Like Sex Organs, Hearts May Have A Gender, Too

By Nicholas Staropoli — October 21, 2015

Men and women are different -- that's not a novel idea, nor is it a revolutionary statement. And I'm not talking about the "Men are from Mars, Women are from Venus" differences, but anatomical and physiological ones.

The effects of having different sex chromosomes and very different endocrine systems, among others, results in men and women developing, growing, and functioning very differently. It should also be no surprise that the two sexes also are affected by diseases differently, and that each ages differently, too. From a conceptual standpoint, none of this is shocking.

And while men and women clearly have different sex organs, what about other organs? Science has assumed that kidneys and lungs have no gender, but this may not necessarily true. All of this begs the question: Are all organs dissimilar by gender?

Data has shown that men and women are affected differently by conditions like heart disease, so it does seem possible that the female heart is different than the male heart. And in fact, according to a new study, this is the case.

Researchers from Johns Hopkins have a new paper out in the journal [1] Radiology that describes structural changes in the heart for each sex as the organ ages.

For both sexes, it has long been known that the left ventricle (which pumps blood to the body) supplies less with age, but how this occurs is now in question. The team used MRIs that provided 3-D images of the about 3,000 participants aged 50 to 94, for 10 years. Over this period they found that, on average, men added about eight grams of muscle in the walls of their ventricle, while women's muscle decreased by an average of 1.6 grams.

Thicker heart muscles and smaller chambers are red flags for possible heart failure, but this study suggests the etiology, or cause of disease, maybe different for each sex. This could mean that the treatments should be different, too.

The study also highlights a major problem in science and clinical trials: they are too male centric [2]. It's important to consider that only about a third of cardiovascular clinical trials are female-based,
and that more than two thirds of those that do include women don't report results by sex. Statins were extensively studied in men, but the evidence they benefit women is limited, while the evidence that they negatively effect women differently [3] than men is mounting.

But it's not just about cardiovascular studies, since this deficiency occurs in other fields of study as well. Women are twice as likely as men to suffer from depression, yet less than half (45 percent) of lab-based studies on depression and anxiety use female lab animals. In fact, many diseases that impact women at a higher rate than men -- like multiple sclerosis -- are rarely studied in female models. Also, women in general experience more side effects from drugs than men.

The situation is changing slowly, in part because of new regulations that require studies conducted by the National Institutes of Health to include women. However, clinical trials performed by private companies aren't bound by this requirement.

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