

Calcium Deposits and Heart Disease

[Prof. Joe Cummins](#) speaks on a health issue closest to his heart

Public education versus personal case notes

The Framingham health study has been following the health of residents in the Massachusetts town in the United States since 1948 and continuing to further generations. The study has been a major focus in educating the public, with emphasis on identifying the factors leading to heart disease such as smoking, cholesterol, diabetes and body weight [1]

At the age of 75, I live with Type 2 diabetes that has been controlled first by diet and exercise, and later by drugs. My cholesterol levels have been monitored for over twenty-five years and certified to be well within safe limits, and I stopped smoking over twenty-five years ago.

I was taken by surprise last autumn, therefore, to find that my cardiac arteries were blocked and that I required emergency by-pass surgery. My arteries were blocked, not by cholesterol, but by concrete-like deposits of calcium phosphate. Prior to the operation, I viewed my angiogram as it was being taken by the surgeon, and was shocked to learn of the nature of the blockage. The surgery was long and complex and my life has been hanging on a knife-edge since. I decided to examine the phenomenon of cardiac calcification to question why it is that calcification has not been widely recognized by the public to be a major cause of death from heart disease, and to find out what if anything could be done about it.

Calcification of arteries the major killer

In fact, my condition was not at all unusual. A study of 108 sudden coronary deaths at autopsy carried out in 2000 in the United States revealed that calcification was present in 55 percent of men and women under 40 years, and some calcification was present in all men by age 50 and by the age of 60 in all women. Calcification in atherosclerosis (progressive narrowing and hardening of the arteries) is associated with ruptured plaques (deposit of fatty and calcium substances that accumulate in the lining of the artery wall) [2].

A report published this year in the *New England Journal of Medicine* confirms that the accumulation of calcium in coronary arteries predicts a future heart attack or other heart trouble far more accurately than cholesterol, or other standard risk factors [3]. The coronary calcium study included 6722 men and women from mixed ethnic backgrounds that had no clinical heart disease on entry, and were followed for a median of 3.8 years. There were 163 coronary events of which 89 were major infarctions or death. Compared with trial participants with no coronary calcium the adjusted risks of a coronary events was increased by factors of 7.7 to 9.7 times in subjects with elevated calcium.[4]. There were no differences between the racial and ethnic groups regarding the risk associated with elevated calcium. The Editors of the Journal raised some concern that calcium testing might not be cost effective because there was no effective therapy for the elevated calcium at this time [5]. I understand that point of view, having been diagnosed with end-stage kidney disease in addition, which cannot benefit from dialysis or transplant. However, it should not be beyond medical science to find a remedy for the calcium blockage instead of effectively passing a death sentence on the tens of millions that are afflicted.

Calcium alert is not new

This is not the first time the medical establishment has been alerted to the problem of calcium. Already in 1945, the nutrition expert Dr. Weston Price was on the trail of “a new vitamin-like activator” that played a crucial role in the utilization of minerals in protecting against tooth decay, in growth and development, in reproduction and brain function, and in protection against heart disease [6]. Using a chemical test, Price identified this compound he called Activator X in butterfat, organs and fat of animals consuming rapidly growing green grass, and in certain sea foods such as fish eggs. Price died before the factor was finally identified.

A growing body of published research has confirmed Price’s discoveries. Activator X, now known as vitamin K2, does protect against tooth decay, supports growth and development and is involved in normal reproduction; it protects against calcification of the arteries that leads to heart disease, and is a major component of the brain.

Numerous studies have shown that vitamin K2 participates in preventing the accumulation of calcium in cardiac vessel walls. The most recent studies using powerful microarray technique to monitor gene expression revealed that a vitamin K2 derivative represses genes involved in arterial calcification [7]. Investigators have also made important steps in the regression of calcification from a clinical standpoint [8]. A genetic polymorphism for the gene encoding the enzyme Vitamin K epoxide reductase was associated with increased risk of vascular calcification, and 62 percent of the white population expressed the allele for increased risk [9].

Both older men and older women share the hazards of cardiac calcification equally. Paradoxically, older people may suffer simultaneously from osteoporosis. Patients with osteoporosis were found to have a higher prevalence of obstructive coronary artery disease. That is because Vitamin K2 is involved in the correct deposition of calcium in bones rather than in soft tissues [6]. Patients who took statin drugs were prevalent in the study group participants with normal bone density, leading the investigators to propose that statin drugs be prescribed to prevent coronary heart disease [10]. Statin therapy induced a 50 percent reduction in the rate of coronary artery calcification in patients with Type 2 diabetes [11]. The statins are a class of drugs used to lower cholesterol levels in people with or at risk of cardiovascular disease. As cholesterol is not implicated in coronary artery calcification, the statin effect is surprising. However, statins also reduce inflammation [12], which is implicated in coronary artery calcification.

There is evidence that stress associated with hostility in young adults [13] as well as middle-aged and older people [14] are associated with cardiac calcification. Similarly, those suffering discrimination by race or other factors pay an additional price in calcification damage to the heart [15]. All in all, being cool, living peaceably with one another, and eating well are really good for health.

I can tell you it is no fun to have a fatal disease. Public awareness is the first step towards finding a remedy for the disease. May we succeed in doing just that.

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