CORONARY MICROVASCULAR FUNCTION IS IMPAIRED IN HIGH-RISK PATIENTS WITH CHRONIC RENAL DYSFUNCTION AND NORMAL EPICARDIAL CORONARY ARTERIES: A TRANSTHORACIC ECHOCARDIOGRAPHIC DOPPLER STUDY

Poster Contributions
Poster Sessions, Expo North
Sunday, March 10, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Imaging: Echo - Contrast Echocardiography/Vascular Imaging
Abstract Category: 18. Imaging: Echo
Presentation Number: 1225-330

Authors: Francesco Lo Iudice, Maurizio Galderisi, Stefania Paolillo, Carmen D’Amore, Antonio Parente, Gianluigi Savarese, Caterina Marciano, Irma Fabiani, Angela M. Pellegrino, Laura Casaretti, Pasquale Perrone-Filardi, Federico II University of Naples, Naples, Italy

Background: Endothelial dysfunction is considered a common pathophysiological pathway to chronic kidney disease (CKD) and coronary circulatory dysfunction. However, an association between renal function impairment and peripheral endothelial dysfunction has been reported, no study has investigated the correlation between coronary endothelial function and renal function.

Methods: 55 diabetic and/or hypertensive consecutive patients (33 males, 61±11years) underwent transthoracic echocardiographic coronary flow reserve (CFR) evaluation during cold pressure test (CPT), reflecting endothelium dependent vasodilation, and dipyridamole (Dip) (0.84 mg/kg i.v. in 6 min), reflecting endothelium independent vasodilation, during the same day. Glomerular Filtration Rate (GFR) was estimated by serum creatinine values using Cockroft-Gault formula. All patients had no significant stenosis at coronary angiography performed within one months from enrolment.

Results: In the whole population mean GFR was 87.46±26.50 ml/min. When population was divided in two groups using the median GFR value (85.18 ml/min) as cut-off, patients with GFR above the median had significantly higher values of CPT-CFR (1.61±0.22 vs 1.48±0.23; p=0.03) and Dip-CFR (2.80±0.65 vs 2.34±0.58; p=0.008) compared to patient with GFR below the median. No significant differences were observed between the two groups for major cardiovascular risk factors or other clinical characteristics. Additionally, GFR linearly correlated to Dip-CFR (p=0.03, r=0.29), whereas the correlation between GFR and CPT-CFR was of borderline statistical significance (p=0.057; r=0.261).

Conclusions: Renal dysfunction is associated with impaired microvascular function in high risk hypertensive and/or diabetic patients without significant coronary artery stenosis, and depends on both endothelial and non-endothelial dependent mechanisms. These findings lend further pathophysiological insights to the association between cardiovascular risk and chronic renal dysfunction.