

CARDIAC RESYNCHRONIZATION THERAPY (CRT)



How does a CRT device work?

CRT uses a biventricular pacemaker or defibrillator. They have three wires, one in the right atrium, one in the right ventricle and a third around the left side of the heart. By delivering near simultaneous electrical impulses to both lower heart chambers, it causes the heart to beat in a more synchronized, efficient manner. Biventricular pacing improves the symptoms of about two-thirds of the patients undergoing this procedure and also improves survival.

As people with heart muscle damage also may have dangerously fast heart rhythms, biventricular pacing is often combined with a defibrillator.

What is Cardiac Resynchronization Therapy (CRT)?

In heart failure the heart does not pump as well as it should, so blood does not circulate as well as it should. Without enough blood, important organs such as the brain and kidneys cannot function properly.

Cardiac Resynchronization Therapy (CRT) can relieve heart failure symptoms by helping the heart pump more efficiently.

Why would your doctor recommend a CRT device?

Heart failure is a chronic, progressive disease. Early use of CRT therapy can help you live longer and help keep you out of the hospital for heart failure.

A CRT device does not cure heart failure but may improve your heart failure symptoms.

In general, patients who are good candidates for a CRT are those with:

- Moderate to severe heart failure symptoms (for example difficulty breathing or extreme fatigue), despite other therapy
- A weakened and enlarged heart
- An electrical problem that causes uncoordinated pumping of the ventricles
- Heart failure with left bundle branch block; even though they have no symptoms or mild symptoms they are high risk for heart failure event/hospitalization or dangerous heart rhythm

The Procedure:

The procedure to put in a CRT device is a little more complicated than putting in a regular pacemaker or defibrillator. The third wire is positioned in a very small vein that goes to the left side of the heart.

Although most people have a vein that can be used for this purpose, this is not true of everyone. In some cases, the doctor is unable to place the third wire due to anatomic limitations. In rare instances, this extra wire is placed on the outside of the heart at the time of another heart operation such as valve surgery or a coronary bypass operation.

Do I still need medication?

Even with a CRT device, medications remain an important part of your treatment. Your doctor will determine the best course of therapy for you, which often includes both medications and a CRT device. It is important to follow your doctor's instructions regarding any medications.

By talking openly to your doctor, you will know what treatments are best for you. Your doctor can provide advice based upon your concerns, value and priorities; a process called shared decision-making.

Like all pacemakers and defibrillators, biventricular devices require monitoring to be certain that they are functioning in the best possible way.

For more information including educational video:

<https://upbeat.org/common-treatments/cardiac-resynchronization-therapy>

References:

Heart Rhythm Society <http://www.hrsonline.org>

Boston Scientific Corporation. (2019). Cardiac Resynchronization Therapy Devices. St. Paul, MN. Rhythm Management