Congestive Heart Failure

(Heart Failure; Chronic Heart Failure; Left Ventricular Dysfunction; Left Ventricular Failure)

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En Español (Spanish Version)
More InDepth Information on This Condition

Understanding Heart Failure

Definition

In congestive heart failure (CHF), the heart is unable to pump the necessary amount of blood throughout the body. This causes blood to back up in the veins. Fluid pools in the liver and lungs. Swelling occurs first in the feet, ankles, and legs. Then the swelling occurs throughout the body as the kidneys begin to retain fluid.

Pulmonary Edema

Fluid pooling in the lungs.

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Causes

Causes include:

- Problems with the heart's valves due to:
  - Rheumatic heart disease
  - Bacterial endocarditis
  - Congenital defects
  - Calcium deposits
- High blood pressure
- Heart muscle damage after a heart attack
- Coronary artery disease
- Cardiomyopathy (weakened, damaged heart muscle) due to:
Risk Factors

Risk factors include:

- Sex: male
- Race: Black
- Advancing age
- Pregnancy
- Excess alcohol intake
- Excess intake of salt and fat
- High fever
- Infection
- Obesity
- Chronic lung disease
- Use of beta-blocking or digitalis-containing medications in certain settings
- Chemotherapy
- Arrhythmia
- Heart valve disease
- Heart muscle damage from heart attack, infection, or medications
- Overactive thyroid

Symptoms

Symptoms include:

- Fatigue, weakness
- Shortness of breath—at first only with activity, progressing to shortness of breath at rest
- Wheezing
- Cough—may be dry and hacking or wet sounding with a pink, frothy sputum
- Need to sleep propped up
- Swelling of feet, ankles, or legs
- Frequent urination, especially at night
- Unexplained weight gain
- Abdominal pain and tenderness
Diagnosis

The doctor will ask about your symptoms and medical history. A physical exam will be done. In particular, the physical exam will include:

- Listening to the lungs and heart with a stethoscope
- Feeling the abdomen for tenderness and liver swelling
- Checking the legs for swelling

Tests may include:

- Blood tests—to look for certain markers in the blood that help the doctor determine what is happening with your heart
- Urine tests—to look for certain markers in the urine that help the doctor determine what is happening with your heart
- Electrocardiogram (ECG, EKG)—records the heart's activity by measuring electrical currents through the heart muscle
- Echocardiogram—uses high-frequency sound waves (ultrasound) to examine the size, shape, function, and motion of the heart
- Exercise stress test—records the heart's electrical activity during increased physical activity, may be coupled with echocardiogram
  - Patients who cannot exercise may be given a medication to simulates physical exertion
- Nuclear scanning—radioactive material (such as thallium) is injected into a vein and highlights areas with diminished flow
- Electron-beam CT scan (coronary calcium scan, heart scan, CT angiography)—measures the amount of calcium deposits in the coronary arteries to help to determine the risk of heart disease, including heart attacks
  - The American Heart Association (AHA) published guidelines in 2006 that heart scans are not for everyone and those most likely to benefit from the procedure are patients at intermediate risk of coronary artery disease
- Coronary angiography—x-rays with a special dye that allows the doctor to look for abnormalities (narrowing, blockage) in the arteries and evaluate the function of the heart

Treatment

Treatments include:

Treatment of Underlying Conditions

CHF may be caused by another condition. Treating the other condition should improve or cure your CHF.

Lifestyle Changes

- Avoid alcohol.
- If you smoke, quit.
- Lose weight if necessary.
- Eat a healthy diet. This may include a diet that is low in fat and salt, and high in fiber.
- Ask your doctor if you need to restrict fluids. Find out how much salt and fluid is right for you.
- Begin an exercise program with guidance from your doctor — aerobic training may help improve your level of physical activity and your quality of life. *¹
- Weigh yourself every morning so you can detect fluid retention early.

Medications
Medications include:

- Diuretics
- Digitalis
- ACE-inhibiting medications
- Beta-blockers
- Nitrates
- Hydralazine

**Left-Ventricular Assist Device (LVAD)**

This is a mechanical pump that can be implanted in your chest. It temporarily assists the heart's pumping. The pump may take over the function of either or both ventricles. Initially it has been used only for patients awaiting heart transplant. In recent years it has emerged as possible long-term treatment for some patients.

**Cardiomyoplasty**

This is a surgical procedure in which a muscle from the back is removed and wrapped around the heart. A mechanical device stimulates the transplanted muscle to squeeze the heart, thus assisting the heart's pumping action.

**Implantable Cardioverter Defibrillator (ICD) Placement**

Patients with heart failure are more prone to certain heart arrhythmias that put them at risk for sudden cardiac death. ICDs are implanted in those patients to prevent such arrhythmias from occurring.

**Cardiac Resynchronization Therapy**

Some patients with heart failure benefit from a specific type of electrical stimulation to the ventricles. This allows the ventricles to contract in a synchronized matter. It can improve CHF symptoms.

**Heart Transplant**

This is reserved for the most severe cases of CHF.

**Prevention**

To prevent CHF or to prevent the condition from worsening:

- If you smoke, quit.
- Avoid alcohol.
- Maintain a healthy weight.
- Lose weight, if necessary.
- Eat a healthy diet. It should be low in saturated fat and salt. It should also be rich in whole grains, fruits, and vegetables.
- Begin a safe exercise program with the advice of your doctor.

**RESOURCES:**

American Academy of Family Physicians  
http://familydoctor.org/

American College of Cardiology  
http://www.acc.org/
American Heart Association
http://www.americanheart.org/

CANADIAN RESOURCES:

About Kids Health
http://www.aboutkidshealth.ca/

Heart and Stroke Foundation of Canada
http://ww2.heartandstroke.ca/

REFERENCES:


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