

Coronary Artery Calcification is a Predictor of Mortality in Renal Transplant Patients, A Follow-up of 8 years

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OBJECTIVES

Compared to general population mortality is significantly increased in renal transplant recipients. In the general population coronary artery calcification (CAC) and its progression is associated with cardiovascular and all cause mortality. We conducted a study to determine the association of CAC with mortality and long term progression pattern of CAC in renal transplant recipient

METHODS

We followed up a published cohort of 178 renal transplant patients. We used multidetector spiral computed tomography to examine CAC. The extend of calcification was measured by Agatston method. We looked at all cause mortality as the primary end point. A second and third scan was performed in 113 of the patients.

TABLE. Factors that were associated with all cause mortality

	Univariate Analysis Hazards Ratios (95%Confidence Interval)	P-value
CAC score	1,002 (1,000-1,003)	0,005
CAC presence(%)	0,129(0,028-0,591)	0,008
Age (years)	1,057(1,009-1,107)	0,019
Gender (male,%)	0,405(0,089-1,849)	0,243
Time on transplantation (months)	1,014(1,006-1,021)	0,000
Living Donor(%)	1,031(0,226-4,705)	0,969
Dialysis vintage (months)	0,996(0,969-1,023)	0,744
History of Cardiovascular Disease (%)	20,775(0,000-8x10 ⁹)	0,734
Rose Angina Pectoris(%)	0,831(0,107-6,434)	0,859
Family history of Cardiovascular Disease(%)	23,266(0,004-128197)	0,474
Smoking History (%)	0,206(0,045-0,941)	0,041
Smoking (pack/years)	1,024(0,989-1,061)	0,178
Current smoker (%)	22,341(0,001-490186)	0,542
BMI (kg/m ²)	1,072(0,947-1,212)	0,273
Diabetes (%)	0,174(0,047-0,646)	0,009
	0,387(0,050-2,999)	0,364
	1,027(0,993-1,062)	0,126
	1,023(0,969-1,080)	0,404
Baseline creatinine (mg/dL)	1,220(0,594-2,506)	0,589
	0,996(0,968-1,025)	0,771
	1,006(0,994-1,018)	0,358
HDL cholesterol (mg/dL)	1,023(0,982-1,066)	0,280
	0,999(0,982-1,017)	0,935
Triglycerides (mg/dL)	1,002(0,996-1,009)	0,486
	0,231(0,082-0,651)	0,006
	1,404(0,605-3,260)	0,430
Parathormone (pg/mL)	1,001(0,998-1,005)	0,485
hsCRP (mg/L)	1,013(0,862-1,189)	0,878
Albuminuria	1,000(1,000-1,001)	0,142

RESULTS

During the follow up of 7.9 ± 1.2 years, 12 patients died. According to Kaplan meier analysis CAC score >100 was associated with worse survival (log rank test $p=0.004$). CAC score was associated with all cause mortality (HR 1.002 (95% CI :1.000-1.003), $p=0.005$) (Table). Follow-up duration for CAC score was 7.0 ± 0.6 years. Progression was observed in 34.5% of patients. Baseline CAC and high triglyceride were independent determinants of CAC progression.

CONCLUSIONS

CAC is a risk factor for all cause mortality in renal transplant recipients and CAC progression continue in the long term follow-up these patients.

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