

Editorial

Innovations and challenges across the heart failure spectrumPaulino Alvarez^{1,2}, Alexandros Briasoulis^{3,4,*}¹Department of Cardiovascular Medicine, Heart, Vascular, and Thoracic Institute, Cleveland Clinic, Cleveland, OH 44195, USA²Division of Heart failure and Cardiac Transplantation, Cleveland Clinic, Cleveland, OH 44195, USA³Division of Heart Failure and Transplant, University of Iowa Hospitals and Clinics, Iowa, IA 52242, USA⁴Department of Clinical Therapeutics, National and Kapodistrian University, 11528 Athens, Greece*Correspondence: alexbriasoulis@gmail.com; ALVAREP3@ccf.org (Alexandros Briasoulis)

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Heart failure is a global problem that affects 38 million patients around the world [1]. Regardless of the etiology, patients with heart failure experience limitation of their functional capacity, symptoms related to congestion and/or low output, a decrease in quality of life and a reduction in their life expectancy [2]. Given that ischemic heart disease and hypertensive heart disease are the most common causes of heart failure prevention and treatment of those conditions are essential to reduce its incidence [3]. Once structural heart abnormalities and symptoms develop prevention of congestion, initiation of guideline directed medical therapy, use of devices and timely referral for advanced heart failure therapies become the focus to improve clinical outcomes [4].

The trajectories of heart failure patients are heterogeneous. Because of that personalized follow up is necessary [5]. The COVID-19 pandemic changed the landscape of medicine forever. Social distancing and the fear of turning health care facilities as virus transmission hubs motivated a drastic reduction in in-person encounters [6]. In this context telemedicine has evolved as a necessary tool in everyday practice and chronic disease management systems in heart failure are an excellent platform for its implementation. In this issue we discuss principles of application of tele monitoring to maximize patient trajectory tracking and minimize in person visits [7].

Advances in the last decade has defined the four pillars of pharmacological therapy in heart failure with reduced ejection fraction [4]. The implementation of quadruple therapy (Heart failure specific beta-blocker + ARNI or ARB or ACEI) + Aldosterone Blocker + SGLT-2 inhibitor) has shown a consistent improvement in survival [8]. However elderly patients and those with advanced renal disease have been unrepresented from pivotal clinical trials. Kolben *et al.* [9] will discuss the considerations in the implementation of those therapies specific patient population.

Pulmonary hypertension is associated with increased mortality in heart failure. No specific therapies for Group 2 pulmonary hypertension have been approved [10]. Functional mitral regurgitation is associated with increased mor-

talidity in patients with heart failure [11]. Functional mitral regurgitation is a disease of the left ventricle and GDMT is the first step in treatment [12]. Percutaneous repair of the mitral valve has a Class 2A, LOE B recommendation for patients with heart failure, LVEF <50% with severe chronic secondary MR and persistent severe symptoms in spite of optimal medical therapy [13]. Mandurino-Mirizzi *et al.* [14] will tackle the complex interaction of percutaneous edge to edge repair, mitral regurgitation, pulmonary hypertension and possible future directions.

Atrial fibrillation is the most common type of arrhythmia in heart failure, is associated with worse prognosis [15]. Since the introduction of pulmonary vein isolation by Haisaguirre *et al.* [16] the procedure and technical advances have evolved and the center of gravity has been moving from medical therapy and rate control to interventional therapy and rhythm control. This approach has translated not only in nicer EKGs but in improvements in clinical outcomes with reductions in hospitalizations and mortality [17]. Cardiovascular implantable electronic device (CIED) such as implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy (CRT) are part of the armamentarium to decrease mortality in heart failure. However those devices are not free from complications and advances in patient selection to improve the risk/benefit ratio of the device selection is necessary. Sohrabi *et al.* [18] will guide us in the current implementation of electrophysiological therapies in our heart failure patients.

In patients with refractory symptoms advanced heart failure therapies and palliative care should be considered. Tatum *et al.* [19] describe the amazing evolution of durable mechanical support that motivated changes in the heart allocation policy and the consequences of those changes in the future of durable mechanical support.

Our hope is that this issue Reviews in Cardiovascular Medicine will motivate new questions and applications for the benefit of our patients.



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Conflict of interest

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