Protein linked to increased risk of heart failure and death in older adults

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A protein known as galectin-3 can identify people at higher risk of heart failure, according to new research supported by the National Heart, Lung, and Blood Institute (NHLBI), part of the National Institutes of Health. This research is based on work from the NHLBI's Framingham Heart Study, which began in 1948 and has been the leading source of research findings about heart disease risk factors.

"Galectin-3, a Marker of Cardiac Fibrosis, Predicts Incident Heart Failure in the Community," will be published online August 29 in the Journal of the American College of Cardiology and in the October 2 print issue.

Heart failure occurs when the heart cannot fill with enough blood and/or pump enough blood to meet the body's needs. Galactin-3 has recently been associated with cardiac fibrosis, a condition in which scar tissue replaces heart muscle, and cardiac fibrosis plays an important role in the development of heart failure.

Heart failure carries enormous risk for death or a lifetime of disability and often there are few warning signs of impending heart failure. Measuring levels of galectin-3 in the blood may offer a way to identify high-risk individuals who could benefit from treatments to prevent debilitating heart failure and death. Early identification of predisposed individuals would allow treatment to begin long before heart failure develops and could help people at high risk for heart failure to live longer, more active lives.

Galectin-3 levels were measured in 1996-1998 as part of a routine examination of 3,353 participants enrolled in the Offspring Cohort of the Framingham Heart Study. At the time of measurement the average age of the participants was 59 years old. During an average follow-up of 11 years, 166 participants (5.1 percent) had a first heart failure event. Among the 25 percent of people with the highest galectin-3 levels (ranging from 15.4 to 52.1 nanograms per milliliter) the annual rate of heart failure was 12 per 1,000 people compared with 3 per 1,000 people for the 25 percent of participants with the lowest galectin-3 levels (ranging from 3.9 to 12 nanograms per milliliter). Fifty-three percent of participants were women.

Spironolactone and other related drugs believed to counteract cardiac fibrosis have been shown to improve outcomes in heart failure patients. Future research will be needed to determine whether treatment with these or other drugs can benefit healthy patients with elevated galectin-3 levels.

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