

Bloomberg news - Gene test to help with CHF
Gene Test May Improve Drug Treatment in Chronic Heart Failure
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By Jeffrey Tannenbaum

July 10 (Bloomberg) -- A variation in a single gene explains why some people with chronic heart failure can benefit from a common type of blood pressure drug and others can't.

Giving an experimental medicine called bucindolol to patients with one gene variant reduced their death rates by 38 percent over four years, a study found. People with a different variation of the same gene didn't gain much benefit from the drug, part of a class of medications known as beta blockers.

The finding may lead to routine genetic testing of heart failure patients to help customize drug regimens to individuals' genetics, researchers said. About 5.5 million people in the U.S. have chronic heart failure, a condition in which the heart becomes less efficient at pumping blood.

"This is one of the advances that will lead to tailored therapy," said the lead researcher, Stephen Liggett, 51, a professor of medicine and physiology at University of Maryland School of Medicine in Baltimore, in a telephone interview today. "It has been one-drug-fits-all, and that's not realistic."

The study is published in the Proceedings of the National Academy of Sciences.

The studied gene variation, called the Arg/Gly 389 polymorphism, appears to affect the body's response to bucindolol, the researchers wrote. The variance occurs in the beta-1 adrenergic receptor, the target for beta blockers.

About 50 percent of patients die of the disease within five years, said Michael Bristow, 60, chief executive officer of Arca Discovery Inc., which makes bucindolol. The study implies that patients who benefit from the drug because of their genetics may have a 50 percent chance of living seven years, Bristow said.

Application

Arca, a closely held company based in Denver, will file an application to market the drug with the U.S. Food and Drug administration, said Bristow, who is also a professor at the University of Colorado Medical School in Denver, in a telephone interview today.

Liggett said he didn't know how much genetic tests for heart failure patients might cost. Tests can be helpful because now it can take several months to determine if a particular beta blocker is working in a patient. One in five patients dies within a year of diagnosis, adding urgency to the task of choosing suitable drugs, Liggett said.

Such tests will probably be developed for other beta blockers as well, he said.

Customizing drugs on the basis of genetics is called pharmogenetics and already has yielded new therapies in asthma, childhood leukemia and breast cancer. Scientists say the field is growing as researchers try to exploit new genetic knowledge by targeting drugs at specific gene variations.

Drug's History

Arca's bucindolol was invented at Bristol-Myers, now New York-based Bristol-Myers Squibb Co., Bristow said. Later, a company called Incara -- now Aeolus Pharmaceuticals Inc., based in Research Triangle Park, North Carolina -- tried to develop the medicine as a treatment for heart failure.

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Bristow said Incara gave up the effort after a study, reported in the New England Journal of Medicine in May 2001, compared patients taking the drug with those on a placebo and found no significant difference in the mortality rate.

In November 2003, Bristow founded Arca to take over development of the drug.

This January, the company raised \$15 million from investors including Waltham, Massachusetts-based Atlas Venture, Boulder, Colorado-based Boulder Ventures and New York-based Pequot Capital Management Inc., Bristow said.

If Arca succeeds in getting clearance to market the drug, the venture would have at least five years of exclusivity, although the basic patent on the drug has expired, Bristow said.

--Editor: Gale.

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