

Gender differences and heart disease

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Women may respond less favorably than men to cardiovascular disease (CV) drug-treatments for enlarged heart, according to New York-Presbyterian Hospital/Weill Cornell Medical Center physician-scientists.

For the first time, researchers have uncovered that women derive a lesser benefit than men from two common high-blood-pressure-lowering drugs -- losartan and atenolol -- for the reduction of left-ventricular hypertrophy (LVH). The condition is a thickening and enlargement of muscle of the left ventricle of the heart and a marker for future heart disease. The observations were made despite results showing that blood pressure reduction was similar between genders.

These important findings might explain how this underlying condition puts women at greater risk for heart disease later in life. CV is the leading cause of death in Western countries in both sexes. However, following a period of relative protection, before menopause, a woman's risk becomes significantly larger.

"Women have a greater chance of dying of their first heart attack and from stroke, and they tend to have more cardiovascular problems later in life compared with men," says the study's lead author, Dr. Peter M. Okin, a noted cardiologist at New York-Presbyterian/Weill Cornell and professor of medicine in the Greenberg Division of Cardiology at Weill Cornell Medical College in New York City. "Certain tell-tale indicators of high-blood pressure, like LVH regression, clearly show that men and women do not respond the same to hypertension drugs."

The study and a significant accompanying editorial were just published in *Hypertension*, the journal of the American Heart Association.

Over a five-year follow-up, men and women demonstrated similar outcomes in lowering their blood pressure while on either losartan- or atenolol-based treatment. However, the degree in reduction in LVH was significantly greater in men than women enrolled in the notable Losartan Intervention For Endpoint reduction in hypertension (LIFE) Study. The original study examined over-all blood pressure, but did not examine how LVH differed between men and women taking the drug.

"LVH is a very serious condition. When the heart's muscle is thicker than it should be, the heart has to work harder," says Dr. Okin. Symptoms of LVH include shortness of breath, chest pain, dizziness, irregular heartbeat and fainting.

"But, there may no be signs or symptoms of LVH for many years, or never at all, making screening with electrocardiography essential," explains Dr. Okin.

The researchers studied electrocardiograms of 9,193 subjects enrolled in the LIFE study. They found that as the five-year follow-up period progressed, the difference of LVH reduction between men and women significantly widened, even though hypertension continued to fall in both genders.

Dr. Okin and his team found that women faired worse when comparing two different measures -- the Cornell product and Sokolow-Lyon voltage -- that assess the magnitude of LVH from the study's beginning to end. The results show that women are 32 percent less likely than men to have a greater reduction of LVH for their Cornell product score. Also, women were found to be 15 percent less likely than men to have had any LVH-regression, based on their Sokolow-Lyon voltage score. The research

team controlled for age, race, body mass index, diabetes, smoking and history, and for various known causes of heart disease, like high cholesterol.

"The observed difference in LVH regression, together with the greater prevalence of LVH, might contribute to the explanation of the steeper increase in the risk of CV events with aging in hypertensive women," state the authors of the accompanying editorial.

Source: New York- Presbyterian Hospital

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