Subclinical coronary and aortic atherosclerosis detected by magnetic resonance imaging in type 1 diabetes with and without diabetic nephropathy.

BACKGROUND: Patients with type 1 diabetes and nephropathy maintain an excess cardiovascular mortality compared with diabetic patients with normoalbuminuria. We sought to evaluate coronary and aortic atherosclerosis in a cohort of asymptomatic type 1 diabetic patients with and without diabetic nephropathy using cardiovascular magnetic resonance imaging. METHODS AND RESULTS: In a cross-sectional study, 136 subjects with long-standing type 1 diabetes without symptoms or history of cardiovascular disease, including 63 patients (46%) with nephropathy and 73 patients with normoalbuminuria, underwent cardiovascular magnetic resonance imaging. All subjects underwent cardiac exercise testing and noninvasive tests for peripheral artery disease and autonomic neuropathy. Coronary artery stenoses were identified in 10% of subjects with nephropathy (versus 0% with normoalbuminuria; P=0.007). Coronary plaque burden, expressed as right coronary artery mean wall thickness (1.7+/−0.3 versus 1.3+/−0.2 mm; P<0.001) and maximum right coronary artery wall thickness (2.2+/−0.5 versus 1.6+/−0.3 mm; P<0.001), was greater in subjects with nephropathy. The prevalence of thoracic (3% versus 0%; P=0.28) and abdominal aortic plaque (22% versus...
16%; P=0.7) was similar in both groups. Subjects with and without abdominal aortic plaques had similar coronary plaque burden. CONCLUSIONS: In asymptomatic type 1 diabetes, cardiovascular magnetic resonance imaging reveals greater coronary plaque burden in subjects with nephropathy compared with those with normoalbuminuria.