Obesity is Associated with Increased Risk of Heart Failure among Coronary Heart Disease Patients

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Background: It is unclear whether obesity, recently identified as a risk-factor for heart failure (HF) in the general population is associated with increased HF risk among patients with already established coronary heart disease (CHD).

Methods: 2945 of 3122 CHD patients included in the Bezafibrate Infarction Prevention (BIP) study, free of HF at baseline with body mass index (BMI)≥18.5 kg/m^2, were classified as: normal-weight (BMI: 18.5-24.9; N=704), overweight (25.0-29.9;N=1630), or obese (≥30; N=407).

Results: Obese patients were younger (mean age: 59.1±6.5) compared to their normal weight (60.4±6.8) and overweight (60.0±6.8) counterparts and included a higher percent of women. Hypertension (53% vs. 46% and 35% among over- and normal weight respectively; p<0.0001), and diabetes (12% compared to 9% of either normal or over-weight patients) were more prevalent among obese patients who also had higher glucose, HOMA, or triglycerides levels and lower mean HDL-cholesterol as well as higher CRP levels (geometric mean: 4.5 mg/dl vs. 3.0, 3.6 in normal- and over-weight; p<0.0001). Treatment with beta-blockers, nitrites, calcium antagonists, diuretics and ACE inhibitors was more frequent among obese. Over 8 follow-up years, 510 patients developed HF. Obese patients had higher cumulative incidence of HF compared to normal or over-weight counterparts (Figure). Accounting for the competing risk of death, age adjusted hazard ration (HR) in obese was 1.68 compared to normal-weight (95% confidence interval (CI):1.17-2.42). Further adjustment for sex, diabetes, HDL-cholesterol, glucose, HOMA, smoking, hypertension, pulse pressure, education and CRP attenuated HR to 1.53 (1.05-2.24).

Conclusion: Obesity is associated with increased HF risk among CHD patients.