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Letter to the Editor

Remarkable regression of coronary atherosclerosis: An interplay of pharmacotherapeutic and lifestyle factors

ABSTRACT

Keywords:

Coronary artery disease
Lifestyle modification
Optimal medical therapy
Regression

Coronary heart disease is the leading cause of death in the world today. Regression of coronary atherosclerosis using a combination of drugs and lifestyle interventions has been reported. This letter describes three patients with remarkable reduction in angiographic stenosis of coronary arteries that is generally not considered feasible.

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Coronary heart disease (CHD) is the leading cause of mortality globally and a growing threat to low- and middle-income countries.¹ High-dose statin therapy, younger age at diagnosis, female sex and higher baseline coronary atheroma volume are factors thought to associate linearly with disease regression.²

A 37-year-old male presented with myocardial infarction (MI). His blood pressure was 140/90 mmHg, total cholesterol 208 mg/dl, low-density lipoprotein 133 mg/dl, high-density lipoprotein 53 mg/dl, and body mass index 30 kg/m². He was married, had two children, and was managing his own construction business, which had been a source of chronic mental stress. He had another MI 4 years later and was noted to be noncompliant with medications. An invasive coronary angiography showed 90% obstruction of the left anterior descending (LAD) artery, 40% obstruction of the right coronary artery (RCA), and 30% obstruction in the left circumflex artery. Based on the personal preference of the patient, surgical/interventional procedures were withheld. His daily medications included atorvastatin 20 mg, metoprolol 25 mg, ramipril 2.5 mg, nicorandil 10 mg, and a fixed-dose combination of clopidogrel 150 mg and aspirin 75 mg. He embarked on intensive lifestyle modifications by avoiding meat, abstaining from processed and packaged foods, consuming more fruits and vegetables, walking an hour at a pace of 4 km/h on most days, and practicing yoga for an hour every morning. He and his wife pursued higher education in yoga and became instructors of Kundalini yoga. Coronary computed tomographic angiography (CCTA) performed 2 years later showed complete regression of the obstructive coronary lesions and only diffuse calcific plaques. Currently, aged 51 years, he has

been free of symptoms for a decade and has the risk factors under control with minimal cardiac drugs.

A 47-year-old diabetic male was diagnosed with MI and 90% LAD obstruction. He was a vegetarian, exercised irregularly, and had high levels of work-related stress. A 39-year-old homemaker and mother of an adopted child presented with angina, hypertension, dyslipidemia, and obesity. She had 80% LAD obstruction and 60% RCA obstruction. With guidance on risk factor management, both patients consumed a balanced diet, exercised regularly, managed their stress better, and adhered to their medications. A repeat CCTA showed $\leq 20\%$ obstructive lesions in both patients.

Regression of coronary atherosclerosis has been reported with a combination of medical and lifestyle factors.³⁻⁵ This letter describes three patients with remarkable reduction in angiographic stenosis of coronary arteries that is generally not considered feasible. While plaque stabilization, improved endothelial function, vessel remodeling, and collateral development improve symptoms, dramatic reduction of lesions has hardly been documented. Despite the small sample size and the limited follow-up, this report highlights the potential to reverse the natural progression of coronary atherosclerosis with medical therapy and lifestyle changes, including regular exercise, predominantly plant-based diet, and effective stress management. The authors are currently providing comprehensive CHD prevention and rehabilitation programs. In conclusion, CHD, a major cause of death in the developing world, can be controlled by an effective strategy combining optimal drug therapy and sustained lifestyle modification.

Conflicts of interest

The authors have none to declare.

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