Abstract: 1679

E/e predicts exercise capacity and adverse cardiovascular outcomes in patients with chronic kidney disease

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Background: Patients with chronic kidney disease (CKD) have reduced physical fitness that contributes to the disproportionately elevated risk of cardiovascular disease in this population. Our aim was to assess the association between E/e’ and exercise capacity in CKD patients and the prognostic role of E/e’.

Methods: Patients with Stage 3/4 CKD, without previous cardiac disease were prospectively recruited. Recruited patients underwent transthoracic echocardiogram and exercise stress echocardiogram with assessment of exercise E/e’. Patients were compared, one to one, to age, gender and risk factor matched controls and were followed annually for 5 years for cardiovascular death and major adverse cardiovascular events (MACE). Exercise capacity was assessed as metabolic equivalents (METs) with reduced exercise capacity defined as METs of <7. Raised exercise E/e’ was defined as exercise E/average e’ of >13.

Results: 156 CKD patients (62.8±10.6 yrs, male 62%) were compared to 156 matched controls. CKD patients had higher rates of anemia (p<0.01), larger left ventricular indexed mass (p<0.01), larger LAVI (p<0.01) and higher resting (p<0.01) and exercise E/e’ (p<0.01). Overall, CKD patients achieved lower METs (p<0.01) with exercise and a greater proportion of CKD patients had METs <7 (p<0.01). Receiver operating curves (Figure1) showed exercise E/e’ (AUC 0.89, CI 0.84-0.95, p<0.01) to be the strongest predictor of reduced exercise capacity in CKD patients. Exercise E/e’ of >13 was also associated with higher rates of cardiovascular death and MACE amongst CKD patients.

Conclusion: Exercise E/e’ is a strong predictor of exercise capacity amongst CKD patients, who commonly have reduced exercise capacity presumably consequent to diastolic dysfunction. Raised exercise E/e’ in CKD patients is predictor of cardiovascular death and MACE.

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