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An analysis based on the combined interim results from two prospective randomized trials, rates of HF hospitalization over more than two years rose in tandem with baseline fasting plasma glucose levels.

Two studies presented at last week's American Heart Association 2006 Scientific Sessions [1,2], suggested that, two common measures of insulin resistance are associated with poor outcomes in a "dose-response" fashion in nondiabetic patients with heart failure,

In one of them, an analysis based on the combined interim results from two prospective randomized trials, rates of HF hospitalization over more than two years rose in tandem with baseline fasting plasma glucose levels in a "high-risk" population of >30 000 diabetic and nondiabetic patients with vascular disease. The association was significant even after adjustment for medical therapies, diabetic status, and other components of the metabolic syndrome, reported Dr Claes Held (Karolinska University Hospital, Stockholm, Sweden).

Similarly, the two-year rate of cardiac death went up significantly and independently with baseline levels of glycated hemoglobin (HbA1C) in a prospective study of several hundred patients with systolic HF. As reported by Dr Nicolas Lamblin (Centre Hospitalier Regional Universitaire de Lille, France), baseline HbA1C levels also seemed to predict severity of HF and other morbidity measures.

"These studies provide further evidence that insulin resistance plays an important role in the risk of developing heart failure and the risk of mortality once heart failure develops." "These studies have important implications for how physicians recognize and manage patients with or at risk for heart failure," stated Dr Gregg C Fonarow (University of California, Los Angeles Medical Center)

Definitions of diabetes are based on degree of glycemia, but patients with glycemic indices below the arbitrary diagnostic thresholds can still be at increased risk for worsening heart failure, according to Held. "I look at glucose levels as I do cholesterol or blood pressure. It seems to be a continuous risk variable." "The lower the better, to a certain limit, of course."

No one is claiming, based on current evidence, that either fasting glucose or HbA1C is a viable target for therapy of heart failure specifically; that would have to be established in prospective, randomized trials, all three researchers emphasized. But both new studies are consistent with research in other populations suggesting that insulin resistance is closely tied to HF progression. [3,4].

For example, both studies are consistent with an analysis from the randomized Heart Outcomes Prevention Evaluation (HOPE) trial in which the risks of CV events, HF, death, and clinically evident nephropathy were each independently associated with rising levels of HbA1C among diabetic patients. In the same study, a mixed cohort of diabetics and nondiabetics showed similar relationships between fasting plasma glucose and the same set of outcomes. Observational studies have long suggested that diabetes is common among patients with HF and may contribute to the syndrome's progression.

Over a mean follow-up of 2.4 years, the hazard ratio for HF hospitalization climbed 5% (95% CI 1.02-1.08, p

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