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Legionnaires' disease

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Overview

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Legionnaires' disease is a severe form of pneumonia — lung inflammation usually caused by infection. It's caused by a bacterium known as legionella.

Most people catch Legionnaires' disease by inhaling the bacteria from water or soil. Older adults, smokers and people with weakened immune systems are particularly susceptible to Legionnaires' disease.

The legionella bacterium also causes Pontiac fever, a milder illness resembling the flu. Pontiac fever usually clears on its own, but untreated Legionnaires' disease can be fatal. Although prompt treatment with antibiotics usually cures Legionnaires' disease, some people continue to have problems after treatment.

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Symptoms

Legionnaires' disease usually develops two to 10 days after exposure to legionella bacteria. It frequently begins with the following signs and symptoms:

- Headache
- Muscle aches
- Fever that may be 104 F (40 C) or higher

By the second or third day, you'll develop other signs and symptoms that can include:

- Cough, which might bring up mucus and sometimes blood
- Shortness of breath
- Chest pain
- Gastrointestinal symptoms, such as nausea, vomiting and diarrhea
- Confusion or other mental changes

Although Legionnaires' disease primarily affects the lungs, it occasionally can cause infections in wounds and in other parts of the body, including the heart.

A mild form of Legionnaires' disease — known as Pontiac fever — can produce fever, chills, headache and muscle aches. Pontiac fever doesn't infect your lungs, and symptoms usually clear within two to five days.

When to see a doctor

See your doctor if you think you've been exposed to legionella bacteria. Diagnosing and treating Legionnaires' disease as soon as possible can help shorten the recovery period and prevent serious complications. For people at high risk, such as smokers or older adults, prompt treatment is critical.

Causes

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The bacterium *Legionella pneumophila* is responsible for most cases of Legionnaires' disease. Outdoors, legionella bacteria survive in soil and water, but rarely cause infections. However, legionella bacteria can multiply in water systems made by humans, such as air conditioners.

Although it's possible to get Legionnaires' disease from home plumbing, most outbreaks have occurred in large buildings, perhaps because complex systems allow the bacteria to grow and spread more easily. Also, home and car air conditioning units don't use water for cooling.

How the infection spreads

Most people become infected when they inhale microscopic water droplets containing legionella bacteria. This might be from the spray from a shower, faucet or whirlpool, or water from the ventilation system in a large building. Outbreaks have been linked to:

- Hot tubs and whirlpools
- Cooling towers in air conditioning systems
- Hot water tanks and heaters
- Decorative fountains
- Swimming pools
- Birthing pools
- Drinking water

Besides by breathing in water droplets, the infection can be transmitted in other ways, including:

- **Aspiration.** This occurs when liquids accidentally enter your lungs, usually because you cough or choke while drinking. If you aspirate water containing legionella bacteria, you can develop Legionnaires' disease.

- **Soil.** A few people have contracted Legionnaires' disease after working in a garden or using contaminated potting soil.

Risk factors

Not everyone exposed to legionella bacteria becomes sick. You're more likely to develop the infection if you:

- **Smoke.** Smoking damages the lungs, making you more susceptible to all types of lung infections.
- **Have a weakened immune system.** This can be a result of HIV/AIDS or certain medications, especially corticosteroids and drugs taken to prevent organ rejection after a transplant.
- **Have a chronic lung disease or other serious condition.** This includes emphysema, diabetes, kidney disease or cancer.
- **Are 50 years of age** or older.

Legionnaires' disease can be a problem in hospitals and nursing homes, where germs can spread easily and people are vulnerable to infection.

Complications

Legionnaires' disease can lead to a number of life-threatening complications, including:

- **Respiratory failure.** This occurs when the lungs can't provide the body with enough oxygen or can't remove enough carbon dioxide from the blood.
- **Septic shock.** This occurs when a severe, sudden drop in blood pressure reduces blood flow to vital organs, especially to the kidneys and brain. The heart tries to compensate by increasing the volume of blood pumped, but the extra workload eventually weakens the heart and reduces blood flow even further.
- **Acute kidney failure.** This is the sudden loss of your kidneys' ability to filter waste from your blood. When your kidneys fail, dangerous levels of fluid and waste accumulate in your body.

When not treated promptly, Legionnaires' disease can be fatal.

Prevention

Outbreaks of Legionnaires' disease are preventable, but prevention requires water management systems in buildings that ensure that water is monitored and cleaned regularly.

To lower your personal risk, avoid smoking.

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