



Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

NON-INVASIVE CORONARY FLOW RESERVE PREDICTS INCIDENT ATRIAL FIBRILLATION

Moderated Poster Contributions

Non Invasive Imaging Moderated Poster Theater, Poster Hall, Hall C
Friday, March 17, 2017, 11:30 a.m.-11:40 a.m.

Session Title: Noninvasive Assessment of Coronary Flow Reserve: Clinical Implications

Abstract Category: 30. Non Invasive Imaging: Nuclear

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Background: Non-invasive coronary flow reserve (CFR) derived from positron emission tomography myocardial perfusion imaging (PET-MPI) is an independent risk factor for cardiovascular morbidity and mortality. However, the relationship between CFR and incident atrial fibrillation (AF) is less clear. The aim of this analysis is to investigate the association between non-invasive CFR and incident AF.

Methods: We included 3,798 patients (mean age 60 ± 11 , Males 56%) free of AF who underwent clinically indicated ^{82}Rn idium PET-MPI between May 2011 and June 2016. CFR was estimated using one compartment model from dynamic reconstruction. Patients were followed for a median duration of 1.8 years for incident AF confirmed on electrocardiogram. Multiple nested Cox proportional hazards regression models were used to examine the independent association of CFR and AF after adjustments for confounders.

Results: In this cohort, there was high prevalence of cardiovascular risk factors: hypertension (84%), diabetes (61%) and dyslipidaemia (75%). The mean CFR of the included patients was 1.9. Over a median follow-up duration of 1.8 years (25th, 75th percentiles 1.0, 2.5), 164 (4.3%) patients developed new AF. In multivariate Cox regression adjusted for age, gender, past history, medications used, ischemia and ejection fraction, CFR (Hazard Ratio 0.64, 95% CI 0.51 -0.81, $p < 0.001$) was an independent predictor of AF. Adding CFR provided incremental prognostic value over the clinical model. (Area under the curve increased from 0.727 to 0.750, $p = 0.010$).

Conclusions: Our results emphasise on the ability of non-invasive CFR from PET-MPI to predict incident AF.

Figure 1 Kaplan Meier Curve shows Patients with $\text{CFR} \leq 1.6$ had increased risk of MACE