Is chest pain treatable?

If you or someone you know is among the more than seven million people in this country who suffer the crippling chest pain of angina pectoris—a noninvasive treatment may help relieve your pain.

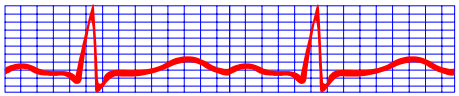
A low-risk alternative to bypass surgery and angioplasty has been developed. Called CPT® for *Counterpulsation Therapy*, it gently compresses blood vessels in the legs to increase blood flow to the heart, ultimately reducing or eliminating chest pain.

Usually triggered by physical exertion or emotional stress, angina occurs when the heart muscle needs more oxygen than is available from the blood supply nourishing the heart. This usually happens because narrowed or blocked arteries are restricting the flow of blood to the heart muscle.

To receive CPT®, patients lie on padded tables with electronically controlled inflation and deflation valves. The valves are connected to specially designed, adjustable cuffs that are wrapped firmly but comfortably, around parts of the patient's legs. The cuffs are inflated in rapid sequence up the leg while the heart is resting and released instantly just before the heart beats. This increases blood supply to the heart muscle while reducing its workload.

The treatment is easier to go through for most people and costs far less than traditional, invasive methods. In addition, it is performed on an outpatient basis. The entire course of treatment generally takes four to seven weeks.

Studies have shown that treatment benefits can last for at least three years. People who have received the treatment report an overall improvement in their quality of life. They usually are able to enjoy such everyday activities as walking, gardening, and playing with grandchildren with little or no pain.



Description of procedure

Patients lie on a bed wearing a series of pressure cuffs (somewhat like large blood pressure cuffs) around their calves, lower thighs and upper thighs. The pressure moves a blood pressure wave in the arteries from the lower limbs toward the heart.

The vascular networks in the large muscles of the patients' legs are compressed in sequence, progressing from the calves upward. Each wave of pressure is electronically synchronized with the patient's heartbeat via an electrocardiographic signal, so that the increased blood flow is delivered to the heart at the precise moment it is relaxing. Therefore, blood flow through the coronary vessels is at its peak.

When the heart pumps again, the pressure in the cuffs is withdrawn and the cuffs are deflated instantaneously. This lowers resistance in the vascular bed of the legs so that blood may be pumped more easily from the heart.

The History of CPT

The state-of-the art angina treatment, Counterpulsation therapy, has evolved from a principle described in 1953 by the Kantrowitz brothers at Harvard. The principle, phase shift diastolic augmentation, led to a better understanding of the myocardial oxygen consumption differences between "flow work" and "pressure work."

Because of the new understanding of the above principle, improving blood flow to the ischemic myocardium by increasing coronary perfusion became the objective of research. Many attempts were made to develop effective means of providing mechanical cardiac assistance for patients with low cardiac output syndromes.

One of the first techniques developed was the Intra-Aortic Balloon Pump (IABP). The IABP consists of an inflatable balloon catheter that is inserted into the femoral artery and advanced to the descending aorta. This device — modified and refined over 40 years — remains a primary therapy for assisting the heart function of patients in cardiogenic shock.

In the mid-60s, Soroff, Birtwell and others at Harvard developed a device for external counterpulsation. It was a hydraulic system that pumped water in and out of cuffs applied to the lower extremities. It was clear that Soroff and Birtwell's device had advantages over the IABP. It was noninvasive and also increased venous return as it boosted coronary perfusion pressure.

This early hydraulic device, though cumbersome, increased survival rates of patients with acute myocardial infarction and cardiogenic shock, and relieved angina pectoris. However, in the United States, external counterpulsation was eclipsed by the emergence of coronary bypass surgery and angioplasty.

The counterpulsation unit at Bergen Medical Imaging

While physicians in the United States turned their attention to these dramatic new developments in invasive treatments, physicians in China adopted the concept of external counterpulsation and refined the technology. Treatment was made easier to administer and more comfortable for the patient by the use of pneumatic instead of hydraulic cuffs.

In the 1970s, a group of researchers at the Sun Yat-sen University of Medical Sciences in the People's Republic of China, led by Dr. Zeng Sheng Zheng, began to develop more sophisticated counterpulsation systems. They devised a system in which the pneumatic cuffs inflated sequentially, not simultaneously as they had before.

The Chinese researchers in collaboration with researchers at the State University of New York at Stony Brook continued to refine the technique of external counterpulsation. In 1989 researchers at Stony Brook began clinical studies of Enhanced External Counterpulsation. These studies demonstrated that Enhanced External Counterpulsation produces a number of positive effects that are maintained for at least three years following a full course of treatment.

Multicenter clinical trials are underway to confirm the Stony Brook results, to gauge with greater accuracy the extent of treatment benefit, to determine which patients gained most from treatment with Enhanced External Counterpulsation, and to measure the effect of treatment on medication requirements, exercise capability, and quality of life.

Enhanced External Counterpulsation has evolved and is being used with no reported complications as an outpatient treatment of chronic angina patients. It appears in medical literature and at medical conferences. CPT does not require the adoption of new medical practices; it is an improvement of existing medical practices made possible by the advanced technology of a new delivery system.

Saving America Money

The following data is according to an American Heart Association article (Angioplasty vs. bypass: costs similar, quality of life differs, Nov. 14, 1995 NR 95-4350 11-15 jrnl brfs)

"In a randomized trial of patients getting the two most popular procedures for multiple blocked arteries of the heart, there were no significant differences between the two groups in death rates, heart attacks or signs of cardiac muscle damage. How do costs of balloon angioplasty and bypass compare?

Emory University researchers in Atlanta found that while average initial hospital expenses for angioplasty ($11,684) were lower than for bypass ($14,579), total three year hospital and professional costs, 1987-1990, wern't that far apart — $23,734 for angioplasty vs. $25,301 for coronary surgery (in 1987 dollars). Primarily because of the increased need for repeat procedures, angioplasty's cost advantage "is largely, although probably not completely, lost" after three years, the authors report in the Nov. 15 issue of the American Heart Association scientific journal Circulation".

And how do patients' rate their "quality of life"? Bypass recipients report less chest pain after surgery, but only after enduring a more difficult operation.

And despite more chest pain and more hospitalizations, angioplasty patients generally were "more optimistic" about their health than bypass recipients – possibly due to lingering psychological effects of the more invasive open-chest surgery. Authors say the mixed reactions underscore "the importance of patient satisfaction and quality of life in evaluating the outcomes of these procedures."

"Without CPT ™, I Don't Think I Would Be Here Today"

At one time, Mr. Kevey believed he would never play tennis again. In 1983, he began to suffer chest pain, which became frequent and severe by 1990.

"The pain came in the night," Mr. Kevey recalls, "I was rolling on the floor because of very sharp and unbearable pains in my upper chest and behind my ribs."

These bouts of agony frequently landed Mr. Kevey in the hospital. In 1990, he underwent open-heart surgery. Unfortunately, despite the surgery, he very soon suffered another acute angina attack. He then had an emergency angiogram, which showed that three of four bypass graphs had closed up only weeks after his surgery.

"At that point, I was very discouraged," Mr. Kevey says. "Many of my friends played tennis soon after they had open-heart surgery, yet I couldn't even walk three hundred yards. That period of my life was just misery. I had always been very active and missed tennis tremendously."

Mr. Kevey began therapy with CPT in 1991. At first, he kept his hand close to the red button t hat stopped the treatment, but eventually he relaxed and solved crossword puzzles or listened to books on tapes during therapy. "I traveled all over the world during treatment sessions," he says.

In 1993, Mr. Kevey played tennis for the first time in years. Today, he plays three times a week.

"Without [CPT], I don't think that I would be here today," he says.

I was spared surgery!

Back in 1985, Mr. Arnold Bahnsen experienced very noticeable chest pain.” In June of 1985, at the insistence of my wife, I went to the hospital and they suggested I stay overnight. That night was interesting for me because I remember people “jumping” all over me.late at night, and they were monitoring what turned out to be a very serious condition I guess. Quite frankly, if it was not for my wife, I don’t think I would be sitting here.”
uded?
Sometime in 1997 when he noticed some discomfort and saw his blood pressure slowly rising. His ability to exercise was impaired and test results came back in, that his disease was worsening.
I actually asked my doctor about counterpulsation, because I continuously look at magazines and so forth, and he agreed. So we decided to continue on that course of action. It worked out pretty good, quite early. The test results definitely showed improvement. Before ECPT, my blood pressure was certainly more than 140/90. After counterpulsation therapy it dropped down to 120/80. I noticed increased levels of energy, and I was back to exercising. I also think there was a psychological aspect of the treatment, I belived in the physiological effect of the machine, it made sense to me. I really had no more hope in angioplasty, and a bypass is a big step...I think the opening of cardiovascular vessals is much more effectively done with ECPT
Q: How would you conclude your experience?
ECPT is, very simply, a bypass to a bypass operation. I am hoping that by telling others about my experience, I might be able to help someone find relief in the form of this non invasive procedure.

Key Benefits and Contraindications

CPT® is intended to help people who suffer with angina pectoris, a major complication of coronary artery disease characterized by spasms of crippling chest pain brought on by physical activity or emotional stress.

Previously, the primary treatment options for people suffering with angina pectoris were medication and/or the invasive procedures, bypass surgery or angioplasty. Invasive procedures sometimes fail, are not without risk and are very expensive. CPT® provides an alternative—even for those who cannot be treated effectively with medication or are not candidates for invasive procedures because they are unsuitable for such procedures or are unwilling to undergo them.

For many patients, CPT® can provide relief without causing pain or involving time to recover. CPT® can be administered in outpatient sessions, carries little or no risk and is relatively comfortable.

To determine if you are an appropriate candidate for CPT®, you should be evaluated by your cardiologist.

You may be a candidate for CPT® if you:

- Have angina pectoris
- Are unwilling or unsuitable for invasive procedures.
- Find nitrates are ineffective in controlling your angina

You may not be a candidate for CPT® if you have any of the following”

- Certain heart rhythm abnormalities.
- Congestive heart failure.
- Limiting peripheral vascular disease.
- Severe high blood pressure.
- Bleeding diathesis.
- Pregnancy or failure to employ a reliable method of birth control.

4

If you are eligible to receive CPT®, you must make a commitment to attend 35 one-hour treatment sessions once or twice a day, five days a week. The length of treatment may be a consideration for some people. It can take between four and seven weeks to complete a course of treatment. Some patients—with more extensive disease—may require more than one course of therapy to achieve an optimal level of relief.

Because each person’s condition is unique, there is no predictable point in the course of treatment when you will feel an improvement. Experience has shown, however, that many patients tend to report some improvement in their conditions after as few as 10 or 12 treatment sessions, though it may take longer.

HOW DO I GET CPT?

If you are interested in more information about this procedure, contact our staff. If your physicians does not have sufficient information about CPT, please let us know so that we can provide comprehensive clinical data.

Medical Services Options, Inc.
9-10 Saddle River Rd. Fairlawn NJ 07410
Tel: (201) 670-9999 Fax: (201) 794-3671

HEALTH NEWS BULLETIN

April 1999

NEW

Non-Invasive Angina Treatment

Important information for you or someone you care about who is suffering from Angina Pectoris related chest pain.

FDA APPROVED!