

Coversation with Regina S. Druz, MD, MBA, MS, FACC

Association for the Advancement of Restorative Medicine Conference September 21-23, in Burlington, VT

Interview by Sheldon Baker

Regina Druz, MD, MBA, MS, FACC, is a board-certified cardiologist and founder and chief executive officer of the Holistic Heart Centers, an aspiring nationwide network of affiliated cardiology practices focused on making precision medicine personal for cardiovascular patients. Offices are in New York City, Miami, and Atlanta. Dr. Druz has also created Functional and Integrative Therapeutics based on Genome, Environment, Nutrition, Exercise, and Supplements (Fit in Your GENES), an innovative functional medicine proprietary program to control inflammation, oxidative stress, and auto-immunity, utilizing targeted assessments, including genetic testing, inflammatory markers, lipids, and hormones. The program allows patients to avoid or reduce statins and other cardiac medications, improve blood pressure, reverse vascular aging, recover heart muscle function, and lower the impact of atrial fibrillation.

Dr. Druz will be one of the conference faculty members speaking at the Association for the Advancement of Restorative Medicine (AARM) 2023 national conference, September 21-23, in Burlington, VT. The theme of this year's event is Treating Chronic Diseases of Aging to Enhance Longevity and Healthspan. Dr. Druz's presentation, entitled, Thriving in Mature Adulthood: How to Age Proof Your Cardiovascular System, will focus on the integrative cardiology practice model, which emphasizes the use of both conventional Western medicine and alternative medicine techniques to promote the well-being of the cardiovascular system.

Sheldon Baker is an InnoVision contributing editor. His freelance editorial content can also be found in several lifestyle publications, and as CEO of Baker Dillon Group LLC, he has created numerous brand marketing communications and public relations campaigns for health and wellness organizations. Contact him at Sheldon@NutraInk.com.

Integrative Medicine: A Clinician's Journal (IMCJ): Why should health professionals participate in this year's AARM event?

Regina Druz, MD, MBA, MS, FACC: We have managed to come to the era of convergence in medicine. A lot of practitioners who have been in alternative, functional, and integrative medicine spaces have been perceived as being

on the fringe or periphery of medicine. Yet with recent scientific advances in genomics and metabolomics, we are coming to the point where conventional medicine is migrating out of its pharma intervention focus and now beginning to appreciate that there are opportunities in the integrative holistic approach. That's what I would call a convergence. I hope that practitioners who are already practicing (in this arena) will be coming to this event to learn more, and health professionals who are not practicing it, but considering or have an interest, will attend to get their initial exposure to this practice model.

IMCJ: There are specific interventions that have been shown to promote longevity and vitality within the cardiovascular system. Please explain.

Dr. Druz: In cardiology, we are trained very early on to look at several risk factors commonly seen with heart disease. Many of these risk factors came from the Framingham heart study and subsequent groundbreaking studies. These studies identified age as one of the main risk factors for cardiovascular disease. It has always been thought that age and gender are risk factors that are considered non-modifiable. We are just stuck with whatever risk happens as we get older. I think now, due to advances in longevity science, we have started to understand how the environment and everything we do as individuals alter our genetic expression, metabolism, and propensity for health and disease. This understanding enabled us to look at age as a modifiable risk factor. While the chronological age is a static number, the biological age is a dynamic variable. Everyone has an opportunity to reverse or slow down the age-related progression of chronic diseases, and heart disease continues to be number one. Specific aging influences that we would typically associate with heart disease include hypertension, worsening of arterial elasticity, changes in the heart structure and heart function, and development of insulin resistance. All of these often result in the beginning of or acceleration of atherosclerosis and structural heart disease. When you put that together and project it on the individual for predispositions based on genetic background, you begin to understand that there are strategies that could reverse or accentuate the biological age, and it is possible to "age-proof" the cardiovascular system. These include

interventions affecting mTOR, and other ancient longevity switches. On a clinical level, these interventions improve the elasticity of the arteries and reduce insulin resistance. Those are very powerful factors that are related to the aging of the cardiovascular system.

IMCJ: You be presenting the latest research on how genetic testing can be used to personalize interventions and treatments to help prevent the development of cardiovascular disease in high-risk individuals.

Dr. Druz: I would encourage physicians and non-physicians who are looking to attend the conference to give it (genetic testing) serious consideration. Why? Because we are finally getting ready for clinical application. We are certainly in the era where whole genome sequencing is very inexpensive with direct-to-consumer labs. It can be done for a few hundred dollars. Initially, when researchers started investigating the human genome, the costs were astronomical. But over time, it has become affordable, and the accuracy increased. I think it is essential for practitioners to understand that genetics is no longer optional. It's not if you get the labs and there are certain blood markers, you don't need the genetics. Or if you get genetics, you don't need the labs. That's not how it works. Each piece of information uniquely contributes to health optimization and solves the disease propensity puzzle. For every individual, there will be certain areas where they are likely to improve and certain areas where improvement will be more difficult because there are genetic predispositions that you must fight against. I recently presented a case at the Annual International Conference of the Institute for Functional Medicine, of a younger patient, someone in their late 30s, who typically would not be appropriate for population-based risk factor stratification, because it is for older individuals, usually in their 4th to 6th decade. So, let's say you have a patient in their late 30s, and this patient has an unimpressive lipid profile, maybe a few abnormalities, something that could easily be fixed with a modest diet and exercise, and maybe taking a few supplements. Is that enough to tell this patient that their lipid profile places them at average risk by conventional measures? Or should you do something else? And it just so happens that this individual has a family history of heart disease. It's not uncommon to look at a family history of heart disease in first-degree relatives who are young with a little more diligence than older family members. But to be honest, it's a very arbitrary cutoff. Somebody had heart disease at 60; what about those who may have had it at 59 vs. 61? We don't know. For this patient, his polygenic risk score (PRS) was three times higher than the average population, forecasting a very high lifetime risk of coronary artery disease. Suddenly, it puts the laboratories that we have now into an entirely new light. This means throughout his lifetime, this patient has nearly a 46 percent probability of developing coronary

artery disease. That is specific to him because it considers multiple genetic markers. Almost two million genetic variants are folding together and calibrated based on multiple populations. Not based on calculated population risk scores but on outcomes from hundreds of thousands of people of various ethnicities. Now this patient understands how vigorous he needs to be regarding his risk factors modifications. You can see that it is not likely that it would have happened if we did not have a genetic analysis. We can also use monogenic information (SNPs) for nutritional and pharmacological response prediction.

IMCJ: How about the use of polygenic risk scores in identifying individuals who are at high risk for developing cardiovascular disease?

Dr. Druz: If you go to CDC.gov you can find more information. Polygenic risk scores are essentially population-based risks related to specific diseases and based on information from large biobanks. They combine multiple variations in genes, with many such variations that could have just a tiny impact. When you take the multiple variations together, you end up with an opportunity to express to a patient where they are across a wide range of genetic probabilities. Individuals can be at high risk if one of the polygenic risk scores determines that a patient is in a high-risk group. This can cause cancer, Alzheimer's, heart disease, and diabetes. It shifts the discussion as to what this person may be able to do and even guides them in trying to find the disease earlier.

IMCJ: One of the areas you will be focusing on is a comprehensive review of emerging science surrounding inflammation and its role in cardiovascular health.

Dr. Druz: It's a very interesting topic. Conventional cardiology training tends to be very compartmentalized. When you talk about coronary artery disease there is a lot of hemodynamics, physics, and blood viscosity. When you talk about atrial fibrillation, a common arrhythmia associated with traditional cardio risk factors, it is perceived as an electrical abnormality. When you talk about heart failure, it is perceived as an inability of the heart muscle to pump enough blood out. It turns out all these conditions share the common root causes of inflammation, associated oxidative stress, and immune response. We clinically see the footprints of this. Almost all these conditions have an association with elevated inflammatory markers, insulin resistance, and clinical chronic inflammatory stress.

IMCJ: Another topic area is myocardial metabolism, which is an essential factor in cardiovascular health.

Dr. Druz: Myocardial energetics is interesting because it has unexpectedly resurfaced as new heart failure medications

came onto the market. There is a group of heart failure medications called SGLT2 inhibitors, including brand names such as Jardiance and Farxiga. Those medications have been initially evaluated for the treatment of diabetes. There is a requirement by the FDA that all medications which are evaluated for type 2 diabetes are assessed for cardiovascular morbidity and mortality due to a series of recent events that resulted in diabetic medications that precipitated heart failure and worsened cardio mortality. These newer drugs unexpectedly showed improvement in some of the significant trial endpoints, slowing down the progression of kidney disease and improving health failure, and were subsequently shown to be just as beneficial in patients without diabetes and diabetics. The initial assessment was that these medications might have some diuretic effects due to removing fluid, but it was felt that they shifted myocardial metabolism to a more energy-efficient state. And it is that shift, the myocardial switch, that only the heart is capable of because it is unique in how it uses energy metabolites. It is likely key that the propensity of these drugs to alter myocardial energetics led to reducing cardiac events and lowering cardiac mortality. My interest came from realizing that it's not definitive, and no one said it's exactly how these medications work. Yet we know there have been trials, for example, of an intervention approach using ketogenic diets in heart failure; there have been trials using infusions of ketone esters with robust improvement in clinical and cardiac imaging parameters. Once these medications became front and center and started to get approved for typical indications, interest resurged as to how we can manipulate myocardial energetics and tap into the opportunity to lower inflammation, increase energy efficiency, and benefit nearly all types of heart disease.

IMCJ: Will you also cover the latest research on how various supplements can improve myocardial metabolism?

Dr. Druz: I am excited about some research being conducted and focused on NAD. It's a big one but a little controversial because there are different schools of thought. Research has just come out from a small group and was criticized that they used a few measurements trying to show NAD supplementation worked but didn't use the appropriate measurements, and the difference was too small to make this conclusion. I believe there is an exciting opportunity, and some supplements are coming into the mix that can tap into NAD salvage pathway, such as R-isomer alpha lipoic acid. There is also some data coming regarding NMN, which is one of the NAD precursors. There is also much information about supplements we may routinely use, such as CoQ10, NAC, and magnesium. Those supplements are familiar to most practitioners and provide an additional opportunity to focus on myocardial energetics, which is likely to be the next step in cardiovascular supplementation.