

MINNEAPOLIS HEART INSTITUTE'S
JOURNALSCAN
The Physician's Source for the Latest in Cardiovascular Care Essential to Primary Care Practice

TRENDS IN PREVALENCE AND OUTCOME OF HEART FAILURE WITH PRESERVED EJECTION FRACTION

The prevalence of heart failure with preserved ejection fraction may be changing as a result of changes in population demographics and in the prevalence and treatment of risk factors for heart failure. Changes in the prevalence of heart failure with preserved ejection fraction may contribute to changes in the natural history of heart failure. This study defined secular trends in the prevalence of heart failure with preserved ejection fraction among patients at a single institution over a 15-year period. The study looked at all consecutive patients hospitalized with decompensated heart failure in Olmsted County, Minnesota, from 1987 through 2001, classifying patients as having either preserved or reduced ejection fraction. The patients were also classified as community or referral patients. Secular trends in the type of heart failure associated cardiovascular disease, and survival were defined.

6076 patients with heart failure were discharged over the 15-year period; data on ejection fraction were available for 4596 of these patients (76 percent). Of these, 53 percent had a reduced ejection fraction and 47 percent had a preserved ejection fraction. The proportion of patients with the diagnosis of heart failure with preserved ejection fraction increased over time and was significantly higher among community patients than among referral patients (55 percent vs. 45 percent). The prevalence rates of hypertension, atrial fibrillation and diabetes among patients with heart failure increased significantly over time. Survival was slightly better among patients with preserved ejection fraction (adjusted hazard ratio for death, 0.96; $P=0.01$). Survival

improved over time for those with reduced ejection fraction but not for those with preserved ejection fraction.

The prevalence of heart failure with preserved ejection fraction increased over a 15-year period, while the rate of death from this disorder remained unchanged. These trends underscore the importance of this growing public health problem.

Owan TE, Hodge DO, Herges RM, Jacobsen SJ, Roger VL, Redfield MM. Clopidogrel and Trends In Prevalence And Outcome Of Heart Failure With Preserved Ejection Fraction. N Engl J Med. 2006 Jul 20;355(3):251-9.

OUTCOME OF HEART FAILURE WITH PRESERVED EJECTION FRACTION IN A POPULATION-BASED STUDY

The importance of heart failure with preserved ejection fraction is increasingly recognized. This study evaluated the epidemiologic features and outcomes of patients with heart failure with preserved ejection fraction and compared the findings with those from patients who had heart failure with reduced ejection fraction. From April 1, 1999, through March 31, 2001, 2802 patients were admitted to 103 hospitals in the province of Ontario, Canada, with a discharge diagnosis of heart failure whose ejection fraction had also been assessed. The patients were categorized in three groups: those with an ejection fraction of less than 40 percent (heart failure with reduced ejection fraction), those with an ejection fraction of 40 to 50 percent (heart failure with borderline ejection fraction), and those with an ejection fraction of more than 50 percent (heart failure with preserved ejection fraction). Two groups were studied in detail: those with an

ejection fraction of less than 40 percent and those with an ejection fraction of more than 50 percent. The main outcome measures were death within one year and readmission to the hospital for heart failure.

Thirty-one percent of the patients had an ejection fraction of more than 50 percent. Patients with heart failure with preserved ejection fraction were more likely to be older and female and to have a history of hypertension and atrial fibrillation. The presenting history and clinical examination findings were similar for the two groups. The unadjusted mortality rates for patients with an ejection fraction of more than 50 percent were not significantly different from those for patients with an ejection fraction of less than 40 percent at 30 days (5 percent vs. 7 percent, $P=0.08$) and at 1 year (22 percent vs. 26 percent, $P=0.07$); the adjusted one-year mortality rates were also not significantly different in the two groups (hazard ratio, 1.13; 95 percent confidence interval, 0.94 to 1.36; $P=0.18$). The rates of readmission for heart failure and of in-hospital complications did not differ between the two groups.

Among patients presenting with new-onset heart failure, a substantial proportion had an ejection fraction of more than 50 percent. The survival of patients with heart failure with preserved ejection fraction was similar to that of patients with reduced ejection fraction.

Bhatia RS, Tu JV, Lee DS, Austin PC, Fang J, Haouzi A, Gong Y, Liu PP. Outcome of heart failure with preserved ejection fraction in a population-based study. N Engl J Med. 2006 Jul 20;355(3):260-9.

Comment:

These two studies give further information about the prevalence and outcome of congestive heart failure (CHF) in patients with normal systolic function (formerly known as diastolic heart failure). The large Mayo clinic study found that over a 15 year period (1987-2001), the prevalence of congestive heart failure with preserved systolic function had increased (38% prevalence for the first five years, 54% prevalence for the last five years).

The prevalence of hypertension, atrial fibrillation and diabetes also increased during the same time, suggesting a relationship between hypertension, diabetes and congestive heart failure with preserved ejection fraction.

The Canadian study compared the baseline characteristics (using slightly different categories) of patients with preserved and reduced ejection fractions. The study confirmed that the prevalence of congestive heart failure with preserved ejection fraction increases with age, and is higher in women, overweight and hypertensive patients. This conclusion is of great concern given the trend of an aging, heavier, more hypertensive U.S. population.

Both the Mayo Clinic study and the Canadian study concluded that mortality rates between the two groups (reduced and preserved ejection fraction) were similar. The Canadian study found that for patients admitted to the hospital because of heart failure with decreased ejection fraction, a cardiology consult is mostly requested. But patients with normal ejection fraction are more often treated by family practice doctors. The mortality for patients with preserved systolic function has not improved over the last several years, probably due to lack of specific therapy for heart failure with normal systolic function, except for control of hypertension.

Taken together, both studies show that congestive heart failure with a normally functioning heart is quite frequent. One important bias to recognize is that patients with congestive heart failure and preserved ejection fraction may not have been diagnosed with congestive heart failure ten years ago. Still, the studies are right to recommend that we heed these three warnings of being female, obese and hypertensive. The studies also show there is plenty of room for early detection for patients and physicians. While we cannot prevent people from getting older, we can prevent CHF by early screening of elderly patients who are obese, hypertensive and with diabetes. —Maria Teresa Olivari, MD

###

EDITOR-IN-CHIEF M. Nicholas Burke, MD	MANAGING EDITOR Michelle Croteau	CONTRIBUTING EDITOR Maria Teresa Olivari, MD
<i>Minneapolis Heart Institute's Journal Scan</i> is produced regularly by the Minneapolis Heart Institute. <i>Journal Scan</i> provides expert, practical commentary on breaking cardiovascular research for primary care physicians.		
<p style="text-align: center;">Minneapolis Heart Institute 920 East 28th Street, Suite 300 Minneapolis, Minnesota 55407 Telephone: 612-863-4899 View electronically at www.mplsheart.com/journalscan</p> <p><i>The information in Journal Scan is for educational purposes only, and is not intended to be a replacement or substitution for professional medical care. Only a qualified health care provider can diagnose and treat a health problem or disease. The Minneapolis Heart Institute will not be responsible for the misuse of the information in this newsletter.</i></p> <p>© Copyright 2006 Minneapolis Heart Institute. All Rights Reserved. Minneapolis Heart Institute® is a trademark of Minneapolis Heart Institute, Inc.</p>		