

Title: Heart failure survival in relation to body mass index

Topic: D - Heart failure

Category: Bedside

Options: Young Investigator Award option (population sciences) [First author under 40 years old]

Trial registration: This analysis uses data from the SurviveHF study. The full SurviveHF protocol was approved by the independent scientific advisory committee (ISAC) to the Medicine and Healthcare products Regulatory Authority (protocol number 18_061R).

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Abstract

Background: People with obesity are twice as likely to develop Heart Failure (HF) compared to people with a healthy body mass index (BMI). However, among people with HF a higher BMI has been linked to a reduced risk of all-cause mortality, particularly in people without underlying ischaemic heart disease

Purpose: To examine the impact of BMI on prognosis in patients with chronic HF among a large prospective primary care cohort.

Methods: We extracted data from the Clinical Practice Research Datalink of primary care records from 1st January 2000 to 31st December 2017 and included 47,531 patients with an incident diagnosis of HF, aged 45 years and over who had a recorded BMI. Patients were stratified into categories of baseline BMI as underweight (BMI <18.5kg/m²), healthy weight (BMI 18.5 to 24.9kg/m²), overweight (BMI 25 to 29.9kg/m²) or obese, with obesity split into class I, II or III as per WHO groupings. The primary outcome was all-cause mortality. We used Kaplan-Meier curves and log rank tests to compare survival in people with HF, based on baseline BMI. We also report a Cox Regression model for risk of all-cause mortality among people with HF between BMI categories.

Results: There were 25,013 deaths during the study follow-up. The average age of participants was 77.08 years (SD 10.6) and mean BMI 27.93 (SD 6.1). In an age and sex adjusted analysis people who were underweight were at increased risk of all-cause mortality compared to people with healthy weight (HR 1.52, 95% CI 1.41 to 1.64). People with overweight (HR 0.81, 95%CI 0.79 to 0.84) or obesity class I (HR 0.79, 95%CI 0.76 to 0.82) and class II (HR 0.78, 95%CI 0.74 to 0.82) were at decreased risk of all-cause mortality. People with obesity class III and no difference in risk of death compared to people with healthy weight (HR 0.95, 95% CI 0.88 to 1.02). In a Kaplan-Meier analysis, there was an inverse relationship between body weight and risk of death, even within the first year of follow-up.

Conclusion: In a large community cohort study of people with HF, we found an inverse relationship between body weight and risk of all-cause mortality. People with HF who are underweight have the poorest prognosis. These results may inform more cautious weight management advice in people with overweight and HF in primary care.