

Title: Hypertension is Associated with High Risk of Heart Failure Mortality

Introduction: Heart failure is a growing public health issue with an estimated prevalence of 4-5 million in the United States. Despite significant advances in heart failure management, the mortality rates remain high. This study aspires to investigate the risk factors that are associated with higher mortality rates in hospitalized patients with heart failure.

Methods: We utilized the 2019 National Inpatient Sample (NIS) dataset sponsored by the Agency for Healthcare Research and Quality (AHRQ). Patients with heart failure (HF) were identified by using Clinical Classifications Software Refined (CCSR) for International Classification of Diseases, Tenth Revision, and Clinical Modification (ICD-10-CM). Variables of interest included complicated diabetes, complicated hypertension, obesity, peripheral vascular disease, long term use of anticoagulation, non-steroidal anti-inflammatory drug, and antiplatelet therapy. Clinical outcomes included HF hospitalizations and effect of the different variables on HF mortality.

Results: A weighted total of 5,675,784 HF related hospitalizations were recorded in 2019. A total of 66,620 (1.5%) had a coronary artery bypass graft, 753,994 (68.9%) had hypertension, 158,850 (2.8%) had a percutaneous intervention, 651,035(11%) had peripheral arterial disease (PAD), and 2,080,710 (36%) had complicated diabetes with end organ damage. The mortality rate per 10,000 HF hospitalizations were analyzed. There were 4,707 deaths due to complicated hypertension as compared to 2,953 in the non-hypertensive population. 2,853 deaths due to intracardiac thrombi were found as compared to 2,208 deaths in patients without intracardiac thrombi. Mortality rate was found to be 1,649 in patients with long term anticoagulant as compared to 2,252 in patients not on anticoagulant. PAD lead to 2,432 deaths per 10,000 as compared to 2,183 deaths in patients without PAD. The mortality rate due to complicated diabetes was 2,368 as compared to 2,122 deaths in non-diabetic patients.

Conclusion: Heart failure leads to a significant number of hospitalizations in the United States annually, as seen in 2019. Among all the factors studied, hypertension was found to be associated with highest risk of mortality. This study emphasizes the importance of strict blood pressure control in decreasing mortality associated with heart failure.