tract infection. On occasion, the stones have bacteria inside that trigger hard-to-cure infections.

Bladder tumors (cancerous or non-cancerous growths). When present, may irritate the bladder. The symptoms often include a frequent need to urinate and possibly blood in the urine.

Prostatitis, an inflammation or infection of the male gland, the prostate, which surrounds the urethra just below the bladder. In adult males, prostate disorders may cause symptoms that resemble those of urinary tract infections.

Treatment

Urinary tract infections are treated with antibiotics, which are generally taken by mouth. Your doctor will choose a drug that treats the bacteria most likely to be causing your infection. Once the test results arrive, you may be given a different antibiotic that is more effective against the particular bacteria found in your urine.

The number of days you must take medication and the number of doses you must take each day depend, in part, on the type of infection you have and how severe it is. You usually will have to take the medicine for at least two to three days and possibly for as long as several weeks.

The daily treatment schedule your doctor recommends depends on the specific drug prescribed. It may call for a single dose each day or up to four daily doses.

A few doses of the antibiotic may relieve you of the need to urinate often and most of the pain from a bladder infection. It may be several days, however, before the bladder infection and its symptoms vanish completely.

In any case, it is important to take medications as prescribed by your doctor and not to stop them simply because the symptoms have gone away. Unless urinary tract infections are fully treated, they frequently return.

When you have a urinary tract infection, you should drink fluids whenever you are thirsty. It is not necessary to drink large amounts, but you should make certain that your body has the liquid it needs.

If the urinary tract infection is severe, it may involve the kidneys. In that case, antibiotic drugs may have to be injected. Hospital treatment with medication given **intravenously**, injected directly into the bloodstream, is sometimes necessary.

Once your infection is gone, your doctor may recommend that you have additional tests. The tests are performed to assure that there are no abnormalities in the urinary tract that might result in kidney damage from urinary tract infections.

Tips

To reduce your risk of getting a urinary tract infection:

- Don't postpone. Urinate when you feel the urge.
- Don't rush. Take your time when you urinate to empty your bladder completely.
- Respond to your body's signals of thirst by drinking enough water or other liquids every day.
- Urinate after having sex.
- See your doctor at the first sign of a problem. Urinary tract infections are very common, and they are easiest to treat if caught before they become severe or spread beyond the bladder.