



THE RELATIONSHIP BETWEEN CORONARY ARTERY CALCIUM SCORES AND LEFT ATRIUM SIZE IN HEMODIALYSIS PATIENTS

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INTRODUCTION

Cardiovascular disease (CVD) is 10-20 times higher in patients with end stage renal disease (ESRD) when compared with general population. The coronary artery calcification score (CACS) in uremic patients receiving hemodialysis reflects the severity of atherosclerotic vascular disease and predicts the cardiovascular events (1). Left atrial (LA) size has a prognostic importance in general population (2). We aimed to investigate the relationship between LA size and CACS in hemodialysis patients.

METHOD

This was a cross-sectional study involving 32 ESRD patients (16 females, 16 males; mean age, 52.4±14.1 years) receiving HD for ≥6 months. CACS was performed by a 16-MDCT scanner and calculated by Agatston score. Patients were divided into two subgroups according to median value (group 1; CACS ≤ 45.85, n=16 and group 2; CACS > 45.85, n=16). Appropriate statistical analyses were applied.

RESULTS

Mean CACS value of 32 hemodialysis patients was 245.5±373.9. LA were significantly higher in patients with CACS > 45.85 (group 2) than in patients with CACS ≤ 45.85 (group 1). In the bivariate correlation analysis, total CACS was positively correlated with left atrium size and age ($r=0.47$, $p=0.006$; $r=0.43$ $p=0.014$, respectively). LA size was positively correlated with diastolic blood pressure ($r=0.42$ $p=0.016$) and negatively correlated with ejection fraction ($r=-0.42$ $p=0.016$). The clinical parameters of BMI, duration of dialysis, blood pressure, ejection fraction, serum levels of calcium, phosphorus, uric acid, albumin, CRP, triglyceride, cholesterol, hemoglobin and ferritin were not associated with total CACS (Table).

TABLE: Demographic, clinic and laboratory features of ESRD patients according to CACS groups

Parameters	CACS ≤ 45.85 (n=16)	CACS > 45.85 (n=16)	P value
Age (years)	47±14	57±11	0.05
BMI (kg/m ²)	24±4.1	25.5±3.5	0.16
Dialysis Vintage (months)	49.8±34.7	62.8±45.7	0.48
SBP (mmHg)	128±22	125±17	0.53
DBP (mmHg)	75±12	75±9	0.67
Hemoglobin (mg/dL)	11.1±1.4	11±1.6	0.89
Albumin (g/dL)	4±0.2	3.9±0.3	0.28
Total Cholesterol (mg/dL)	155±38	174±29	0.12
Triglyceride (mg/dL)	182±124	217±138	0.22
Uric Acid (mg/dL)	6.4±1.4	6.2±1	0.83
CRP (mg/dl)	2.3±3.1	2±2.9	0.79
Ferritin (ng/ml)	634±440	759±521	0.57
Calcium (mg/dl)	8.7±0.5	8.8±0.6	0.57
Phosphorus (mg/dl)	4.9±1.4	4.8±1.5	0.75
iPTH (pg/ml)	337±330	302±217	0.83
LA size (cm)	3.36±0.55	3.83±0.54	0.01

CONCLUSION

We found a relationship between the CACS and LA size measured by echocardiography in hemodialysis patients. Therefore; echocardiography, which is cheaper and non-invasive than tomographic examinations, might be considered for the risk stratification of coronary artery disease in hemodialysis patients.

REFERENCES

1. London GM, Guérin AP, Marchais SJ, Métivier F, Pannier B, Adda H. Arterial medial calcification in end-stage renal disease: Impact on all-cause and cardiovascular mortality. *Nephrol Dial Transplant.* 2003;18:1731–40.
2. 6. Zile MR, Gottdiener JS, Hetzel SJ, McMurray JJ, Komajda M, McKelvie R, Baicu CF, Massie BM, Carson PE. Prevalence and significance of alterations in cardiac structure and function in patients with heart failure and a preserved ejection fraction. *Circulation.* 2011;124:2491–2501

