



What is the place of sclerostin in chronic kidney disease, atherosclerosis, and ageing?

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Editor,

According to the current knowledge, serum sclerostin is a potential biomarker that might help the early assessment of chronic kidney disease-mineral and bone disorder (CKD-MBD). However, its role in patients with chronic kidney disease (CKD) is yet not clearly defined, as these patients have often comorbidities that taken together with ageing, further complicate setting the place of sclerostin in CKD-MBD.

Recently, Bosevski raised a very important question of whether sclerostin has an independent or added value to the process of aging in the vascular disease when measured with carotid ultrasound [1]. Recently, we reported that our patients have increased serum sclerostin levels from the initial CKD stages but without association with patients' age or carotid intima-media thickness (CIMT) [2]. In contrast, the patient's age positively correlated with CIMT ($r=0.38$, $p<0.001$). Analyzing the age with a cut-off value of 65 years revealed that patients > 65 years have significantly higher CIMT level compared to those < 65 years (1.16 mm and 1.03 mm, respectively). The older group tended to have higher serum sclerostin levels (1.71 ng/ml vs. 1.64 ng/ml), being at the borderline of significance.

Previously, it has been shown that patients with acute ischaemic stroke have increased serum levels of sclerostin [3], but the exact impact of age and kidney function was not clarified. Similarly, sclerostin levels were an independent predictor of the peripheral arterial disease in elderly patients, assessed by Ankle Brachial Index [4]. Zhou et al. reported

that in predialysis CKD5 patients in multivariate logistic regression analysis, which included age, gender, serum sclerostin, corrected calcium, phosphate, calcium and phosphate product, systolic and diastolic blood pressure, alkaline phosphatase, intact parathyroid hormone and estimated glomerular filtration rate, only serum sclerostin was related to sclerostin vessel expression in media layer of radial artery; and finally, serum sclerostin predicted positive sclerostin vessel expression with 61.1% sensitivity and 85.7% specificity [5]. Subsequently, the same group reported that 45% of patients with end-stage renal disease (both predialysis and on hemo-/peritoneal dialysis) eligible for renal transplantation had thoracic aorta calcification (TAC). Although the group of patients with TAC was older, multivariate analysis showed only serum sclerostin levels were associated with the presence of TAC [6].

These findings would suggest an important role of sclerostin in vascular disease, but whether it is more than just a marker of the disease and whether it could have an eventual protective role, remains to be elucidated. On the other hand, there is a very limited number of studies focusing on the association of carotid artery diseases and CKD [7].

Therefore, more data on the relationship of serum sclerostin with carotid artery disease, and vascular disease overall are needed to define its exact role in the vascular component of CKD-MBD and the relationship with age of patients, which could help in the guidance of the best and most suitable therapeutic steps.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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