
Cardiac Resynchronisation's Gender Bias



Biventricular pacing, also known as cardiac resynchronisation therapy (CRT), is used to improve cardiac rhythm in heart failure patients. Ultimately, CRT can lower the number of hospitalisations and the risk of death in such patients. A new study in JAMA Internal Medicine reveals that women may benefit more than men from CRT-D, in which CRT is combined with a defibrillator implantation. Since the participants in many cardiovascular therapy trials are predominantly male, the results have important implications for the consideration of gender during the development of cardiovascular diagnosis and treatment guidelines.

Gender Considerations

Sex-specific differences in cardiovascular disease (CVD), and differences in the way cardiac devices are used by male and female patients, are not always considered in trials of heart failure therapies. A group of researchers at the US Food and Drug Administration's Center for Devices and Radiological Health, led by Robbert Zusterzeel, MD, examined data from three large trials to determine whether there were gender differences in the outcomes of male and female patients with left bundle branch block (LBBB).

Specifically, the researchers were interested in any benefit resulting from CRT-D at a shorter QRS duration than those described in recent Class I indication guidelines (150 milliseconds or longer). QRS refers to the part of the EKG trace corresponding to ventricular depolarisation. The authors found that neither sex benefitted from CRT-D with a QRS below 130 milliseconds, but women had an advantage over men in LBBB patients with a QRS of 130 to 149 milliseconds. There was no significant benefit for men, but women had a 76 percent reduction in heart failure or death, and a 76 percent reduction in death alone.

Trial Representation

To conduct their study, the researchers used data from trials of CRT-D versus implantable cardioverter defibrillator (ICD) therapies in patients diagnosed with mild heart failure. Importantly, women are often underrepresented in such trials, comprising approximately 20 percent of participants. Thus, although CRT-D is being shown to help women more than men under certain circumstances, women are less likely than men to receive the therapy.

In a commentary related to the study and published online in the same issue of JAMA Internal Medicine, a separate group of researchers underscore the relevance of the new findings. "These results also shed light on a major contributor to the misdiagnosis and suboptimal treatment of CVD in women: guidelines are typically based on a male standard and do not address important differences in women," wrote C. Noel Bairey Merz, MD, from Cedars Sinai Heart Institute in Los Angeles and Vera Regitz-Zagrosek, MD, from Charite University Medicine in Berlin.

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[Source: JAMA](#)

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