

LDL

by Johnny Vardeman

Apheresis

Hope for Patients Whose Cholesterol Cannot Be Controlled by Drugs

You've tried every cholesterol-lowering drug on the market that your body can tolerate. You've followed a strict low-fat, low-cholesterol diet and a rigid exercise program. Still, your cholesterol numbers soar, and you face increased risk of a heart attack or surgery.

There may be help for patients who have tried everything with less than desirable results.

In October 1996, Philadelphia Heart Institute at the University of Pennsylvania began using a procedure called LDL apheresis. LDL apheresis removes low-density lipoproteins (LDL), or "bad" cholesterol, from the blood while maintaining the "good" high-density lipoproteins (HDL).

The Food and Drug Administration approved the treatment in 1996 for heart disease patients whose LDL cholesterol is higher than 200 mg/dL and who have taken the maximum tolerable amount of their prescribed drugs, or those with LDL cholesterol of 300 who are at risk and haven't been helped by drug therapy.

The first patient at the medical center, before beginning the treatments, had to severely limit any activity, says Joyce Ross, a nurse practitioner at Philadelphia Heart Institute. She says he now skis and does most everything he wants.

"Another gentleman was just waiting to die," Ross says. "There

wasn't anything else to do." She says LDL apheresis gave him hope.

Today, the medical center has 24 patients who undergo the procedure. Throughout the country, 60 LDL apheresis machines treat patients in 50 hospitals.

LDL apheresis typically takes two to three hours, once every two weeks. Blood is usually withdrawn through a needle in a vein in one arm and returned in the other. The machine separates plasma from whole blood. Plasma then is routed to one of two adsorption columns that remove LDL. The LDL-free plasma is combined with the blood and returned to the body.

Heparin, a blood thinner, keeps the blood from clotting as it flows through the system. The automated, computerized machine has several built-in safety features, including a blood warmer, filters, air detectors and various alarms. Nurses closely monitor patients during treatment.

People with consistently high cholesterol who don't respond to drugs usually have familial hypercholesterolemia, a condition of elevated LDL levels from birth that often results in heart attacks at an early age.

LDL apheresis can lower LDL levels from 73 percent to 83 percent with one treatment, Ross says. But higher LDL levels begin to return in about two weeks, requiring patients to continue the treatment. They also must maintain their medication.

With acutely lowered LDL levels, some patients feel better, have more energy and have less angina. "Their



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quality of life improves dramatically,” Ross says.

No matter what a person eats, the body will still make cholesterol, and some people’s bodies make too much of it. Drug therapy, exercise and diet won’t reduce the bad cholesterol enough in some people.

Peggy Vardeman, 70, a retired educator from Gainesville, Ga., learned the hard way. She had heart disease symptoms before 1990, but it wasn’t until that year that a thallium stress test revealed three artery blockages, two of them 98 percent clogged. After her first angioplasty, she quit smoking and lost weight through a near-vegetarian diet and increased exercise.

Doctors tried her on every statin drug that became available, but by 1995 more blockages developed and she had quadruple bypass surgery. In 1998, she suffered a heart attack in the hospital after being admitted with back pains. That led to another angioplasty, followed by three others closer and closer together, the last coming in February 2003.

Vardeman had read an article about LDL apheresis written in 1997 by Ross. “No way I would ever do that,” she said at the time. But Dr. Laurence Sperling, Emory University Hospital lipid specialist, encouraged her to consider it. After learning more about it and realizing nothing else she was doing had helped, Vardeman began the treatment in November 2003.

She has been happy with the results. Her total cholesterol fell from more than 400 to the low 200s, and her LDL dropped from 287 to a low of 42 after treatment. Her good cholesterol has remained constant in the 70s and 80s.

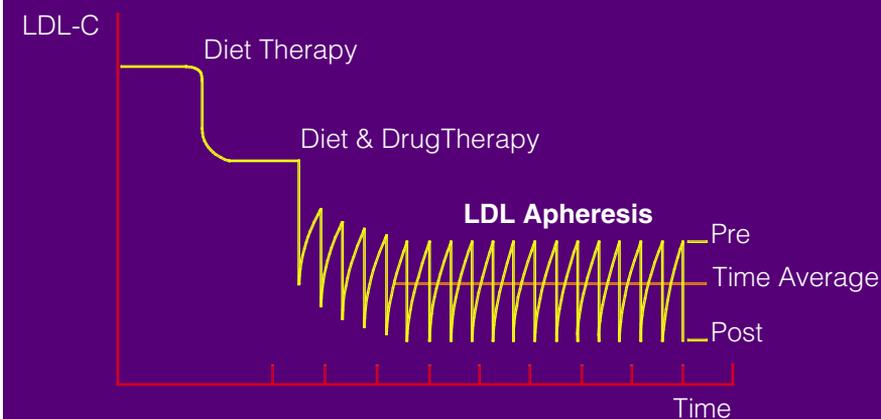
“I feel good during the treatment,” she says. “I kept waiting to feel faint afterward, but get only slightly tired from having to stay still.”

Her only side effect has been a temporarily lower iron level, but it returned to normal through diet. She has reduced her statin dosage from 80 mg to 40 mg.

Since beginning LDL apheresis, Vardeman no longer has back pain, angina or leg cramps at night. She became active in Mended Hearts and eventually served as president of local Chapter 302, which was named one of the top five in the country. She also received the President’s Cup volunteer award from Northeast Georgia Health Systems. She visits heart patients in the hospital’s Ronnie Green Heart Center and is in cardiac rehabilitation three times a week. She also serves on the Northeast Georgia Medical Center’s Executive Auxiliary Board and helps look after two of her five grandchildren.

“I think being physically better makes me mentally better,” Vardeman says. “My primary physician says I am in the

Change on LDL-C by LDL Apheresis



best health I have been in all the time he’s been seeing me.”

Some mistakenly equate LDL apheresis with kidney dialysis, which is more debilitating to the patient. Some worry about whether their insurance will cover the costs, but as companies become more educated about the treatment, most medical insurance plans cover LDL apheresis. For those eligible, Medicare covers 80 percent of the costs, and secondary insurance picks up the rest.

Other patients falsely hope that a liver transplant is the answer because of the organ’s role in making cholesterol, Ross says. But the few available donor livers go to those who have liver diseases.

There is considerable misunderstanding about cholesterol, and even people with normal HDL and triglyceride levels can still be in danger if their LDL exceeds safe levels. The target level for LDL is lowered from 100 to 70 in some patients when progressive heart disease exists or additional risk factors are present.

Ross and Vardeman encourage patients who might be helped by LDL apheresis to make an appointment to watch the procedure in hospitals where the system is available.

“It isn’t painful,” Vardeman says. “I look forward to the treatments.”

Some patients might be waiting for the next best thing, Ross says. “But until newer medications are developed and tested, this is the closest thing we’ve ever had to really make a difference.”

Vardeman and her husband will celebrate their 50th anniversary in 2006. “Now I know I’m going to make it,” she says.

For more information about LDL apheresis, ask your doctor or contact Joyce Ross at (215) 662-9993 or at joyce.ross@uphs.upenn.edu