A Patient Asks About Chelation Therapy

by Terry Chappell, MD

It was first thing on a Wednesday morning. Iva Chestpin* walked slowly into my office gripping her husband's arm for support. She looked exhausted. A 52-year-old patient of mine, Iva came in for her yearly checkups and not much else. She was 20 pounds overweight and had been on low-dose thyroid for 3 years. No smoking. A social drinker. She was a teacher, meaning that she was under stress. She had a family history of strokes and heart disease. I entered the exam room and sat beside her.

Dr. Terry Chappell: I understand you have been unusually tired for the last week. Do you have any chest pain or shortness of breath?

Iva Chestpin: That's hard to say. I feel a fullness in my chest. Maybe it's a pain. My breathing is a little short. I'm just wiped out. My muscles ache all over.

TC: Have you had anything like this before? Have you seen any other physicians?

IC: A few weeks ago I had a similar spell, but it didn't last as long. I was really tired and I had the same feeling in my chest. My arms and legs didn't ache like they do now. My husband insisted that I go to the ER. They brought in a cardiologist. He ran an EKG and some blood tests and said that I was not having a heart attack at the moment, but he wanted to run more tests to be sure. I was scared. I had a cousin who passed away when they put dye in his veins.

TC: As you know, Iva, I am an integrative family physician, not a cardiologist. I am really concerned about your symptoms, but I have a different approach. It's true, like the cardiologist implied, that women with heart attacks often do not have crushing chest pain like men do. Recent evidence shows that women also are less likely to benefit from bypass surgery. You were absolutely right to question one test leading to another. An EKG leads to an echocardiogram, then a stress test, a catherization, and finally angioplasty with stents, or bypass.

IC: That's what happened to me! The cardiologist told me that I would very likely die on my way to the car if I left. I didn't want to, but I finally consented. The stress test was inconclusive. The catherization was awful, but somehow, I lived through it. They found two blockages, one 99% and the other 70%. They said there was nothing they could do about the 99% blockage, but they did a balloon procedure and left a stent in the artery that goes around the heart. They said I still might need a bypass later.

TC: Did they say anything about the left main or the left anterior descending arteries?

IC: Yes, that sounds familiar. They said one was OK and the other was normal, only 30% blocked.

TC: Did they say if you had a heart attack?

IC: No, they said they saved my life. The surgery was just in time.

TC: We'll send for the records to get the details. Let me comment on what you have told me so far. First, you had to have developed side channels, or what we call collateral circulation, around the artery that was totally blocked, or you would probably be dead. Second, more than three quarters of heart attacks occur in arteries that are only 30% to 50% blocked, but they leak some fatty material from the plaque. The blood stream reacts to the leakage to form a clot that suddenly blocks the artery. This is called a "vulnerable plaque," and it causes a part of the heart muscle to die. If it is not fatal, a scar is left in place that can cause the heart to beat less efficiently. An artery that is blocked 70% to 90% might not be as dangerous as a vulnerable plaque, because over time it has had a chance to develop collateral circulation to supply the tissues downstream.|

No surgeon operates on arteries that are only 30% blocked. Often a plaque that size is read as "normal," just like yours was. But it might make more sense to stabilize these lesser plaques than operate on the arteries with major blockages. The left main and the left anterior descending arteries are more dangerous than other arteries if significantly obstructed, but that wasn't your situation.

IC: I thought I wasn't getting the whole story. What should I have done?

TC: You didn't do anything wrong, Iva. Doctors are in a position of power. They said you were going to die if you didn't go under the knife. I don't suppose they mentioned the OAT study. OAT stands for the "open artery theory." Researchers wanted to prove that if they opened arteries with surgery after a heart attack, fewer patients would die. Instead, the results shook the surgery world, at least for a short time. Patients treated only with medicines actually did somewhat better than those who had surgery. You would think the OAT study results would have eliminated most surgery after a heart attack, especially since many other studies have shown that patients do not live longer with surgery than with medical treatment. But nothing changed. Surgery is still considered first-line treatment for coronary artery

disease.

IC: Next came the drugs. They gave me two blood pressure pills, aspirin, and two more drugs they are always talking about on TV. I think one was a statin. The other was Plavix. I almost got my heart attack when I got the bill. They assured me that side effects were rare, and insisted that I needed to take all the drugs religiously. Did that mean I was supposed to pray before I took them? I'm sorry. I know that's an awful joke, but maybe it would have helped. Within 3 days, I was miserable. My muscles ached all over, and I could barely get out of bed. The cardiologist told me to keep taking the drugs. I don't think he believed how horrible I felt.

The only one that understood was the nurse at the doctor's office. She told me not to tell anyone what she said, but she suggested I come see you.

TC: I appreciate her advice, Iva. Unfortunately, most cardiologists minimize the side effects of statin drugs. They also tend to undervalue the role of lifestyle changes compared to drugs, and they are close-minded about chelation therapy and nutritional supplements. Various studies have calculated that 5% to 30% of improvements in vascular disease over the years are attributed to drug therapy, and 57% to 62% are due to the basic lifestyle changes like stopping smoking, a healthy diet, weight loss, exercise, and coping with stress. If we do nothing else, we have to put these factors on your side. Next we will get you a natural supplement to replace the drug that is making you feel miserable. We will examine and treat your cardiac risk factors. Then we'll talk about chelation therapy and other integrative therapies that have worked very well for many patients in our practice.

IC: I know I can do a lot better, especially with my weight and exercise. Do I have to take all the drugs the doctors gave me?

TC: Well, Iva, each of the drugs prescribed have scientific evidence that they might reduce the chances of future heart attacks. We don't want to ignore that evidence. But if the impact of the drugs is not very great, and it often isn't, and we are doing a lot of other interventions, we can minimize the drugs. This is especially true if the drugs have significant side effects that interfere with your quality of life. If they are expensive and necessary, we can often prescribe a generic. You can see from my Heart Chart (112kb .pdf) that there are many, many factors that we can examine and modify. We don't test all of these factors for every patient, but the more of them we can put on your side, the better. With a comprehensive approach, usually including chelation, we can often do very well without a whole lot of medications.

You have been given two of the most common and expensive cardiac drugs, Crestor and Plavix. Our tests show similar benefits with red yeast rice, coenzyme Q10, and niacin to reduce inflammation, raise HDL, and lower LDL levels. We can use fish oils and nattokinase to cut down the risk of blood clots. Some of your fatigue and most of your aching muscles are probably due to Crestor. Plavix can certainly reduce the clotting tendency after stents, especially within the first 6-12 months, but it also increases the risk of brain hemorrhage.

IC: That sounds a lot better to me. I'm really interested in chelation therapy. I've heard it can clean the plaque out of my arteries, like a Roto-Rooter.

TC: Unfortunately, that's an exaggeration. Chelation therapy, as we give it, consists of a series of IVs that pulls toxic metals such as lead from the tissues into the urine. Many studies have identified lead as a factor that leads to hypertension and vascular disease. In fact, more than one article has shown that the amount of lead in your body is directly proportional to how high your blood pressure is. Mercury, arsenic, cadmium, and aluminum have also been implicated. Toxic metals are some of the most common pollutants in the environment. They seep into the food supply. If there is a recent exposure, they can be detected in the blood. But soon after entering the body, they are stored in the fat cells, bone, or brain. We find that the best way to detect them is to do a challenge test. We give you a chelating agent and measure the amount of metals that comes out into the urine. One of the primary actions of chelation therapy is to lower the burden of toxic metals.

Chelation has other effects too. By lowering the serum calcium temporarily, it can reduce the clotting tendency much more safely than Plavix. Some of our smaller studies indicate that a dip in the serum calcium triggers a biochemical cascade that reduces the plaque size to some degree. This process might also make a vulnerable plaque less likely to leak and cause a heart attack or stroke.

Chelation doesn't completely eliminate the plaque. But it appears to make the plaque much less likely to cause heart attacks and strokes.

IC: Does oral chelation work the same way? I see it advertised all the time. I'd sure rather take some pills than get jabbed with a needle.

TC: Oral chelation and the IV push that some doctors give over a few minutes both contain calcium EDTA. All of the published studies on vascular disease have used disodium EDTA with magnesium. Both forms of EDTA remove metals, although technically only the calcium version is FDA-approved for this purpose. The concern about using calcium EDTA is that you do not get a

lowering of the serum calcium, which is the mechanism that inhibits platelet aggregation and might stabilize the vulnerable plaque. Another problem with oral chelation is that only 5% to 10% is absorbed, unless an unpleasant-tasting lipid material is added to it. Thus oral chelation might protect you against excessive lead in your digestive tract after an exposure with contaminated food, but I do not believe that it is adequate for removing metals that are already doing damage in the body.

It is really important that doctors and their nurses who give chelation therapy be very well trained. If disodium EDTA were given rapidly as an IV injection instead of a slow drip, it would be dangerous. No properly trained team would make such a mistake. When given according to protocol, disodium EDTA with magnesium is much safer than most prescription drugs.

The biggest concern about chelation therapy is that we do not overload the kidneys by giving too high a dose too fast. We are very careful to avoid that problem by checking the urine and creatinine regularly. If there is any sign of kidney strain, we lower the dose. As long as we don't overload the kidneys, the kidney function usually gets better with EDTA treatment rather than worse, which has been published in major medical journals. We presume that the reason kidney function improves is that we are improving circulation to the kidneys.

IC: Have there been studies on chelation therapy that prove it to be effective?

TC: There have been many studies, the vast majority of them showing benefit with chelation. A few of the studies by critics of the therapy showed that patients improved to some degree, but the conclusions were still negative. With help from some of my colleagues, I have published several studies. One small study showed that chelation reduced brachial artery stiffness, which corresponds to the vulnerable plaque. Another was a study of studies, called a meta-analysis. That one showed that patients treated with chelation had measurable improvements with noninvasive tests. Third, we compared vascular patients who had been treated with chelation with those treated with angioplasty, bypass, and/or medicines alone and found that the chelation group had a much lower incidence of heart attacks, subsequent surgery, and premature death.

None of the studies to date were large enough to have statistical significance, according to expert analysis. Thus, the National Institutes of Health funded a major study called the Trial to Assess Chelation Therapy (TACT). That study is still in progress. We will know the results in about 4 years. Over 30,000 treatments have been administered in the study. All we know so far is that there have been no safety concerns.

Iva's husband: What if chelation doesn't work for my wife?

TC: In my experience, the program we have been discussing is very helpful 85% to 90% of the time. Look again at the heart chart. Keep in mind, most of these therapies are in addition to the EDTA protocol. They are not part of TACT. With a comprehensive but also individualized approach, I fully expect to help you stabilize your disease and keep it under control for a long time. Since you have already had surgery, we need to keep your arteries from closing up again, which they tend to do. You must also realize, however, that no therapy succeeds 100% of the time. Rarely, additional surgery is still needed, despite our best efforts.

Our goal is to give you the best, the safest, the most cost-effective treatment that we can. We want to help you to feel better, live longer, and avoid the serious side effects that can come from drugs and surgery. For 30 years, we have seen many, many patients get exactly these benefits with chelation therapy, lifestyle changes, and a thorough nutritional program.

IC: Thanks, Dr. Chappell. I can't wait to get started.

Terry Chappell, MD, is a board-certified family physician from Bluffton, Ohio, who has served as president of ACAM and ICIM. He has published widely on chelation therapy.

References

Alfredsson J, Sederholm-Lawesson S, Stenestrand U, Swahn E. Although women are less likely to be admitted to coronary care units, they are treated equally to men and have better outcome. *Acute Card Care.* 2009;3:173–180.

Chappell LT, Angus RC, Stahl JP, Evans RE. Brachial artery stiffness testing as an outcome measurement for EDTA treated patients with vascular disease. *Clin Prac Alt Med*. 2000;1:225–229.

Chappell LT, Shukla R, Yang J, Blaha R, et al. Subsequent cardiac and stroke events in patients with known vascular disease treated with EDTA chelation therapy: a retrospective study. *Evid Based Integrative Med*. 2005;2:2735.

Chappell LT, Stahl JP. The correlation between EDTA chelation therapy and improvement in cardiovascular function: a meta-analysis. *J Adv Med*. 1993;6:139–163.

Chappell LT. Should EDTA chelation therapy be used instead of long-term clopidogrel plus aspirin to treat patients at risk from drug-eluting stents? *Altern Med Rev.* 2007;12:152–158.

Chiuve SE, McCullough ML, Sacks FM, et al. Healthy lifestyle factors in the primary prevention of coronary heart disease among men: benefits among users and nonusers of lipid-lowering and antihypertensive medications. *Circulation.* 2006;114:160–167.

Clay B. Study of chelation therapy should not be abandoned. *J Am Physicians Surg*. 2009;14:51–57.

Cranton EM, ed. *A Textbook on EDTA Chelation Therapy*., second 2nd edition. Charlottesville, VAa:, Hampton Roads;, 2001.

Hochman JS, Lamas GA, Buller CE, et al. Coronary intervention for persistent occlusion after myocardial infarction. *N Engl J Med.* 2006;355:2395–2407.

Kaufmann JM. Misleading recent papers on statin drugs in peer-reviewed medical journals. *J Am Physicians and Surgeons.* 2007;12:7-9.

Lin JL, Lin-Tan DT, Hsu KH, et al. Environmental lead exposure and progression of renal diseases in patients without diabetes. *N Engl J Med.* 2003;348:277–286.

Malaty W. What does the evidence tell us about treating very-high-risk patients to an LDL <70 mg/dl? *J of Family Pract.* 2009;58:665–667.

Menke A, Muntner P, Batuman V, et al. Blood lead below 0.48 micromol/L (10 microg/dL) and mortality among US adults. *Circulation.* 2006;114:1388–1394.

Nash D, Magder L, Lustberg M, et al. Blood lead, blood pressure and hypertension in perimenopausal and post menopausal women. *JAMA.* 2003;289:1523–1532.

Navas-Acien A, Silbergeld EK, Pastor-Barriuso R, Guallar E. Arsenic exposure and prevalence of type 2 diabetes in US adults. *JAMA.* 2008;300:814–822.

Schiff GD, Galanter WL. Promoting more conservative prescribing. *JAMA.* 2009;301: 865–867.

Zucker MB, Grant RA. Nonreversible loss of platelet aggregability induced by calcium deprivation. *Blood.* 1978;52:505–513.