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Special issue on diagnosis and management of heart failure

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EDITORIAL

Special issue on diagnosis and management of heart failure

We have already had the opportunity, in previous issues, to address heart failure (HF) [1–4]. This issue of Acta Cardiologica is devoted to the diagnosis and management of this complex clinical syndrome caused by various heart diseases. HF is best defined as a condition in which patients have symptoms of HF, typically dyspnoea at rest or during exertion, and/or fatigue; signs of fluid retention, such as pulmonary congestion or ankle swelling; and objective evidence of abnormality of the structure or function of the heart. The evaluation of symptomatic patients with suspected HF is directed at confirming the diagnosis, determining the cause, identifying concomitant illnesses, establishing the severity of HF, and guiding therapy [2,5].

Currently, classification of HF is based on the presence/severity of symptoms and calculated left ventricular ejection fraction (LVEF) [2]. Clinical diagnosis of HF with preserved (p) LVEF remains challenging. The HFA-PEFF and H_2FPEF scores have been developed to diagnose HFpEF. Wang et al. evaluated the value of these scores in 319 patients hospitalised with shortness of breath. They showed that both scores may be used to effectively rule out or confirm HFpEF. However, there are three fifths and one third patients in the H_2FPEF score and the HFA-PEFF Step E score respectively in the intermediate scores who are needed further invasive catheterisation or exercise stress tests [6]. Cardiopulmonary exercise testing (CPET) is used to measure the degree of exercise intolerance, and can be easily repeated to assess the impact of treatment [7]. Invasive cardiopulmonary exercise test (iCPET) is also a useful tool for identifying the cause of unexplained dyspnoea. It can be helpful in early recognition and prognostication of patients with HFpEF and pulmonary hypertension. It has also shown to be beneficial for constructing a multidisciplinary approach to chronic dyspnoea (Figure 1) [8].

The goal of therapy for chronic HF is to improve symptom management and quality of life, decrease hospitalisations, and decrease overall mortality associated with this disease. The core foundational medication classes for HFrEF includes a renin-angiotensin system inhibitor (such as an angiotensin receptor neprilysin inhibitor (ARNI), angiotensin-converting enzyme (ACE) inhibitor, or angiotensin II receptor blockers (ARB)), a beta-blocker, a mineral corticoid receptor antagonist (MRA) and a sodium-glucose co-transporter 2 Inhibitor (SGLT2i) [2,5]. The most recent drugs added to the therapeutic armamentarium for the treatment of HF are SGLT2i(s). Introduced initially as oral hypoglycaemic agents, Canagliflozin, Dapagliflozin, and Empagliflozin are the 3 recent drugs in this class which selectively block the SGLT2 receptors in the proximal convoluted tubule of the kidney, promote glycosuria, and help in glycemic control. Randomised clinical trials, observational studies, and meta-analysis have shown that SGLT2i reduce the risk of hospitalisation for HF, chronic kidney disease (CKD) progression, and mortality in patients with HF, irrespective of the presence of type 2 diabetes mellitus [9]. In their study, Iacoviello et al. examined the prevalence of DAPA-HF (Dapagliflozin and Prevention of Adverse Outcomes in Heart Failure) inclusion criteria in a population of 4683 HFrEF patients enrolled in the Italian Network on Heart Failure (IN-HF) registry. Overall, 3415 IN-HF patients matched the 4744 patients in DAPA-HF, overlapping for most baseline characteristics (e.g. similar average LVEF), with a slightly lower prevalence of type 2 diabetes and of HF ischaemic aetiology and a higher percentage of NYHA class II patients. The theoretical eligibility to DAPA-HF in a cardiology setting resulted to be 73% (Figure 2) [9].

Acute heart failure (AHF) is common and associated with significant morbidity and mortality [1,2]. The risk of HF hospitalisation is augmented by the possibility of COVID-19 exposure [10]. Outpatient based management of AHF may be associated with more days alive out of hospital [11]. Cardiac rehabilitation (CR) in indicated in patients with HF and has shown to improve patients' recovery, functional capacity, psychosocial well-being, and health-related quality of life [12]. The COVID-19 pandemic has put tremendous pressure on healthcare systems. Most centres have adopted different triage systems and procedural strategies to serve highest-risk patients first and to minimise the burden on hospital logistics and personnel [13–16]. As an illustration, telerehabilitation has been commonly promoted with promising results in patients with HF [15,16]. In their editorial, Galli et al.

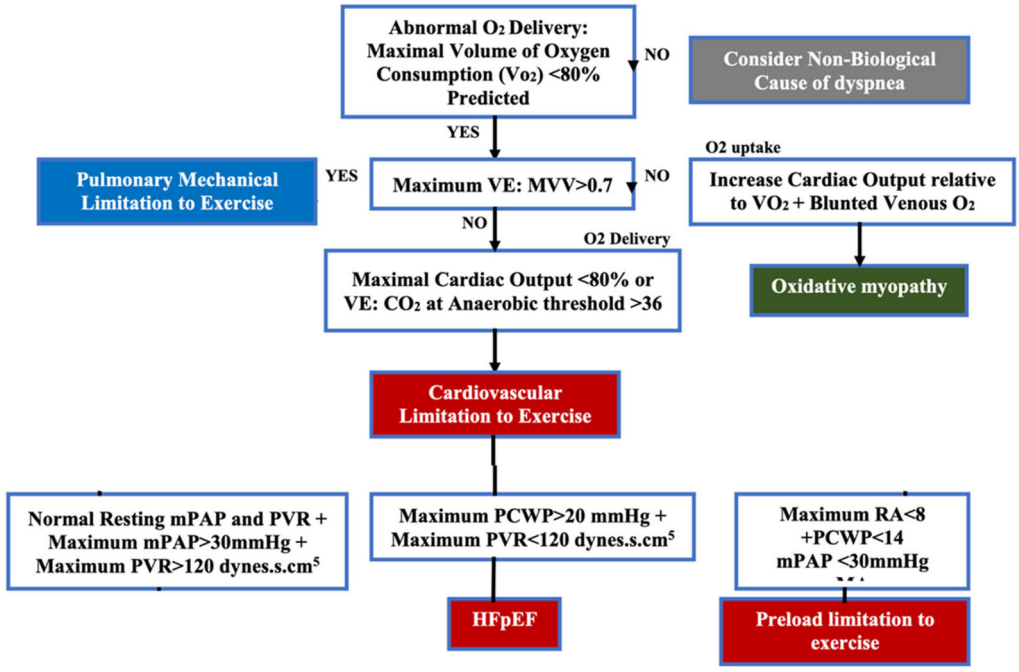

Figure 1. iCPET Diagnostic approach and clinical interpretation. iCPET: Invasive cardiopulmonary exercise test; VE: Minute ventilation; MVV: Ventilatory; capacity; VO2: Oxygen consumed; mPAP; mean pulmonary arterial pressure; PVR: Pulmonary vascular resistance; PCWP: Pulmonary capillary wedge pressure; RA: Right atrial; PAH: Pulmonary arterial hypertension; HFpEF: Heart failure with preserved ejection fraction (from [8]).

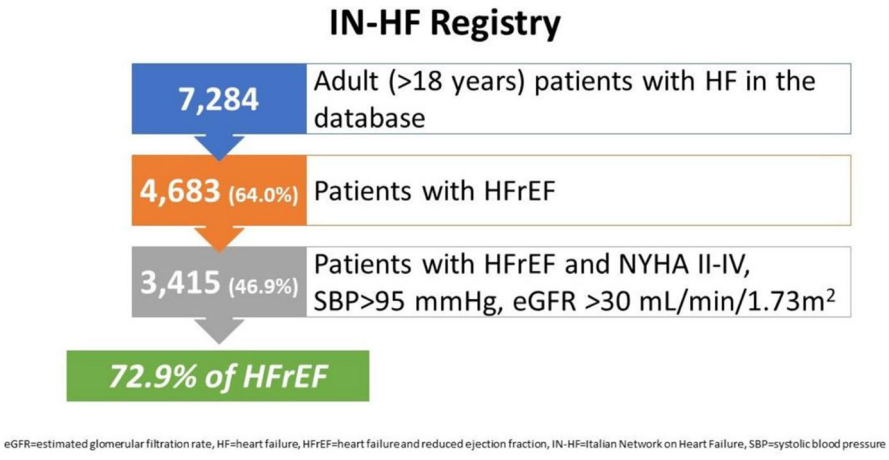

Figure 2. in-HF Outcome registry patient distribution before and after applying DAPA-HF inclusion and exclusion criteria (from [9]).

elegantly discussed Angellotti's paper concerning the management of aortic stenosis (AS) patients needing transcatheter aortic valve implantation (TAVI), from a country that was severely impacted by the pandemic [13,14]. An interesting point in the organisation of this Italian tertiary care centre consisted of the ability to take care of severe patients with AS, so that clinical evaluation, coronary angiography and imaging analysis (echocardiography, scanner) were performed in one day and the intervention scheduled in a short period of time (maximum 72 h), if the patient was eligible for TAVI [14]. Although TAVI is a well-established treatment in AS,

long-term outcomes, including valve durability and the need for reoperation, remain a matter of discussion, particularly in younger or low-risk patients. Several randomised trials have shown the non-inferiority or even the superiority of TAVI compared to the surgical aortic valve replacement (SAVR). In their meta-analysis, Park et al. aimed to compare clinical outcomes after TAVI and SAVR over 5 years stratified to low, intermediate, and high surgical risks and subsequently performed meta-regression to examine the yearly trend of these outcomes. Intriguingly, TAVI was associated with increased all-cause mortality at longer follow-up periods, regardless of surgical risk (Figure 3) [17].

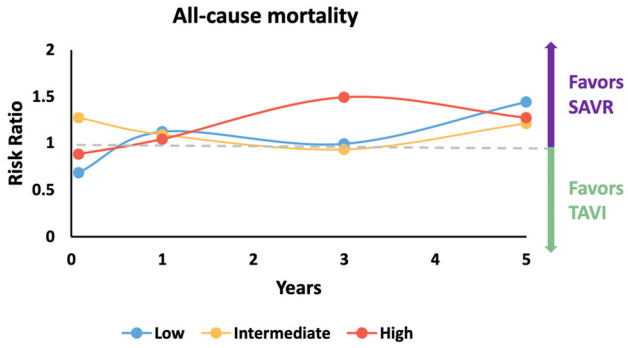

Figure 3. Timeline of primary outcomes stratified to surgical risk. Risk ratio above 1 (represented by gray dotted lines) favours SAVR over TAVI (from [17]).

Sleep apnoea has an increased prevalence in patients with HF and is associated with increased mortality. In their study, Abd Elghany et al. reported that obstructive sleep apnoea was significantly associated with ventricular remodelling and cardiac dysfunction [18]. Mohammad et al. examined the importance of pathological Q waves in children with acute myocarditis and reported that these patients required close monitoring and intensive treatment as this was accompanied by more serious complications and poorer outcomes [19]. In this issue of Acta Cardiologica, several focus images highlighting interesting cases have also been reported (Figures 4 and 5) [20–23].

Disclosure statement

No potential conflict of interest was reported by the author(s).

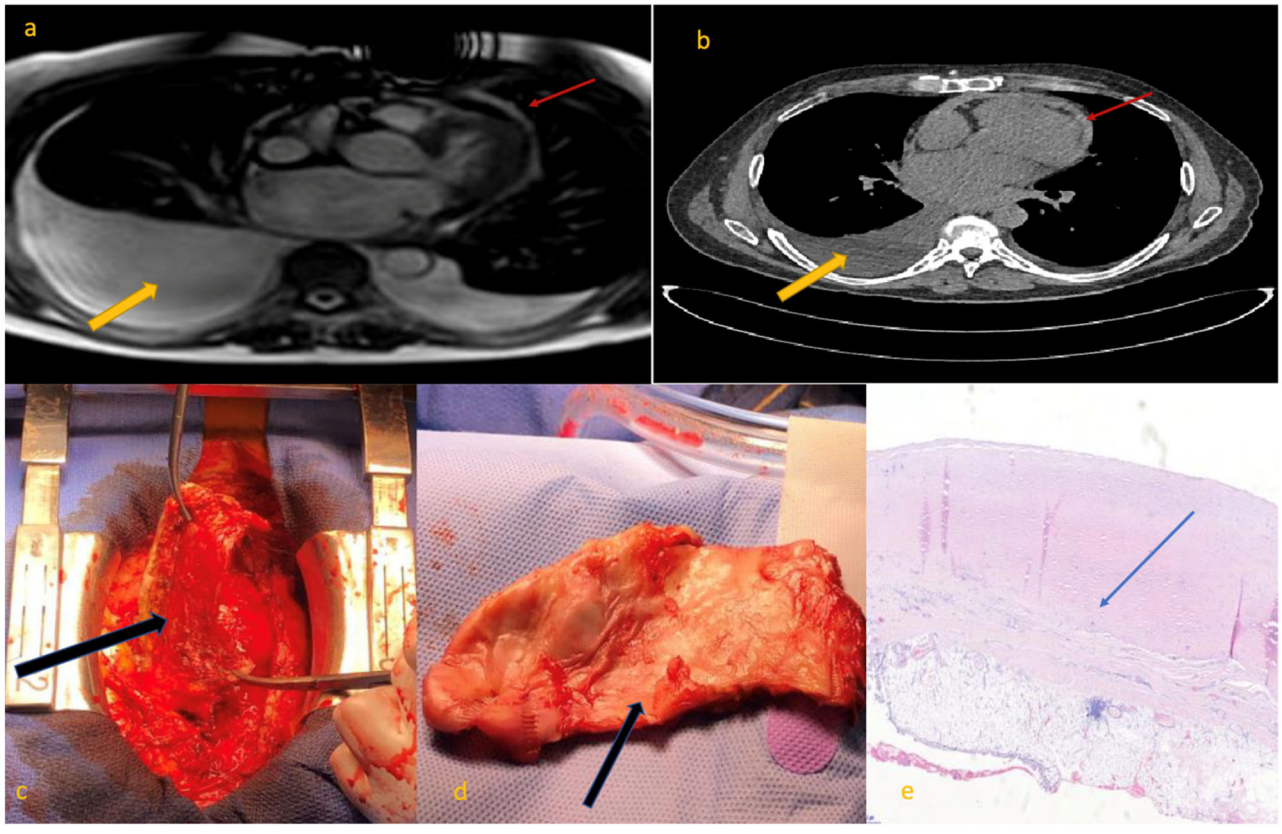

Figure 4. Perioperative features of a patient with constrictive pericarditis following cardiac transplantation. Thoracic magnetic resonance (a) and computed tomography (b) imaging reveal pericardial thickening (red arrow) and pleural effusion (yellow arrow). pericardiectomy with thickened pericardial specimen (c and d) (black arrow). histopathological analysis of the pericardium (e), haematoxylin eosin staining showing a subepicardial layer thickened by a paucicellular fibrovascular tissue (blue arrow) (from [21]).

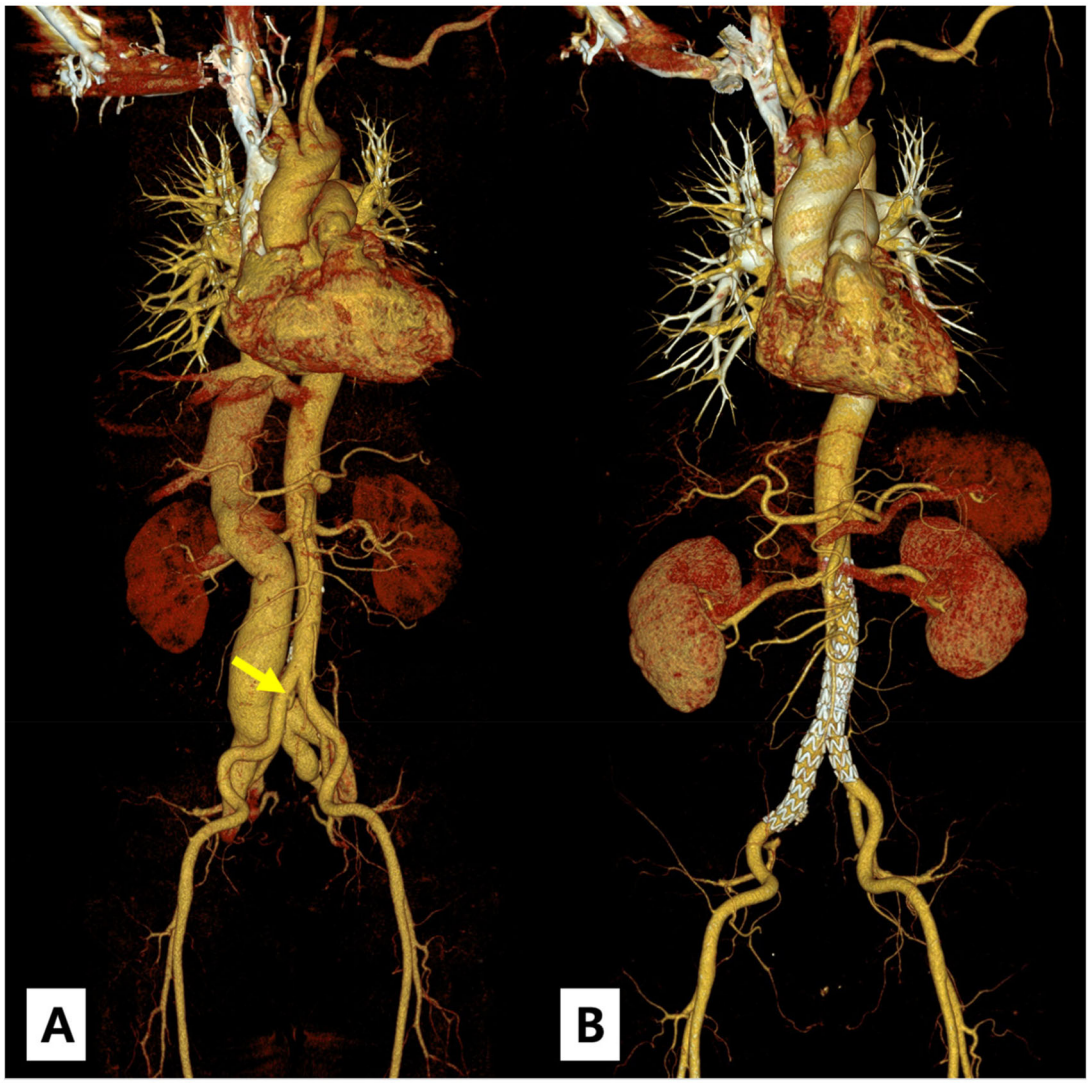

Figure 5. Pre and post-procedural aorta computed tomography (CT) angiography findings. (A) Aorta CT angiography showed a right common iliac arteriovenous fistula (AVF) (arrow) with marked enlargement of the inferior vena cava. (B) Follow-up aorta CT angiography after the procedure showed complete resolution of the AVF with no contrast leakage and good patency of the stent graft. Heart size also seems to be normalised (from [22]).

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