INTRODUCTION AND AIMS: Derangements in bone metabolism and vascular calcification (VC) substantially contribute to the accelerated cardiovascular morbidity and mortality in chronic kidney disease (CKD). The Wnt signaling pathway is increasingly recognized to play an important role in bone homeostasis and VC. Circulating levels of the Wnt inhibitor sclerostin are elevated in CKD patients. The objective of this study is to evaluate the relation between sclerostin and factors determining arterial stiffness in hemodialysis (HD) patients.

METHODS: Sclerostin level and carotid-femoral pulse wave velocity (PWV) were measured in 93 hemodialysis patients. Sclerostin level was measured in 40 healthy volunteers. Demographic data, test results and medications used were recorded for each individual.

RESULTS: The mean age for the HD group which consisted of 45 female and 48 male patients was 55±15. Mean PWV was 9.2±2.7 m/s (8.4 m/s for males and 9 m/s for females, p=0.145). The sclerostin level was considerably high in the patient group (327±207 pg/mL vs 141±88 pg/mL, p<0.001). There was a significant gender difference among patients in the patient group (235 pg/mL in females and 319 pg/mL in males, p=0.007). In univariate correlation analysis PWV was positively correlated with age, diabetes mellitus (DM), peripheral, aortic and pre-dialysis systolic arterial pressure, body mass index (BMI), sclerostin, total cholesterol and LDL levels; conversely it was negatively correlated with Kt/V, cinacalcet and vitamin D levels. In multivariate regression analysis PWV was positively correlated with age (β=0.068, p=0.003), DM (β=1.440, p=0.038) and pre-dialysis systolic arterial pressure (β=0.058, p=0.001). In univariate correlation analysis sclerostin showed positive correlation with age, male gender, atherosclerotic heart disease, statin use, BMI, PWV, and negative correlation with ALP, PTH, Kt/V, cinacalcet and vitamin D use. In multivariate regression analysis sclerostin found to be correlated positively with male gender (β=174.82, p<0.001) and statin use (β=168.96, p=0.05) but negatively with PTH (β=-0.282, p<0.001).

CONCLUSIONS: Serum sclerostin levels were associated with gender, statin use, and PTH. Though PWV was correlated positively with sclerostin in univariate correlation analysis, the two were not found to be correlated in multivariate regression analysis. Additional clinical and experimental studies are required to clarify the relation between sclerostin and VC.

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SCLEROSTIN; ANOTHER VASCULAR CALCIFICATION INHIBITOR

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INTRODUCTION AND AIMS: Sclerostin is a member of the Wnt family and a potent inhibitor of bone formation. It is accumulating evidence that elevated serum sclerostin level is correlated positively with cardiovascular events (CVEs) and dialysis-related amyloidosis. Circulating levels of sclerostin are increased in patients with chronic kidney disease (CKD) and with dialysis treatment. In this study, we aimed to determine the role of serum sclerostin level in cardiovascular outcomes and its relationship to vascular calcification in stable peritoneal dialysis (PD) and hemodialysis (HD) patients.

METHODS: Serum sclerostin level was measured in 93 hemodialysis patients. Sclerostin level was measured in 40 healthy volunteers. Demographic data, test results and medications used were recorded for each individual.

RESULTS: The mean age for the HD group which consisted of 45 female and 48 male patients was 55±15. Mean PWV was 9.2±2.7 m/s (8.4 m/s for males and 9 m/s for females, p=0.145). The sclerostin level was considerably high in the patient group (327±207 pg/mL vs 141±88 pg/mL, p<0.001). There was a significant gender difference among patients in the patient group (235 pg/mL in females and 319 pg/mL in males, p=0.007). In univariate correlation analysis PWV was positively correlated with age, diabetes mellitus (DM), peripheral, aortic and pre-dialysis systolic arterial pressure, body mass index (BMI), sclerostin, total cholesterol and LDL levels; conversely it was negatively correlated with Kt/V, cinacalcet and vitamin D levels. In multivariate regression analysis PWV was positively correlated with age (β=0.068, p=0.003), DM (β=1.440, p=0.038) and pre-dialysis systolic arterial pressure (β=0.058, p=0.001). In univariate correlation analysis sclerostin showed positive correlation with age, male gender, atherosclerotic heart disease, statin use, BMI, PWV, and negative correlation with ALP, PTH, Kt/V, cinacalcet and vitamin D use. In multivariate regression analysis sclerostin found to be correlated positively with male gender (β=174.82, p<0.001) and statin use (β=168.96, p=0.05) but negatively with PTH (β=-0.282, p<0.001).

CONCLUSIONS: Serum sclerostin levels were associated with gender, statin use, and PTH. Though PWV was correlated positively with sclerostin in univariate correlation analysis, the two were not found to be correlated in multivariate regression analysis. Additional clinical and experimental studies are required to clarify the relation between sclerostin and VC.