Impaired Fasting Glucose: A Predictor of Increased Morbidity and Mortality in Heart Failure Patients

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Background & Objectives: Patients with heart failure (HF) have a poor prognosis. Glucose intolerance and diabetes are increasingly prevalent, are associated with HF and may have an impact on outcome. We evaluated the effect of fasting glucose levels on clinical outcome in patients with HF.

Methods: We evaluated all patients with a diagnosis of HF at Clalit Health Services in Jerusalem. Diabetes was defined if the patient had a diagnosis of diabetes, on glucose modifying medication or with a fasting glucose above 140 mg/dl. Patients without diabetes were divided into quintiles of fasting glucose levels. Patients were evaluated for cardiac related hospitalizations and death.

Results: 6388 HF patients were included. Mean follow-up was 535 days; 50% were males with a mean age of 75±14 years; 72% suffered from IHD, 81% from hypertension and 82% from hyperlipidemia. 52% of the patients (N=3362) had diabetes and 9.3% (N=596) had impaired fasting glucose (IFG) levels between 102-125 mg/dl. Overall survival during the entire follow-up was 83%. Cox regression analysis after adjustment for other significant predictors including age, gender, IHD, hypertension, atrial fibrillation, body mass index, serum hemoglobin, sodium and urea levels demonstrated that patients with diabetes and IFG had a very similar outcome. Both were significant predictors of reduced survival compared to 'normal' glucose levels (fasting glucose levels between 89-101 mg/dl), Figure 1; (Diabetes: HR 1.71, 95% CI 1.21-2.42, P=0.002; IFG: HR 1.70, 95% CI 1.28-2.27, P=0.0003). Diabetes and IFG were also predictors of increased cardiac related hospitalizations (Diabetes: HR 1.27, 95% CI 1.05-1.53, P=0.01; IFG: HR 1.44, 95% CI 1.24-1.67, P<0.0001).

Conclusions: Diabetes and impaired fasting glucose are common in patients with HF and have a significant effect on outcome including survival and hospitalizations. Glucose intolerance including subclinical diabetes confers significant risk in patients with HF.
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