



## Heart Failure and Cardiomyopathies

### INSULIN RESISTANCE IS ASSOCIATED WITH ALL-CAUSE MORTALITY AND ACCELERATES THE RISK OF PROGRESSION TO DIABETES IN NON DIABETIC HEART FAILURE PATIENTS

Poster Contributions

Hall C

Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

---

Session Title: Heart Failure and Cardiomyopathies: Prognostic Factors and Determinants of Outcomes in Heart Failure Patients

Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical

Presentation Number: 1261-172

---

Authors: *Mohapradeep Mohan, Harshal Deshmukh, Fatima Baig, Rutherford Lynn, Douglas Elder, nna Maria Choy, Chim Lang, University of Dundee, Dundee, United Kingdom*

**Background:** Heart failure is an insulin resistant state. Insulin resistance is highly prevalent in non-diabetic patients with heart failure. The impact of insulin resistance on the development of diabetes mellitus and mortality has not been fully defined. The purpose of this study was to investigate whether insulin resistance is associated with all-cause mortality in a group of non-diabetic patients with heart failure. We have also investigated the impact of insulin resistance on the conversion to diabetes mellitus in these patients.

**Methods:** Insulin resistance, defined by fasting Insulin resistance index (FIRI $\geq$ 2.7) was assessed in 121 consecutive CHF patients (69  $\pm$  10, 22 % females, 81% ischemic, 61% insulin resistant and FIRI of 4.19  $\pm$  3.8 at baseline) and was followed up for their most recent HbA1c/FPG measurements and mortality data using the electronic linkage system in Dundee, UK. The primary outcome for these cohorts of patients was all cause mortality and secondary outcome was the development of diabetes mellitus. Cox proportional hazard models were used with FIRI as a continuous variable.

**Results:** After a 6.6 years (IQR 4.7-6.9) median follow-up period, 46 (38%) patients died. A cox proportional hazard model adjusted for relevant covariates showed that the degree of insulin resistance, was significantly associated (HR 1.09, CI 95% 1.02- 1.16), p =0.008) with all-cause mortality. Of the 81 patients we followed up for the development of diabetes, 29% of Insulin resistant-heart failure patients developed diabetes, compared to 10% of non-Insulin resistant-CHF patients.

**Conclusion:** In conclusion, higher FIRI relates to higher all-cause mortality in heart failure patients. We also found out that heart failure patients with IR are at high risk of developing diabetes.