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Serum Osteoprotegerin as a Biomarker for Vascular Disease

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We read with great interest the report by Abedin, *et al.*¹ showing the independent association of plasma osteoprotegerin (OPG) with coronary artery calcification and the presence of aortic plaques in a large, unselected population from the Dallas Heart Study. We congratulate the investigators on their impressive study and support the interest of OPG as a novel biomarker for atherosclerosis.

As stated in their discussion, most previous evidence suggesting an association between circulating OPG and vascular disease focuses on coronary artery disease. To extend this data, our group recently optimised a technique to reproducibly quantify the severity of infrarenal abdominal calcification using contrast-enhanced computed tomography angiography (MX800, Philips) and appropriate thresholds². Using this technique in patients with peripheral artery disease (n=109), we found a significant correlation between the severity of infrarenal abdominal aortic calcification and the serum concentration of OPG ($r=0.26$, $P=0.006$)³. We also demonstrated marked variation in calculated serum OPG concentrations depending on the ELISA utilised. These variations appear largely attributable to differences in the standards used in the ELISAs³. Studies assessing the circulating level of OPG vary in the assay utilised and the units (pg/mL versus pmol/L) in which values are expressed. Average serum OPG concentrations ranging from 3.5 to 18.5 pmol/L have been reported in patients with artery disease^{4,5}. The lack of uniform expression, the different values obtained by different OPG assays and the different techniques to measure atherosclerosis complicates assessment of biomarkers. In conclusion, the positive association between OPG and vascular pathology highlights the potential of OPG as a biomarker for vascular disease. To optimise the value of this biomarker, a uniform automated assay expressed in standardised units is required.

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