

# Heart failure in real life



**Michael Marber, FRCP, FACC, PhD**  
BHF Center of Research Excellence, Cardiovascular Division, The Rayne Institute, St Thomas' Hospital, London, United Kingdom

Correspondence: Michael Marber, BHF Center of Research Excellence, Cardiovascular Division, The Rayne Institute, St Thomas' Hospital, London, SE1 7EH, United Kingdom  
E-mail: mike.marber@kcl.ac.uk

This issue of *Heart and Metabolism* is dedicated to heart failure in the real world and highlights the everyday problems faced in the identification of this syndrome and in its effective management. These issues are complex, so when the manuscripts arrived, I was amazed at their clarity. A good place to start is at the beginning: How do we diagnose heart failure?

Dr Cowie provides a comprehensive overview of the assessment of the breathless patient, offering a mixture of guideline pragmatism and personal opinion. The article is divided by mode of presentation—chronic breathlessness in the community/primary care setting versus acute breathlessness in the emergency room. Assessment in the community is particularly difficult due to the nonspecific nature of heart failure symptoms of breathlessness, fatigue, and ankle edema. Although a careful history and clinical examination are important, it is sobering how the use of B-type natriuretic peptide (BNP) dominates the guidelines; I think this probably reflects the difficulty in standardizing the clinical assessment of heart failure rather than indicating the infallibility of BNP. As Dr Cowie points out, the use of BNP is also problematic, as its concentration varies continuously across those with and without a heart failure diagnosis; therefore, any single cut-off value faces a sensitivity versus specificity conundrum. As a consequence, the European Society of Cardiology (ESC) guidelines mandate a cut off at a relatively low concentration, which provides a high sensitivity for rule-out, but low specificity for rule-in. This makes

clinical assessment crucial, especially because the diagnosis of heart failure with preserved ejection fraction is not straightforward, even after echocardiography (see issue 71 of *Heart and Metabolism* where we address this topic). In my own practice, these patients (BNP above rule-out threshold but no severe left ventricular [LV] systolic or diastolic dysfunction on echocardiography) are very common and difficult to manage. Since they don't meet the inclusion criteria for any of the trials showing a benefit with angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor–neprilysin inhibitors (ARNI),  $\beta$ -blockers, or mineralocorticoid antagonists, treatment is based on improving symptoms. My own approach, if I think heart failure may be contributing to symptoms, is a short “diagnostic trial” of treatment with diuretics. Often, these patients have coincident chronic obstructive pulmonary disease that results in the same symptoms being treated in different specialist outpatient clinics. As Dr Cowie points out, exactly the same challenge occurs when patients present acutely, as chest sepsis also elevates BNP; all too often, the “solution” is treatment with “Lazycillin”—a concatenation of Lasix (furosemide) and cillin (antibiotic), a term used to tease the junior staff over their decision-making process—or “Lazyheparocillin” (when heparin is added because the D-dimer is also elevated). Thus, any investigation that can increase the specificity of diagnosis and help select an appropriate therapy would be very useful.

In the Hot Topics article, Dr Scali comes to the rescue and introduces the use of lung ultrasound in

the emergency room to differentiate between cardiac and pulmonary causes of breathlessness. Here, “comets,” also known as watery B-lines, appear on lung ultrasound as linear echogenic structures. They have a high sensitivity and specificity for a heart failure diagnosis, but it is unclear if they add to the diagnostic power of BNP. What is interesting, however, is the migration of diagnostic imaging to the emergency room setting with emergency physicians skilled in screening echocardiography (to complement focused assessment with sonography for trauma [FAST]) and computed tomography [CT] coronary and pulmonary angiography, all improving the appropriateness of referral to cardiology.

The diagnosis of heart failure can be difficult, as can its treatment; this is particularly the case when trying to resolve the fluid overload associated with congestive cardiac failure. I found that the article by Dr Goldsmith offered a new way of looking at the hemodynamics of renal glomerular filtration. Moreover, the concepts of renal preload and afterload are familiar to us as cardiologists. This article forces us to think of the pressure gradient across the glomerulus both in terms of systemic arterial pressure (as a surrogate for renal arterial pressure) and central venous pressure (as a surrogate for renal venous pressure). I always thought it a bit odd how patients with fluid overload, high central venous pressure, and acute kidney injury can paradoxically show an improvement in renal function with intravenous furosemide. The paradigm presented by Dr Goldsmith provides a clear explanation of this scenario and the trade-offs between arterial and venous pressure from the perspective of the kidney. This provides a very useful framework for managing these complex patients, especially when tight ascites exerts an additional external pressure on the system.

Preventing readmission is the topic of the article by Drs Ziaei and Fonarow. They emphasize the high mortality and readmission rates after hospital discharge with a diagnosis of heart failure. They also point out that readmission within 4 weeks is used as a penalizing metric in a number of health care systems, despite the fact that the reasons for early readmission are multifactorial and not necessarily cardiac or even health related. As a consequence, a holistic approach to discharge planning must be taken. In addition, readmission rates can be reduced by early review and through use of other measures to monitor patients, including implantable devices. Ultimately, since approximately half of early readmissions are noncardiac, it is unclear if readmission from any cause is a valid quality metric. As Drs Ziaei and Fonarow point out, it may inadvertently financially penalize those communities where need for health care investment is greatest, since increased probability of readmission is associated with lower socioeconomic status. Since heart failure is such a common condition, which degrades the individual’s quality and quantity of life, as well as the health economy, shaping the care system with the correct incentives is crucial.

Drs Tschöpe and Pieske introduce the topic of heart failure with mid-range ejection fraction and the rationale for its inclusion in the latest ESC guidelines. In large part, this is to foster research and debate. Finally, Dr Lopaschuk provides a summary of the metabolic disturbances that occur within the myocardium in heart failure, and Dr Rosano, an overview of how they can be corrected by metabolic therapies, such as trimetazidine, which improves cardiac function and reduces hospital readmission with heart failure. What is clear from this issue is that we still have a long way to go and urgently require better diagnostic tests and therapies for this common condition. ■