STATE OF THE ART
REVIEWS

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Defining an
Overdue Requiem for Palliative
Cardiovascular Medicine

Abstract: During the past 40 years, we have witnessed significant advances in the pharmaceutical and interventional treatment of cardiovascular disease (CVD), which have helped achieve a decrease in morbidity and mortality for this illness. Nevertheless, CVD remains the number 1 killer of women and men in Western civilizations. This fact is in stark contrast to the scenario in multiple whole food, plant-based nutrition (WFPBN) cultures, where CVD is virtually nonexistent. The utility of plant-based nutrition to halt and prevent CVD has been demonstrated epidemiologically, during wartime deprivation, in large cohort and population transitioning studies, and through prospective randomized and nonrandomized investigations. A basic scientific study confirms that omnivores have intestinal bacteria capable of converting animal food to trimethylamine oxide (TMAO), which injures blood vessels, whereas those eating plants only do not have intestinal bacteria capable of producing TMAO. Despite this overwhelming evidence for the safety, simplicity, and efficacy of plant nutrition to halt and prevent coronary artery disease, the cardiovascular medicine community has failed to embrace this option of therapy and persists in palliative treatments

associated with high morbidity, mortality, and expense. It is long overdue to question why.

Keywords: prevent; reverse; CAD; plant-based nutrition

Introduction

In 1958 Mason Sones at the Cleveland Clinic successfully initiated percutaneous coronary artery catheterization, which allowed visualization of myocardial blood flow and any blockages in that system.¹ During the next 9 years, patients

(CABG).² Since these 2 seminal achievements, the Cleveland Clinic has had a flourishing cardiovascular business, and they have been ranked number 1 in cardiology nationally by US News and World Report multiple times over the years.

Ongoing Challenges

Despite the universal acceptance of CABG surgery, operative complications remain challenging. These include mortality, stroke, heart attack, hemorrhage, sepsis, sternal wound

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flocked to the Cleveland Clinic for angiographic documentation of the extent of their coronary disease. Unfortunately, little could be offered in the way of treatment, with only minimally effective medication. This changed in 1967 when Rene Favoloro, my eventual Cleveland Clinic surgical dressing room locker mate, devised coronary artery bypass graft surgery

dehiscence, graft failure, and arrhythmias. This morbidity and mortality is even greater when a second or third CABG is deemed necessary. In the 1980s Gruentzig developed balloon angioplasty to force open arterial blockage.³ Mortality and morbidity for this were less than that for CABG, but the failure rate at 6 months was 50%. This limitation led to the invention of

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stents, which improved the rate of recurrent stenosis.

The contributions of Sones, Favoloro, and Gruentzig were monumental, offering a degree of hope for a poorly understood disease that was in the 1960s and is, still, today the number 1 killer of women and men in the West. Yet major problems remain. None of the procedural or pharmaceutical advances offer any treatment to deal with the cause of cardiovascular disease (CVD). Stents, CABG, atherectomy, and drugs are prodigiously expensive, accounting for 45% of Medicare expenses and are a stop-gap patch job, offering no hope of disease resolution.

Might This Be the Answer?

Overwhelming data for prevention and cure has been before our eyes for decades. It is whole food, plant-based nutrition (WFPBN). There are cultures on this planet where CVD is virtually nonexistent. These include the Okinawans,⁴ the Papua Highlanders,⁵ the Rural Chinese,⁶ Central Africans,⁷ and the Tarahumara of Northern Mexico.⁸ Their shared characteristic is WFPBN, with minimal animal food. Strom and Jensen,⁹ in 1951, reported a significant decrease in circulatory mortality in Norway during World War II, when the Germans confiscated the Norwegian's livestock and their major source of nutrition became plant based.

Sizeable prospective cohort trials point to the significance of nutrition in decreasing the risk of recurrent CVD events in persons with CVD and diabetes and in lessening the risk of developing CVD in healthy persons. A total of 31 546 participants with CVD or diabetes were treated by Dehghan et al¹⁰ for 4.5 years and separated into quintiles of nutritional quality. They found that whether or not persons were receiving medication, reduction of CVD-related risk within the healthiest quintile was 35% for death, 14% for myocardial infarction, and 19% for stroke. Crowe et al¹¹ followed 44 561 men and women for 11.6 years who were enrolled in the European

Prospective Investigation into Cancer and Nutrition study; 15 157 (34%) were vegetarians (consuming no meat or fish). Vegetarians had a lower mean body mass index, lower non-high-density lipoprotein (HDL) cholesterol, lower systolic blood pressure, and a 32% lessened likelihood of developing ischemic heart disease. These 2 studies, with more than 75 000 participants, support the power of nutrition for primary and secondary prevention of CVD.

In the early 1970s, Finland was the heart attack capital of the planet, especially its northern province of Karelia.¹² Local leaders and health professionals concentrated on reduction of cholesterol, blood pressure, and animal and dairy foods and smoking cessation. This population reduced their dietary saturated fats, increased vegetable consumption, and decreased smoking from 52% to 31%. Over 30 years, the North Karelia coronary disease death rate plummeted to 85%, and for the entirety of Finland, which adopted these measures, coronary artery disease (CAD) reduction was 80%.

In the Saint Thomas Atherosclerosis Regressions Study, Watts et al¹³ found that a lipid-lowering diet alone could halt progression and increase regression of CAD. In 2013, Tusso et al¹⁴ asked their Kaiser HMO colleagues to utilize WFPBN as the foundational therapy to promote a healthier lifestyle for their patients.

Researchers at the Cleveland Clinic under the direction of Stanley Hazen including Tang et al,¹⁵ Koeth et al,¹⁶ and Wang et al,¹⁷ studied the metabolism of lecithin and carnitine found in eggs, milk and dairy products, liver, red meat, shell fish, and fish. The intestinal microbiota of omnivores metabolizes these substances producing trimethylamine oxide (TMAO), which causes vascular injury. This investigation is a powerful validation for WFPBN because ingestion of these animal foods by persons who strictly consume plants produces no TMAO. Plant eaters do not have intestinal bacteria capable of producing TMAO.

Ornish et al,¹⁸ in 1990, utilizing a low-fat vegetarian diet and stress

management training and Esselstyn et al,¹⁹ in 1995, using a whole food, plant-based diet independently observed CAD arrest and angiographic disease reversal. In later publications, both investigators confirmed and reinforced their previous findings.²⁰⁻²³ Using a similar WFPBN approach in 2015, Massera et al,²⁴ reported dramatic reversal of crippling angina in a man who refused medication or procedures but agreed to WFPBN. He can now run 4 miles without symptoms.

The totality of converging lines of evidence, including epidemiology, wartime deprivation, large nutritional cohort and population transitioning studies, and randomized and nonrandomized investigations, point to nutrition as the principal etiological factor in atherosclerotic CVD. What is keeping practitioners of cardiovascular medicine from utilizing or even offering WFPBN as treatment for their patients, which has now been time tested beyond 30 years and has been shown to halt and reverse CVD?

What Is Holding Back the Cure?

Cardiovascular physicians receive minimal training in nutrition or behavioral modification. Many have no knowledge of the literature database of how powerful and effective plant-based nutrition can be in the treatment of CVD. Of the 2 leading cardiology organizations in the United States, neither the American College of Cardiology nor the American Heart Association, to this point, has shown any leadership suggesting that WFPBN must be an integral part of any informed consent. The bright spot on the horizon is, Dr Kim Williams, the newly elected president of the American College of Cardiology, who has a personal and patient-oriented belief in WFPBN.

For years I resisted the suggestion that compensation could be an issue in decision making. However, multiple law suits have arisen when there is stenting performed for nonexistent or minimal lesions. Studies of thousands concur that stenting in an emergency may be

lifesaving, yet for the majority who have an elective stent, there is no prolongation of life or protection from a future heart attack. I once saw a patient who had 51 stents. Recognizing these limitations, why are thousands of patients every year subjected to the morbidity and mortality and expense of elective stents with such limited benefit?

A Possible Solution

If we accept the fact that most cardiovascular medicine practitioners are honest, caring, and compassionate, then how might they respond if just one of their patients utilizing WFPBN achieved prompt symptomatic disease reversal? It would be game over. They will want to offer this safe, powerful, and enduring therapy for all their patients. How can they manage to do this? There are multiple practitioners using WFPBN throughout the country willing and able to share their successful methods, such as John McDougall; Craig McDougall; Neal Barnard; Dean Ornish; Caldwell Esselstyn; Rip Esselstyn; Hans Diehl; Scott Stoll; Michael Greger; Colin Campbell; Tom Campbell; Robert Ostfeld; Baxter Montgomery; James Loomis; Michael Roizen; Sharon Hauserman-Cohen; Michael Mills; Wayne Dysinger; John Kelly; Mark Braman; Carl Turissini; Erminia Guarneri; Amy Mechley; Greg Feinsinger; Columbus Batiste; Amanda McKinney; Charles Katzenberg; David Hughes; Mark Katz; David Katz; Adina Mercer; Monica Aggrawal; Laurie Marbus; Joel Kahn; Ted Barnett; Carl Heubner to mention a few.

How might an unaware practitioner learn to achieve patient adherence? Next to religion and sex, there is nothing so personal as food. My preference is to show the patient respect. One of the best ways I know to do that is to give them my time. Because most of my patients are from out of state, we have synthesized our message into a single-day, intensive 5½ hour seminar limited to 10 or 12 participants, with their spouse or significant other who come without charge. Participants learn how they developed their disease through

progressive food-borne injury to the endothelial cells that produce nitric oxide and how they are empowered through WFPBN to restore endothelial capacity to again produce nitric oxide and halt their disease. They learn how to procure and prepare plant-based meals and hear from previous participants who share their stories of success with the group.

During the past 5 years we have requested that patients consume green leafy vegetables 6 times daily. We ask them to first boil the greens in water for 5 to 6 minutes to make them tender. They are then asked to anoint this fist sized green with multiple drops of a balsamic vinegar because acetic acid has been shown to restore nitric oxide synthase capacity to form nitric oxide.²⁵ We suggest that they chew these greens at breakfast, midmorning, lunch, midafternoon, dinner time, and even as an evening snack. Because nothing trumps the antioxidant value of green leafy vegetables, we believe that it is essential to bask the oxidative cauldron of atherosclerotic disease all day long. This plethora of polyphenols and antioxidant compounds restores endothelium and endothelial progenitor cells and protects the Apo A1 moiety of HDL cholesterol and dimethylarginine dimethylaminohydrolase. Restoration of these vascular defense molecules accelerates renewed nitric oxide production, with prompt diminution and resolution of angina.

Our Results

We recently reviewed our experience with 200 participants followed for 3.7 years and found an adherence rate of approximately 90%; 99.4% in the adherent group had avoided major cardiac events.²³ The success rate is beyond 30-fold more favorable than results reported in major cardiovascular trials. Why? It cannot be emphasized enough that our success is directly attributable to the fact that we are treating the cause of the illness. The plethora of pharmaceuticals, procedures, and operations in standard cardiovascular practice is fraught with failure and

repeated interventions. These depressing results are discussed in a recent study of 3 of our patients who had advanced CVD.²⁶ One had significant carotid disease in addition to diabetes, angina, and erectile dysfunction. A second had severe angina and diabetes. The third had severe claudication. All 3 were seen at excellent institutions. All 3 had the full spectrum of drugs and multiple procedures, and they were told that nothing further could be done. They found our facility, and all 3 are without any symptoms of angina, erectile dysfunction, claudication, or diabetes.

The plight of these 3 patients is emblematic of the failure of present-day cardiovascular medicine. They originally believed in the standard cardiovascular protocol but subsequently learned that it is unsuccessful because of failure to address the cause of the disease. How much more effective and humane would it have been to enable these patients to cure themselves with proper nutrition.

Let us try to put this in perspective. Last year, the nation was paralyzed at the thought of an Ebola epidemic. Millions were spent in preparation for this epidemic. One case of Ebola occurred in the United States. Sadly, in December of 2015, 14 persons were shot to death in a terrorist attack. Both of these events rightfully provoked a national outcry. Nevertheless, every 2 weeks there are cardiovascular deaths occurring, which are the equivalent of 2 capacity-filled jet liners crashing, and this is regarded as unfortunate. This overlooked mortality can no longer be acceptable.

For 100 years, radical mastectomy was the standard of care for breast cancer even though the procedure was painful, mutilating, and disfiguring. Finally, courageous physicians challenged this procedure, finding lesser procedures equally effective. Are we repeating this error with cardiovascular medicine's reliance on drugs, stents, and operations, which are ineffective for cure and are palliative?

It does not require courage to use WFPBN for patients. You are not going to injure them. There are no crippling side effects and no new expenses. You are

asking them to eliminate a diet of delicious food that is injuring them for delicious foods that will enhance their health. They will experience rapid clinical improvement and lessening or disappearance of angina. They will sense their empowerment as the locus of control over their disease. They will rejoice because they will sense that they have the power to remove this sword of Damocles hovering over their head, essentially not knowing when they might have another cardiac event. Their belief in this approach is further strengthened as they comprehend their disease reversal.

We gauge 8 ways to assess CVD reversal. These include the following:

1. Angiographic improvement
2. Stress test reversal
3. Positron-emission tomography (PET) scan reversal
4. Carotid ultrasound reversal
5. Pulse volume enhancement
6. Angina resolution
7. Claudication resolution
8. Erectile dysfunction resolution

As patients measure their improvement, they become even more fully engaged, realizing that it is their commitment to plant-based nutrition that is halting their disease.

More Science

What is a plausible theory to explain this prompt reversal of symptoms? I recently queried an anatomical cardiac pathologist who studies hundreds of hearts from the deceased every year. I asked how often atherosclerotic CVD is identified within vessels that are intramural? The answer is, extremely rarely. This helps explain why we see such rapid improvement in angina and PET scan improvement within days. Despite an absence of atherosclerotic disease within the intramural vasculature these vessels are unable to produce adequate nitric oxide and are producing molecules of endothelin and thromboxane, which are vasoconstrictors.²⁷ Commitment to WFPBN readily stops endothelial injury and vasoconstriction while at the same time

enhancing nitric oxide production and vasodilatation, which resolves angina and improves the PET scan imaging. These patients are now able to return to their activities of daily living without restrictions. What is remarkable is that the recovery of the intramural system is so powerful that it succeeds despite the fact that the epicardial blockages may often remain the same, albeit within these vessels there is some remodeling, increased flow, and dilation from the increased nitric oxide production. We frequently observe this sequence in patients who are told that they need a CABG operation and are extremely reluctant to have that procedure but are reassured when they discover that their lifestyle change has promptly reversed their symptoms and are confident that they may forgo the operation. The present totality of the evidence justifies a mandate that at the time of informed consent, patients be made aware of the options of plant-based nutrition.

In the absence of a randomized controlled trial, can a clinician feel secure in recommending plant-based options? Absolutely. The several thousand patients in the COURAGE trial demonstrated no superiority of stenting in stable patients when CAD is compared with medical therapy.²⁸

Where is the evidence that the scientific method has been proven in the case that argues for WFPBN? Richard Feynman, a Nobel Laureate in Physics, elaborated,^{29(p150)}

(We) compare the result of the (theory's) computation to nature, with experiment or experience, compare it directly with observation, to see if it works. If it disagrees with experiment it is wrong. In that simple statement is the key to science. It does not make any difference how beautiful your guess is. It does not make any difference how smart you are, who made the guess, or what his name is—if it disagrees with experiment it is wrong.

We postulate that plant nutrition can prevent, halt, and reverse CVD. Multiple studies and our own studies demonstrate and confirm it. Science has spoken.

The present cardiovascular approach has been tested for beyond 40 years. Not surprisingly, most patients following this protocol experience disease progression, more drugs, more imaging, and repeat interventions, with more morbidity, progressive disability, and too often death from a disease of Western malnutrition, the cause of which has been left untreated. Sadly, present palliative cardiovascular medicine can neither cure the disease nor end the epidemic and is financially unsustainable.

Nevertheless, we are on the cusp of a seismic revolution in health, which will never come about with the invention of another pill, procedure, or operation. WFPBN is the mightiest tool medicine has ever had in its toolbox. This revolution will come about when we show the public that lifestyle and, in particular, the nutritional literacy of WFPBN empower them to eliminate 75% to 80% of chronic illness. Medicine's very best can become even better.

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