

ASSOCIATION OF CORONARY ARTERY CALCIFICATION AND ARTERIAL MICRO-CALCIFICATION OF THE VASCULAR ACCESS IN INCIDENT HEMODIALYSIS PATIENTS

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INTRODUCTION AND AIMS

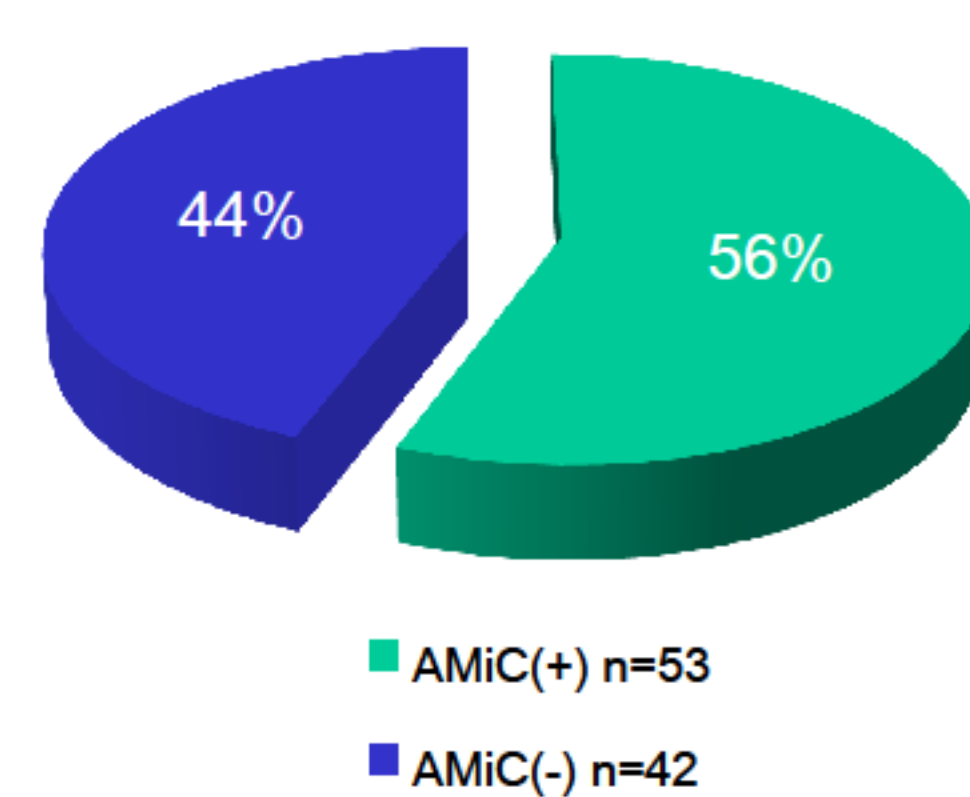
We have reported that arterial micro-calcification (AMC) of vascular access has a negative impact on access patency and cardiovascular mortality in hemodialysis (HD) patients. Reasons behind increased cardiovascular mortality in AMC are not fully understood, but it is believed that aortic stiffness is a major contributing factor. Whereas, coronary artery calcification (CAC) is quite common in HD patients and it is known as predictor of future cardiovascular events and all-cause mortality in HD patients. The aim of this study was to explore the relationship between AMC and CAC in HD patients.

METHODS

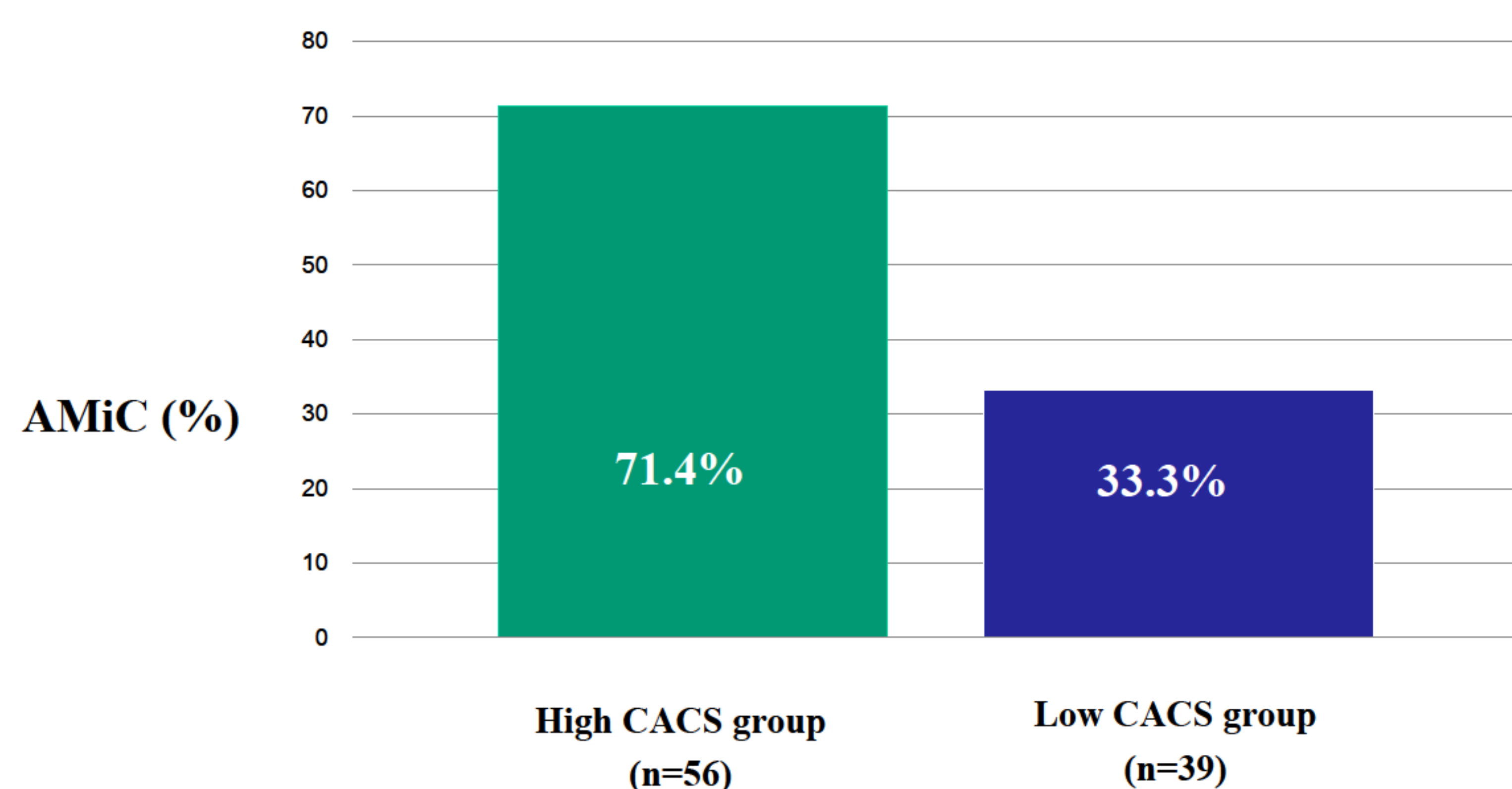
95 HD patients who received vascular access operation were included in this study. The AMC was diagnosed by pathologic examination of arterial specimen by von Kossa stain, which was acquired during the operation. All patients underwent a multi-detector computed tomography (MDCT) imaging procedure and coronary artery calcium score (CACS) was calculated. Patients were classified into two groups, according to the CACS, as high (≥ 100), in 56 patients, and low (< 100), in 39 patients. We compared AMC and several parameters between the patients with high and low CACS groups.

RESULTS

Mean age was 65.4 ± 12.7 years and the male gender was 63.2% (n=60). The incidence of AMC was 55.8% (n=53). The mean CACS was 456.7 ± 697.2 and distributed from zero to 3880. Patients with high CACS group were older (69.6 ± 9.5 vs. 59.4 ± 14.1 , $p=0.007$), and showed a significantly higher prevalence of diabetes mellitus (75.0% vs. 53.8%, $p=0.027$). High CACS group showed high incidence of AMC compared to low CACS group (71.4% vs. 33.3%, $p<0.001$). By binary logistic regression, AMC was independently associated with high CACS (OR: 4.228, 95% confidence interval [CI]: 1.513-11.817, $p = 0.006$).



Mean CACS : 456.7 ± 697.2
Median CACS : 164.8 (0-3880.4)



Multivariate	HR	95% CI	P-value
Age	1.076	1.028-1.0126	0.002
AMiC (+)	4.228	1.513-11.817	0.006

Stepwise multiple regression analysis

CONCLUSIONS

The present study suggests that AMC is closely associated with CAC in incident HD patients.