COMMENTARY

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Diet Redux: Which Food Type Leads to Heart Attacks?

No topic has been more hotly debated over recent decades than the role of various foods in the development of atherosclerosis. The earliest animal experiments demonstrated that diets rich in fat and cholesterol produced arterial lesions that resembled atherosclerosis in humans.[1] Over subsequent decades, a great deal of animal and human research has been performed exploring the concept that dietary composition is related to the development of atherosclerosis. The earliest theories followed the direction of the early animal experiments just mentioned: These investigations demonstrated that diets containing large amounts of fat, particularly animal fat, were tied to the development of atherosclerosis with subsequent development of myocardial infarction and stroke. Considerable support for this idea also came from numerous carefully performed epidemiologic studies.

Recently, however, there has been a considerable interest in the concept that simple carbohydrates with high glycemic indices (eg, sugar, wheat flour, and rice) might be as important or even more important as causative factors in the development of atherosclerosis. These latter nutrients have been implicated in the development of obesity, diabetes, hypertriglyceridemia, and vascular inflammation leading to systemic atherosclerosis, coronary and carotid artery disease, and eventually to myocardial infarction and stroke.

Well-known nutritionists and epidemiologists have found themselves on one side or the other of the debate concerning the hypothesis that intake of certain food types is related to the development of ischemic cardiovascular disease. One group, supported by the American Heart Association, has advocated for prevention of atherosclerosis by consuming a diet low in saturated fat and cholesterol, much of which comes, as noted earlier, from animal food products such as red meat, eggs, and butterfat. The opposing group favors a diet low in simple carbohydrates, with the main foodstuffs to be eschewed consisting of breads, pastries, confections, ice cream, candy, and so forth. At times, the debate between these 2 groups has been quite aggressive with associated accusations concerning bias related to industry support of the individuals involved.

In a recent issue, *Science* magazine published what, in my opinion, is a clear, concise, and scientifically valid review of the topic and the history of the debate between the 2 groups of nutrition experts.[2] David M. Johns and Gerald Oppenheimer are members of the Department of Sociomedical Sciences at Columbia University in New York City. Their review, entitled "Was There Ever Really a 'Sugar Conspiracy'?", discusses the entire history of the concept that diet plays a major etiologic role in the development of atherosclerotic disease in humans. I highly recommend that every physician who sees patients, either adults or children, should read this excellent historical review. It places in perspective the manner in which both sides of the question came to their respective conclusions. When I was a medical student at Harvard, I had the pleasure of taking an elective course on nutrition in the Harvard School of Public Health where I heard professors Stare and Hegsted argue in favor of the "high saturated fat" school of thought.[2] Subsequently, I have closely followed the literature involving diet and atherosclerosis, and understand that a diet full of so-called empty carbohydrates (eg, flour breads, pastries, candy, sugar-containing soft drinks) is also an important factor in the development of morbid obesity, diabetes, and hyperlipidemia—the metabolic syndrome, a major risk factor for atherosclerosis.

My own observations, made over decades of clinical practice, have shown me that both diets, high saturated fat and high simple carbohydrate, seem capable of accelerating the development of atherosclerotic arterial disease. I have seen many patients with acute myocardial infarction or stroke whose food intake consisted almost exclusively of meat, bread, potatoes, and sugary drinks and desserts, a diet high in animal fat and simple carbohydrates. I also see many obese middle-aged patients with type 2 diabetes mellitus, hyperlipidemia, and clinical expressions of atherosclerotic vascular disease. When questioned, I almost always discover that these individuals are eating a diet that is very high in glycemic carbohydrates.

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From the extensive literature on the relationship between diet and atherosclerosis, as well as my own clinical observations, here is what I tell my patients concerning the best diet for individuals with clinically evident atherosclerotic disease or at high risk for developing this condition:[3]

1. Limit the intake of red meat, eggs, and high butterfat dairy products. Try substituting fish or the white meat of chicken for products containing high levels of saturated animal fat. I also tell them that a strictly vegetarian diet has been shown to be beneficial in individuals who can maintain such a regimen. Indeed, our closest cousins, the chimpanzees, eat a diet that is primarily vegetarian in nature.
2. Maximize consumption of vegetables and fruits.
3. Limit consumption of high glycemic index carbohydrates, such as foods containing sugar, white flour, white rice, and potatoes. Examples include bread and bread-like foods such as rolls and bagels, pasta, sugary desserts and candies, sugary drinks, and large helpings of rice and potatoes taken in place of vegetables.
4. Moderate use of alcoholic beverages, for example, 1 or 2 glasses of wine per day, has been associated in epidemiologic studies with less clinically evident coronary artery disease.

And, of course, I strongly advise daily exercise such as walking or other aerobic exercise for 30 to 60 minutes per day.[4] Atherosclerotic disease is not a new phenomenon. With the use of computed tomography scanning, this disease entity has been demonstrated in Egyptian mummies thousands of years old.[5] Fortunately, today we have multiple medical and interventional therapies for controlling clinical atherosclerotic disease. However, the lifestyle recommendations listed are just as important for the control of this disease as our evidence-based medications and invasive interventions.

As always, I enjoy hearing from readers about this or other commentaries on our blog at amjmed.org.

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