

# Those clogged pipes can lead to congestive heart failure

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We hear the words all the time. But what is “congestive heart failure?”

Congestive means clogged, as in traffic congestion. The technical name “congestive heart failure” is sometimes shortened to CHF or just heart failure, and it affects more than 5 million patients in the United States, according to American Heart Association estimates.

Heart failure results when the heart cannot pump enough blood through the body. To make up for this, the body retains salt and water to help the heart pump more efficiently.

Unfortunately, over time the body overcompensates and the heart is unable to pump out all the blood that it receives. This leads to a chain of events: the blood backs up, causing swelling of the legs and accumulation of fluid in the lungs, and that leads to shortness of breath.

Other symptoms of heart failure include tiredness, weight gain, palpitations, and abdominal distention (stretching).

What causes heart failure?

It is obvious that the heart needs to squeeze the blood out efficiently with every beat to function normally. The percentage of blood that the heart squeezes out with every beat is called the ejection fraction, and the normal value is around 60 percent. Diseases that affect the ability of the heart to contract and pump out blood are associated with the reduction of that 60 percent amount, and referred to as “systolic dysfunction.”

Any disease that damages the heart muscle — heart attacks, viral infections and excessive alcohol use — may cause heart failure.

What is less obvious is that the heart needs to relax adequately to accommodate the blood that returns with every beat. If it doesn't relax, that puts pressure on the heart chamber, backing up blood and leading to heart failure. This is called “diastolic dysfunction.”

In response to diseases like hypertension (high blood pressure) or heart valve diseases, the heart muscle becomes thicker to cope with the excessive load put on the heart. This stiffens the heart muscle, which also leads to diastolic dysfunction.

How is heart failure evaluated?

The diagnosis of heart failure is made by a physician based primarily on the patient's symptoms and physical examination. Laboratory tests may further support the diagnosis.

Electrocardiography (ECG) and chest X-rays are common initial tests to evaluate heart failure. Ultrasound of the heart (echocardiography) is an important test to evaluate the ejection fraction of the heart, diastolic function, valve function and heart muscle function.

Some patients may need more tests that are usually performed by a cardiologist (specialist in heart disease) and may include stress testing, cardiac catheterization (measurement of pressures in the heart with catheters inserted through blood vessels) and coronary angiography (X-rays of blood vessels that supply the heart).

How is heart failure treated?

Cutting out salt and fluids, and taking diuretics (water pills) will help reduce congestion and improve symptoms.

Specialized medications like ACE inhibitors, beta blockers, spironolactone, and digoxin may make patients feel better and improve survival.

Patients who stop smoking, take medications to control blood pressure and reduce cholesterol, and take blood thinners like aspirin or Coumadin, will benefit. It's also helpful to avoid medications like ibuprofen.

An important point to remember is that heart failure can be controlled but rarely can it be cured. Patients must comply with treatment instructions for a lifetime. The most common cause for heart failure problems is failing to follow the doctor's instructions.

A large number of patients with heart failure die suddenly of heart rhythm abnormalities like ventricular fibrillation. Sudden death can be prevented by implanting special pacemaker-like devices called defibrillators that deliver an electrical shock and treat these potentially fatal heart rhythm abnormalities.

Biventricular pacemakers stimulate heart muscle in a particular way to produce the most effective and synchronized contracting of the heart muscle. Coronary artery bypass grafting or heart valve surgery may be helpful in selected cases.

In advanced heart failure, which is not responsive to standard therapy, patients may need to be admitted to an intensive care unit and need medications like dobutamine to stimulate heart function. Further therapies may include artificial devices that support or take over heart function, including intra-aortic balloon pumps and ventricular assist devices.

Finally, these patients may benefit from heart transplantation.

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