Chelation Therapy

A New Look at an Old Treatment for Heart Disease, Particularly in Diabetics

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Don't cringe when you hear the term chelation (key-LAY-shun) therapy. If you have heard about it at all, you may have heard that it is alternative medicine, quackery, expensive, and even dangerous. New research funded by the National Institutes of Health is suggesting that this old treatment has some real life in it and that it may particularly benefit patients with diabetes mellitus and prior heart attacks.

What Is Chelation Therapy?

Chelation therapy was first used in the early 20th century to treat metal poisoning. The treatment involves administering a drug called a chelator, which has a magnetically charged pocket that can "grab" a metal and hang onto it, kind of like a baseball mitt with a magnet in its pocket, allowing the metal to be excreted in the urine. One chelator, calcium ethylenediaminetetraacetic acid (EDTA), is approved by the US Food and Drug Administration to treat lead poisoning. Alternative medicine practitioners have been using a similar chelator, disodium EDTA, to treat heart disease, claiming to see benefits, since the 1950s.

Disodium EDTA chelation therapy is usually administered intravenously each week for 20 to 40 sessions. Each intravenous infusion may last hours. In spite of the expense and tedium, the 2008 National Health Statistics Report stated that 111 000 people used chelation in 2007.

What Does My Doctor Think About Chelation?

Major cardiology organizations have published statements discouraging the use of chelation. These opinions were formed in the 1960s and 1970s, when the doses and rates of administration of EDTA chelation had not been standardized, and there were safety problems, including kidney problems and even deaths. These opinions were so strong that until 2002 no large-scale, clinical trial had been funded that could determine whether EDTA chelation harmed or benefitted cardiac patients.

So What Is New About Chelation in 2015?

There are reasons to think that chelation to remove metals might treat or prevent heart disease.[1] Some complications of diabetes mellitus may be caused by chemical reactions that happen to the excess sugar in the blood. These reactions are catalyzed, or facilitated, by metals. The environment is polluted with metals that are toxic to our systems. Lead (gasoline, plumbing), arsenic (well water, rice, apple juice), mercury (many fish), and cadmium (from rechargeable batteries) are among the top 10 most toxic substances listed by the US government. EDTA chelates lead and cadmium.

Concurrent with these conceptual developments and because of the large number of Americans receiving chelation therapy, in 2002, the National Center for Complementary and Alternative Medicine and the National Heart, Lung, and Blood Institute funded a $30 million clinical trial of chelation therapy in patients 50 years of age or older with a prior

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heart attack and good kidney function to finally understand whether EDTA chelation for coronary disease was safe and effective. So, the Trial to Assess Chelation Therapy (TACT) was born.

TACT enrolled 1708 patients who were at least 50 years old and had had a prior heart attack. The proposed treatment was intensive: 40 intravenous infusions, 3 hours each, all given over a little more than a year. Half of the patients received EDTA chelation; the other half received a saltwater placebo. Overall, patients received 55 222 intravenous infusions in 134 offices and hospitals across the United States and Canada. Nearly a decade later, on August 15, 2012, we learned the results of our work. Did chelation work to reduce heart events in a vulnerable population with a prior heart attack? It turns out that it did. And it was safe.

Results of TACT

Overall, there was an 18% reduction in heart events (death, another heart attack, stroke, stenting or bypass, and hospitalization for heart pains) by EDTA infusions above and beyond that provided by our effective treatments, including statins and aspirin.[2] When the group who took the EDTA infusions plus oral vitamins was analyzed, the reduction was 26% compared with placebo.[3] The effect was even more striking in patients with diabetes mellitus, in whom there was a 41% reduction in clinical events (Figure), including a 43% reduction in deaths over 5 years.[4] There is nothing comparable in diabetes therapies.

I Had a Heart Attack and I Have Diabetes Mellitus; Should I Receive Chelation?

The landscape for chelation therapy has changed, and environmental toxins may emerge as a modifiable risk factor for heart disease. The US Food and Drug Administration reviewed the TACT in a positive light but encouraged us to carry out another study to confirm these results (TACT2 is being planned). The American Heart Association, in its latest guidelines, has upgraded chelation from Class III (never ever do) to Class IIb (probably not effective). So, the "official" answer is no.

However, this is an emerging technology, and I believe our data. Clinicians sometimes race ahead of official guidelines. When asked, I recommend that patients seek their doctor's advice after their doctor has read the TACT articles referenced here. If patients with diabetes mellitus and a prior heart attack want chelation, I do not discourage them like I used to. And for high-risk patients in hospitals that offer chelation as a therapeutic choice like mine, I recommend it. Finally, if your hospital is participating in the upcoming TACT2, currently in the very early planning phase, please get involved in the research. We still have a lot to learn.

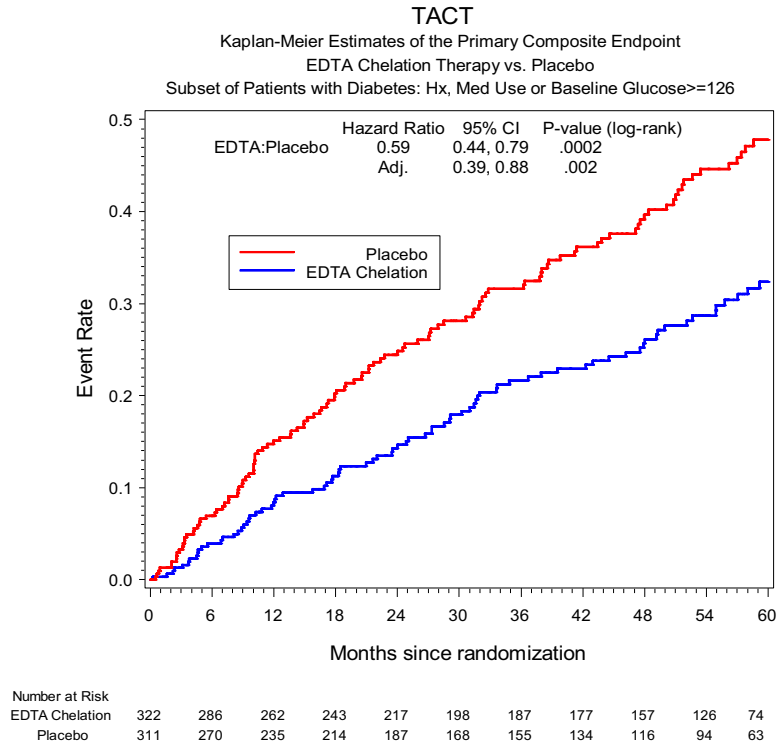

Figure. Risk of death, heart attack, stroke, stenting, bypass, or hospitalization for angina in patients with or without chelation therapy. CI indicates confidence interval; and EDTA, ethylenediaminetetraacetic acid. Reproduced from Escolar et al.[4]

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Disclosures

None.

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