

The Cost-Effectiveness of Cardiac Resynchronization Therapy for Heart Failure

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The full report is titled “Cost-Effectiveness of Cardiac Resynchronization Therapy in Patients with Symptomatic Heart Failure.” It is in the 7 September 2004 issue of *Annals of Internal Medicine* (volume 141, pages ●●●-●●●). The authors are G. Nichol, P. Kaul, E. Huszti, and J.F.P. Bridges.

What is the problem and what is known about it so far?

In heart failure, the heart does not pump blood as well as it should and fluid builds up in the lungs. The symptoms of heart failure include difficulty breathing, decreased ability to exercise, and leg swelling. Although many drugs help patients with heart failure, there is no cure. The condition is disabling and even fatal for many patients. In patients with heart failure, conduction of electrical impulses through the heart is often abnormal. This abnormal conduction, in turn, can lead to uncoordinated contraction of the ventricles, the large pumping chambers of the heart. Cardiac resynchronization is a newer heart failure treatment that uses a special type of pacemaker to synchronize the contraction of the ventricles. A review in this same issue of *Annals of Internal Medicine* shows that cardiac resynchronization improves quality of life, exercise ability, and survival for selected patients with heart failure. However, the economic impact of this new heart failure therapy is unclear.

Why did the researchers do this particular study?

To estimate the economic impact of cardiac resynchronization therapy for heart failure.

Who was studied?

Rather than studying actual patients, the researchers used computers to simulate what would happen to a “virtual” group of patients with heart failure.

How was the study done?

The researchers used published information to estimate what might happen (and how much it would cost) if doctors treated patients with symptomatic heart failure and prolonged QRS on electrocardiography with usual drug therapy or with cardiac resynchronization. They put these estimates into the computer model and calculated how much each strategy would cost per year of life that it saved. The computer model also accounted for the quality of life during the years that patients survived.

What did the researchers find?

Compared with drug therapy, cardiac resynchronization therapy cost about \$90 000 more per quality-adjusted life-year it saved. These costs are in line with what U.S. society pays for other health interventions. However, the estimates of cost-effectiveness were sensitive to changes in the assumptions for several key factors, including the estimates of the effect of resynchronization on hospitalization and death.

What were the limitations of the study?

The study was a computer simulation, so we cannot be sure what the results would be with actual patients.

What are the implications of the study?

The cost-effectiveness of cardiac resynchronization therapy is similar to that of other commonly used medical therapies.