

# Relationship between sclerostin and cardiovascular calcification in maintenance hemodialysis patients

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## OBJECTIVES

Vascular calcification is the independent risk factor for cardiovascular disease in chronic kidney disease (CKD) patients. Sclerostin is a Wnt/ $\beta$ -Catenin pathway antagonist and a novel candidate for bone-vascular axis in CKD patients, but the role of serum sclerostin in the vascular calcification in hemodialysis patients is not clear. Here, we evaluated the potential association of serum sclerostin with the development of coronary artery calcifications (CAC) in maintenance hemodialysis (MHD) patients.

## METHODS

92 MHD patients were enrolled prospectively. We tested established biomarkers as well as serum sclerostin (ELISA) regarding their association to the presence of calcification before hemodialysis. CAC was measured by multi-slice computed tomography (MSCT) scanning, and the CAC score (CACs) was calculated. Comparing serum sclerostin levels in different CACs groups. Logistic regression analysis was used to determine the risk factor of coronary artery calcification in MHD patients. The diagnostic value of serum sclerostin for coronary artery calcification was assessed using receiver operator characteristic (ROC).

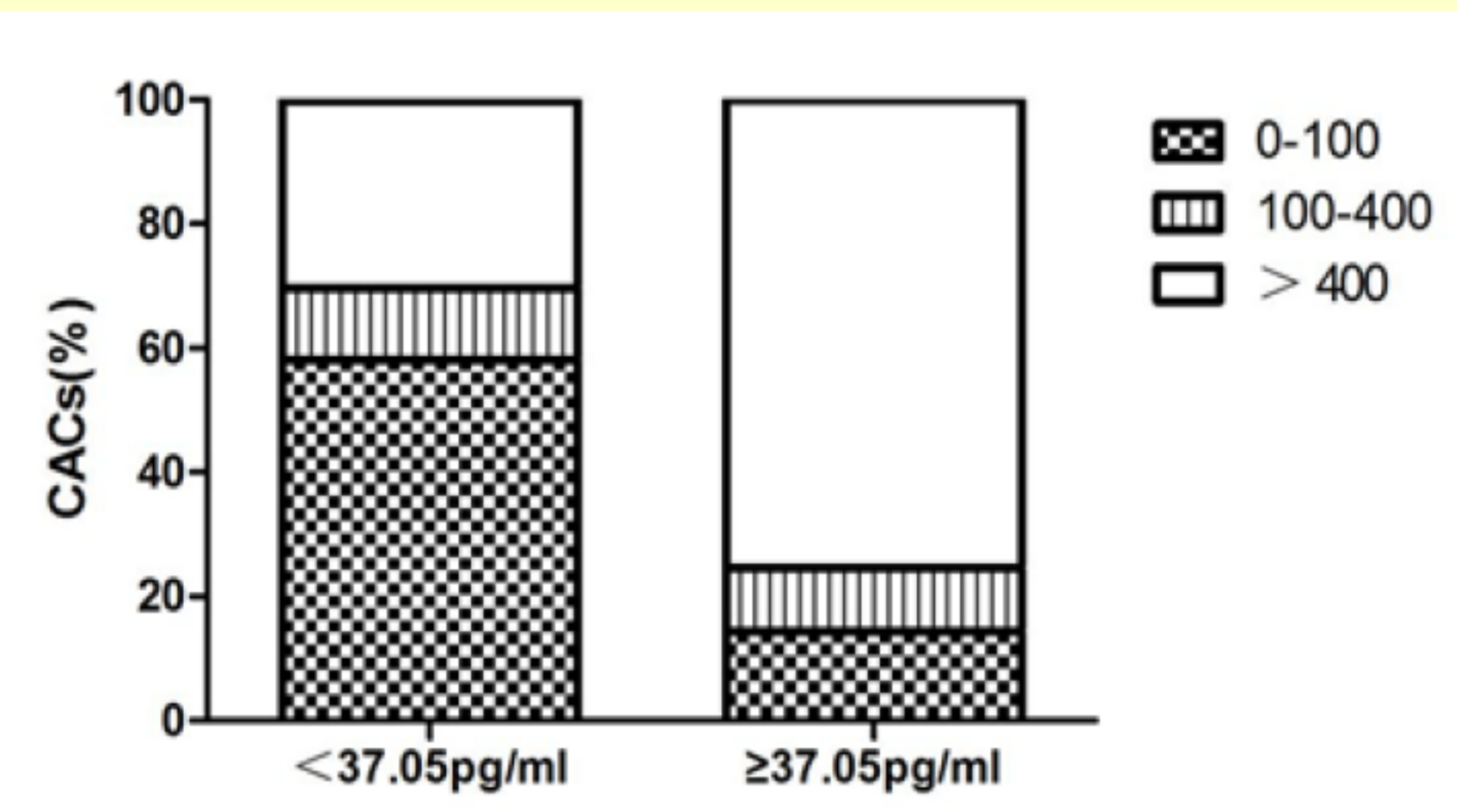


Fig.1. CACs in different groups of sclerostin

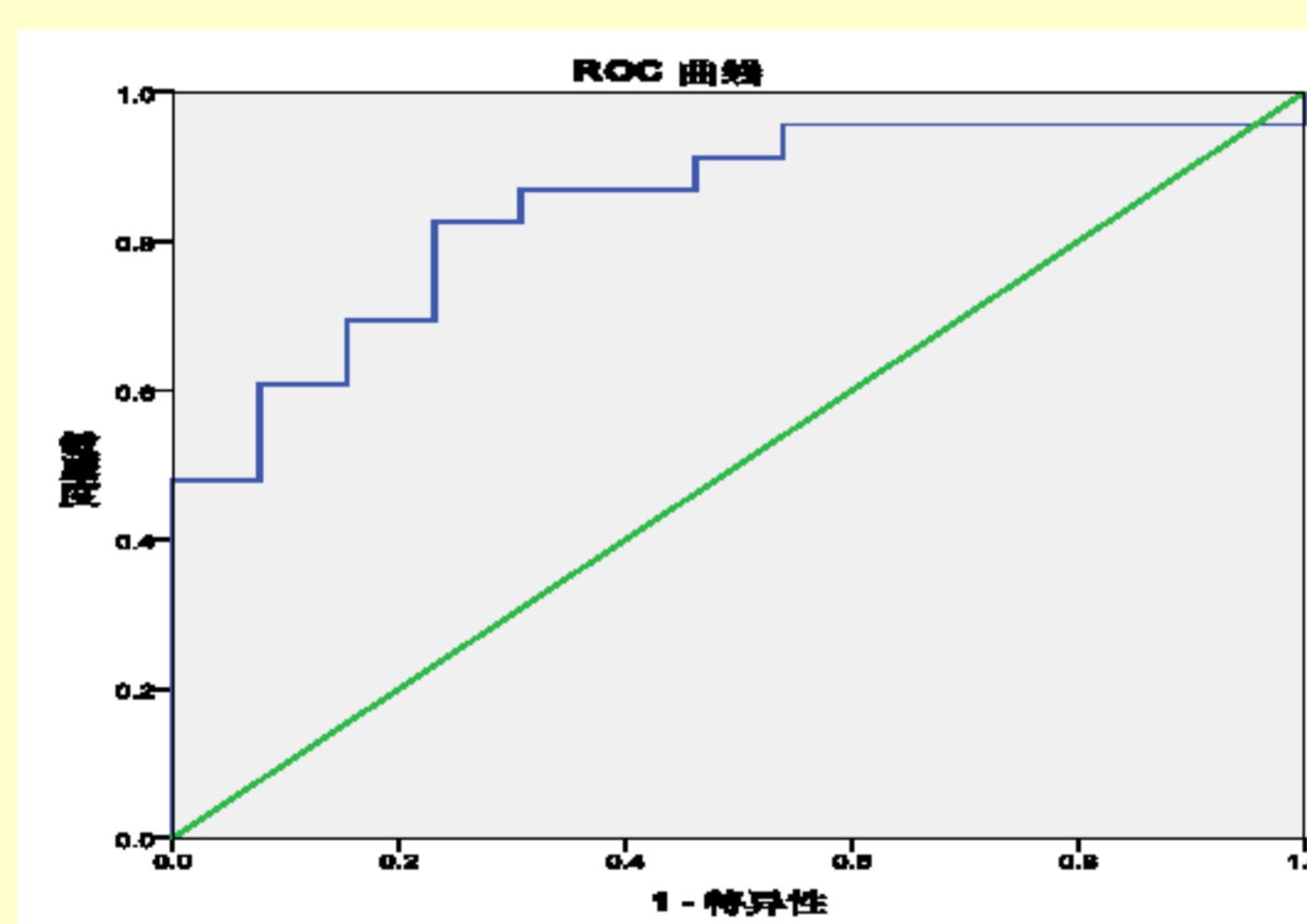


Fig.2. The role of serum sclerostin in predicting the presence of severe CAC

## RESULTS

CAC (Agatston score > 100) was present in 65.2% (60/92) patients, the median CAC score was 446(26,1000). Serum sclerostin levels was 37.05 (29.99,49.04)pg/ml. The serum sclerostin levels were significantly elevated in the group of CACs > 400 compared to the group of CACs < 100 (829.50(790.25,2262.50), 28.16(25.27,33.64),  $P < 0.05$ ). Multivariate logistic regression analysis showed that serum sclerostin levels was independent risk factor for CAC (OR=1.292, 95%CI 1.017-1.641,  $P < 0.05$ ). The area under the ROC curve (AUC) of serum sclerostin for severe coronary artery calcification was 0.846 ( $P=0.001$ ), sensitivity was 0.826, and specificity was 0.769 for a cutoff value of 35.165 pg/ml.

## CONCLUSIONS

We confirmed that serum sclerostin levels was associated with CAC. Serum sclerostin levels might have a diagnostic value for CAC in MHD patients.

## REFERENCES:

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- [2] Karohl C, D'Marco Gascón L, Raggi P. Noninvasive imaging for assessment of calcification in chronic kidney disease [J]. *Nat Rev Nephrol*, 2011, 7: 567-577.

