



Letter to the editor

Vitamin D and coronary atherosclerosis

To the editor,

Lee et al. [1] recently published an original article about relationship between serum vitamin D level and coronary atherosclerosis by computed tomography angiography. In this article, they concluded that participants with coronary artery plaques are likely to have relatively low vitamin D level. They added some evidence that vitamin D status is associated with atherosclerosis.

Recently, many researches have shown that insufficient vitamin D, as assessed by low serum 25-hydroxyvitamin D (25(OH)D), is associated with atherosclerosis and cardiovascular diseases. In a review article recently published, relatively low vitamin D is thought to influence cardiovascular risk predominantly by acting on established cardiovascular risk factors, such as diabetes, hypertension, and inflammation [2]. This article also showed that plaque positive participants had higher proportion of diabetes, hypertension, and dyslipidemia as well as low vitamin D level. In my previous study, serum 25(OH)D has an independent inverse association with insulin resistance in the healthy, nonobese Korean population [3]. Low vitamin D is also believed to increase diabetes risk by affecting insulin secretion in pancreatic beta cells. Vitamin D is also involved in the renin-angiotensin-aldosterone system and affects blood pressure. Many observational studies showed inverse association between 25(OH)D and risk of hypertension.

Although the authors showed 25(OH)D was independently significantly associated with coronary artery plaque by stepwise logistic regression analysis, there is also some controversy about the results. There is very small difference of serum 25(OH)D level between plaque positive and negative subjects. Sex difference is more prominent. How much is serum vitamin D levels in both sexes? I also want to know the presence of coronary artery plaque according to the tertiles of serum vitamin D levels.

Satilmis et al. [4] showed a negative correlation between 25(OH)D and the number of coronary artery plaques. However, this study did not show the relationship between 25(OH)D level and burden of coronary plaque. As the authors discussed in the article, there are still many controversial data about the vitamin D and atherosclerosis. Vitamin D is not associated with carotid atherosclerosis, but coronary atherosclerosis. This area requires a lot of research to clarify the mechanism.

Shen et al. [5] published that common SNP, rs2762939, in *CYP24A1* is associated with coronary artery calcification. Because

the *CYP24A1* gene is the major enzyme for vitamin D regulation, there is possibility of the role of vitamin D homeostasis in the development of coronary atherosclerosis.

Finally, so far, there is few evidence that vitamin D supplementation is beneficial for preventing cardiovascular atherosclerosis and cardiovascular events or mortality [2,6]. Further investigation is needed whether vitamin D supplementation will be beneficial for preventing cardiovascular diseases among people with low vitamin D levels or among patients with coronary artery disease.

Conflicts of interest

No potential conflict of interest relevant to this article was reported.

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