



The challenge of treating diastolic heart failure

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Editorial

Heart failure is a debilitating disease that has a poor prognosis, and has placed a huge burden on the health care system. However, despite this grim situation, there is cause for optimism, as over the past three decades significant advances have been made in the treatment of heart failure patients presenting with a reduced left ventricular ejection fraction (systolic heart failure). This has helped to improve the outcomes of patients with systolic heart failure significantly. It should be recognized, however, that approximately 50% of heart failure patients present with diastolic heart failure and have a normal left ventricular ejection fraction (sometimes referred to as heart failure with preserved left ventricular ejection fraction). Despite having normal ejection fractions, the morbidity and mortality associated with diastolic heart failure is similar to that of systolic heart failure [1]. Equally disappointing is that while advances have been made in treating systolic heart failure, similar advances have not been made for treating diastolic heart failure. Added to this problem is that patients with diastolic heart failure are less likely to receive the same intensity of primary and specialized care as patients with systolic heart failure [2]. The recognition of this problem has resulted in a recent increased interest in obtaining a better understanding of what causes and contributes to the development of diastolic heart failure, as well as what potential therapeutic strategies could be used specifically to treat diastolic heart failure. In this issue of *Heart and Metabolism* we address the important area of diastolic heart failure.

The Case Report presented by Dr Alda Huqi gives a good example of how a patient with diastolic heart failure presents. In the Main Clinical Article of this issue, Professors Lyons and Ezekowitz nicely highlight what therapeutic options exist for treating diastolic heart failure, and some of the new treatments that are emerging. As we understand better the underlying pathology of diastolic heart failure, the promise of new therapies being developed that target this pathology is emerging. The Basic Article by Professors Jagdip Jaswal and John Ussher addresses what is known about the pathology of diastolic heart failure, and compares the risk factors for both systolic and diastolic heart failure. While many of these are the same, there are important differences between these two forms of heart failure. These include differences in myocardial fibrosis and cardiac energetics that may provide potential therapeutic targets for the management and treatment of diastolic heart failure. As relaxation of the heart muscle is a problem in diastolic heart failure, targeting the processes that control cardiac relaxation may also be an option. The Refresher Corner article by Professors Natasha Fillmore and Gary Lopaschuk reviews how the heart relaxes. This includes the important role of calcium and ATP in this process. Alterations in ATP

supply/use are also evident in diastolic heart failure. This provides an opportunity to optimize energy metabolism as an approach to treat diastolic heart failure. The New Therapeutic Approaches article by Professor Siddiqi and colleagues addresses this issue, and discusses some of the data emerging in the area of fatty acid oxidation inhibition as an approach to treat diastolic heart failure. This includes using the fatty acid oxidation inhibitor trimetazidine as an approach to treat heart failure. The Focus on Vasteral article by Professor Noelia Signoretta and colleagues supports this concept, and reviews recent meta-analyses showing that the use of trimetazidine in heart failure patients may provide significant benefit in lessening the symptoms and severity of heart failure. Finally, the Hot Topic article by Dr Alda Huqi challenges some the existing paradigms as to how we assess coronary artery disease, which is a leading cause of heart failure.

As diastolic heart failure is increasingly being recognized as a distinct and common disease entity, an

increased research effort is needed to understand this disease. The articles in this issue of *Heart and Metabolism* help provide a better understanding of the entity of diastolic heart failure. They also highlight the need to develop new therapeutic approaches to diagnose and treat diastolic heart failure, which hopefully will ultimately lessen the burden of this terrible disease on society. •

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References

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