CHELATION EVIDENCE BASED REVIEW

Slide Courtesy: The Trial to Assess Chelation Therapy (TACT) Initial Results Gervasio A. Lamas MD Chairperson of Medicine Mount Sinai Medical Center Miami Beach FL Chief, Columbia University Division of Cardiology at Mount Sinai Professor of Medicine Columbia University Medical Center

EDTA Chelation has been around for over half a century and has been successfully used by trained physicians. It has been shown to do many incredible things for the human body. It has shown consistent clinical improvements in blood pressure values, improved renal function, improved energy, decreased shortness of breath, improved mental clarity, reversal of ANA (anti-nuclear antibody - marker of autoimmune disease), improvement in systemic pain syndrome, neuropathies, and lowering of abnormally elevated D-Dimers.

EDTA Chelation therapy has been attacked in the United States for decades by the FDA and the medical establishment. Studies are hard to find but have been present for the last century. I highly recommend *"A Textbook on EDTA Chelation Therapy" edited by Elmer Cranton, MD with a foreword of double Nobel Prize Winner Linus Pauling, PhD. (An additional excellent book is Bypassing Bypass by Dr. Elmer Cranton, MD).* I would like to cite a few studies reported in this textbook, and you may find the topics applicable to current COVID side effects including, Long Covid symptoms! Training courses are available through the American College for the Advancement of Medicine www.acam.org. I am in the process of obtaining my Certified Chelation Therapist (CCT) certification. I would like to share my evidence based review, to help others become informed about how this can help patients.

Mechanisms of action for EDTA:

1. increased arterial diameter by 10% or more by reduced metallic cross linkages and improved elasticity of arterial tissue
2. preventing pathological peroxidation of lipid cell membranes, improving active cell transport functions, and improving cellular ability to maintain normal cross membrane gradients of sodium, potassium, magnesium metabolites and humoral factors

3. improving microcirculation by direct action on endothelial basement membranes
4. reducing blood viscosity and increasing erythrocyte flexibility
5. reducing the rate of atheromatous plaque formation, allowing regression through natural healing.
6. reducing platelet aggregation
7. reducing lead and other toxic metals in the body

   Note: An increase of 10% in arterial diameter in plaque filled vessel with turbulent flow is more than enough to double the flow of blood (Pouiselle's Law)

It has been proven that EDTA Chelation Therapy is capable of exerting beneficial effects by improving mitochondrial oxidative phosphorylation, enhancing the efficiency of cell respiration, even in the presence of compromised blood flow and diminished oxygen.

Peng, CF, Kane JJ, Murphy ML, Staub KD. Abnormal mitochondrial oxidative phosphorylation of ischemic myocardium reversed by calcium chelating agents. J Mol Cel Cardiol 1977;9:897-908

10 years follow up of 59 patients treated with EDTA Chelation therapy showed a 90% reduction in the incidence of cancer, when compared with 231 control patients. Statistically significant.

Blumer W, Reich T. Leaded gasoline- a cause for cancer. Environmental International. 1980;3:465-71

15 patients with well documented impairment of cerebral blood flow were studied utilizing the isotope technetium 99m. A new technique for the objective measurement of abnormalities and for measuring improvement because of intravenous treatment with disodium EDTA chelation therapy is described for the first time. A highly significant improvement ($p=0.0005$) in cerebral blood flow occurred following approximately 20 intravenous infusions of disodium EDTA. All 15 patients improved clinically, including one with little or no improvement in cerebral blood flow. EDTA chelates and removes aluminum as well as calcium.

H Richard Casdorph, Md, PhD EDTA Chelation Therapy: Efficacy in Brain Disorders pp142 "A Textbook on EDTA Chelation Therapy" edited by Elmer Cranton, MD

28- months retrospective analysis of 2870 patients with documented atherosclerosis and other degeneration age- associated diseases who were treated with intravenous disodium magnesium EDTA chelation therapy. Marked improvement occurred in 76.9% and good improvement in 17% of treated patients with ischemic heart disease. Marked improvement occurred in 91 % and good improvement occurred in 8% of patients treated with peripheral vascular disease and intermittent claudication. In patients with other cerebrovascular and other degenerative cerebral diseases (like dementia), 24% had marked improvement and 30% had good improvement. Of four patients with scleroderma, 3 had marked improvement and 1 had good improvement. 75% of all patients had marked improvement in symptoms of vascular origin. Independent of pathology, 89% of all treated patients had marked or good improvement.

Efrain Olszewer MD, James Carter MD EDTA Chelation Therapy: A Retrospective Study of 2870 Patients. J Adv Med 1989;2:197-211

Retrospective study EDTA chelation in 470 patients with peripheral vascular disease. Improvement 80-91%. Of 92 patients referred for surgical intervention only 10 required ultimate surgery saving an estimated 3 million Dollars of insurance money. No adverse effects over 6 years.

Hancke C, Flythe K. EDTA Manipulered Ugeskr Laaeger 1992;154:20013-2215

139 private practice patients with chronic fatigue. 3-gram EDTA Chelation infusions plus supportive multivitamin/ trace mineral supplementation extending a mean of 61.4 days. No exhaustion findings rose by 25%, mean exhaustion score decreased by 37%. In the most symptomatic fatigue group improvement was 39%.

The Effect of EDTA Chelation Therapy with MultiVitamin/Trace Mineral Supplementation upon Reported Fatigue Edward McDonagh, DO, Charles Rudolph DO, PhD, pp273 "A Textbook on EDTA Chelation Therapy" edited by Elmer Cranton, MD

13 subjects with chronic degenerative renal disease were treated with infusions that included EDTA, vitamins, minerals, and oral supplements. Following 20 infusions, creatinine clearance significantly improved (46% in 10 infusions, additional 8% by 20 infusions)

Keith Senert, MD et al. The Improvement in Renal Function following EDTA Chelation and Multivitamin -Trace Mineral Therapy: A Study in Creatinine Clearance. Medical Hypothesis, Vol15, 1984

Effect of disodium EDTA chelation regimen on cardiovascular events in patients with previous myocardial infarction: the TACT randomized trial

Infusion treatments Active infusions: Na2EDTA 3 g, ascorbic acid 7 g, B vitamins, others (total 500 mL) vs Placebo infusions): 0.9N NaCl + 6g dextrose (total 500 mL) 55,222 infusions administered

Urine Lead excretion increased by 4292%. Urine Cadmium excretion increased by 800%. EDTA-based chelation therapy reduces combined cardiovascular events in post MI patients treated with optimal medical therapy (5-year NNT= 18).

Compared with optimal medical therapy + placebo/placebo, optimal medical therapy + active/active demonstrates an enhanced reduction in clinical events (HR (95% CI): 0.74 (0.57, 0.95), P = 0.016) This reduction is of sufficient magnitude to be clinically significant (5-year NNT= 12) CONTEXT: Statin therapy for secondary prevention: 5.1 year NNT was 16. (NNT= number needed to treat for one successful outcome)

Patients with diabetes demonstrate enhanced efficacy with EDTA chelation. Compared with placebo, EDTA-treated patients demonstrated a 41% reduction in Cardiovascular endpoints (p=0.0002, 5-year NNT = 7), and a 43% reduction in total mortality (p=0.011, 5-year NNT=12). CONTEXT: Statins for secondary prevention in DM o major coronary events: 5-year NNT= 15.

EDTA Chelation Therapy for the Treatment of Neurotoxicity

Neurotoxicity can be caused by numerous direct agents, of which toxic metals, organophosphorus pesticides, air pollution, radiation and electromagnetic fields, neurotoxins, chemotherapeutic and anesthetic drugs, and pathogens are the most

important. Other indirect causes of neurotoxicity are cytokine and/or reactive oxygen species production and adoptive immunotherapy. The development of neurodegenerative diseases has been associated with neurotoxicity. Which arms are useful to prevent or eliminate neurotoxicity? The chelating agent calcium disodium ethylenediaminetetraacetic acid (EDTA)—previously used to treat cardiovascular diseases—is known to be useful for the treatment of neurodegenerative diseases.

Major Mechanisms Underlying the Efficacy of EDTA Chelation Therapy against Neurotoxicity

Chelation of Toxic Metals: EDTA can bind toxic metals and to create stable complexes in vitro.

Antioxidant Activity: EDTA is itself an antioxidant agent, provoking ROS reduction and the increase of total antioxidant capacity in the blood samples of Cellfood-treated ND patients. It has already been shown how, after ten sessions of chelation therapy, plasma peroxide levels and DNA damage decrease significantly

Endothelium Protection: Serum creatinine levels did not increase significantly, nitric oxide (NO) levels and endothelial NO synthase renal expression improved, adhesion molecule Mac1 expression reduced, and TNFα-induced vascular leakage was prevented. The in vitro effects of EDTA in modulating human umbilical vein endothelial cell (HUVEC) activation induced by TNFα were also examined. TNFα-generated F-actin stress fibers reduced, as highlighted by normal tubulin distribution, in keeping with a well spread, quiescent endothelial phenotype. The results obtained regarding the avoidance of EDTA endothelial activation agree with the beneficial effects of EDTA in vivo in patients affected by CVD.

Potential Antimicrobial Agent: Tetrasodium EDTA has been proposed as an antimicrobial and antibiofilm agent for use in wound care. Indeed, a low concentration of t-EDTA (4%) solution was able to kill *Staphylococcus aureus*, methicillin-resistant *Staphylococcus aureus, Staphylococcus epidermidis, Pseudomonas aeruginosa*, and *Enterococcus faecalis* within in vitro biofilms after a 24 h contact time.

Tara Taylor FNP 12/2023