

New approaches to cardiovascular diseases

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New approaches to cardiovascular diseases

Cardiovascular disease (CVD) is the leading cause of death in Western countries [1,2]. Prevention of CVD requires timely identification of people at increased risk to target effective dietary, lifestyle, or drug interventions [3,4]. This issue of *Acta Cardiologica* is dedicated to new approaches to cardiovascular diseases.

Atrial fibrillation (AF) is categorised into paroxysmal, persistent, and permanent, requiring highly individualised management approaches [4–6]. Previous investigations have provided equivocal results regarding the relationship between weekend admission and early death in patients with AF. In their systematic reviews and meta-analyses, Zuin et al. reported the results of five retrospective studies involving 5164986 AF patients (mean age 69.7 years old, 47.6% males). They concluded that patients admitted during weekend for AF are characterised by an approximately 58% excess in the risk of early death (Figure 1) [7].

Mitral valve prolapse (MVP) is the most common valvular heart disease that affects 1–3% of the general population. Most patients are asymptomatic with good long-term prognosis. Arrhythmic mitral valve prolapse, defined as MVP in the presence of frequent or complex ventricular arrhythmia, is a rare feature (<1% per year) among MVP patients [8]. A typical arrhythmic MVP phenotype would be that of a young female patient with history of syncope, inferior T-wave inversions (TWI) on electrocardiogram (ECG), bileaflet prolapse, mitral annular disjunction (MAD), the Pickelhaube sign (lateral annular velocity spike of ≥ 16 cm/s), systolic curling of the posterior wall, marked billowing excursion, mechanical dispersion and post-systolic shortening on echocardiogram, and the presence of fibrosis (late gadolinium enhancement (LGE) on cardiac magnetic resonance (CMR) [9]. High-risk phenotypes identified in the meta-analyses of Benjanuwattra et al. were by bileaflet prolapse, LGE, MAD, TWI, and history of syncope [10].

Transvenous lead extractions (TLE) are increasingly performed in cases of malfunction or infection of cardiac implantable electronic devices, but they carry the potential for complications and suboptimal success. Examining the data of 363 TLE from 200 patients, Abdelazeem et al. showed that the most important factor that increased TLE procedural difficulty was a longer lead indwelling time, followed by passive fixation and dual-coil leads. Other contributing factors were the presence of infection, coronary sinus leads, older patients, a history of valvular heart disease and right ventricular leads [11].

Measuring fractional flow reserve (FFR) with a pressure wire at the time of coronary angiography identifies coronary lesions that are responsible for significant ischaemia and identifies patients most likely to benefit from PCI [12–15]. Microcatheter (MC) derived FFR system has an increased profile compared with pressure-wire derived FFR, which can increase the degree of coronary artery stenosis and lower the measured FFR value. In their study, Boutaleb et al. investigated the crossing profile characteristics of the NAVVUS[®] microcatheter as compared with the COMETTM pressure wire. The authors confirmed the poor crossing profile of the NAVVUS[®] microcatheter although FFR measures with both systems were well correlated [16].

Poudineh et al. reported in a large prospective cohort the association between haematologic factors and CVD risk [17]. In a total of 9,704 patients, the authors showed that among the included factors, white blood cell, and platelet distribution width had the strongest correlation with the development of CVD.

Myocardial deformation parameters have been shown to yield early detection of pathological changes in chronic heart failure [18,19]. Kersten et al. evaluated cardiac magnetic resonance imaging myocardial deformation changes under optimal medical therapy (OMT) in 57 CHF patients. They showed a positive reverse remodelling with improvement of left ventricular volumes and function and right ventricular global longitudinal strain at 140 days under OMT (Figure 2) [20].

Mobile health systems provide a multifaceted strategy for risk factor management by maintaining vital touch with patients, teaching them about healthy lifestyle choices, and enabling precise lifestyle control. In their study, Hayıroğlu et al. showed that the smart device and mobile application technologies increased VO₂ measurements in individuals with high CV risk compared to conventional treatment alone [21]. In the context of coronary artery disease (CAD), proton pump inhibitors (PPIs) are commonly prescribed along with antiplatelet medications. However, the potential interaction between these two classes of medications has been subject to much debate. Teperikidis et al. conducted a comprehensive search of PubMed to identify relevant systematic reviews and meta-analyses examining the association between PPI use and major adverse cardiovascular events. A total 46 randomised controlled trials and 33 observational studies were identified. The findings of this umbrella review suggested that a causal relationship between PPI

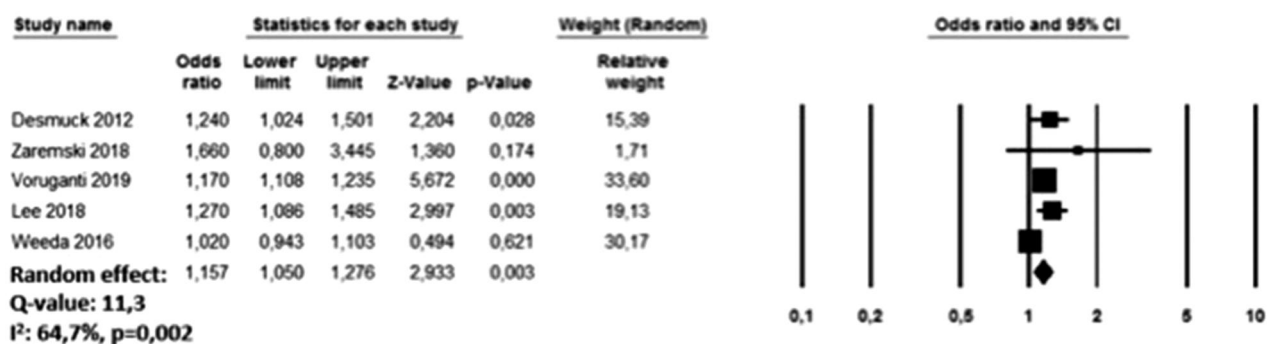


Figure 1. Forest Plot for early mortality in patients with atrial fibrillation admitted during the weekend period [from reference 7].

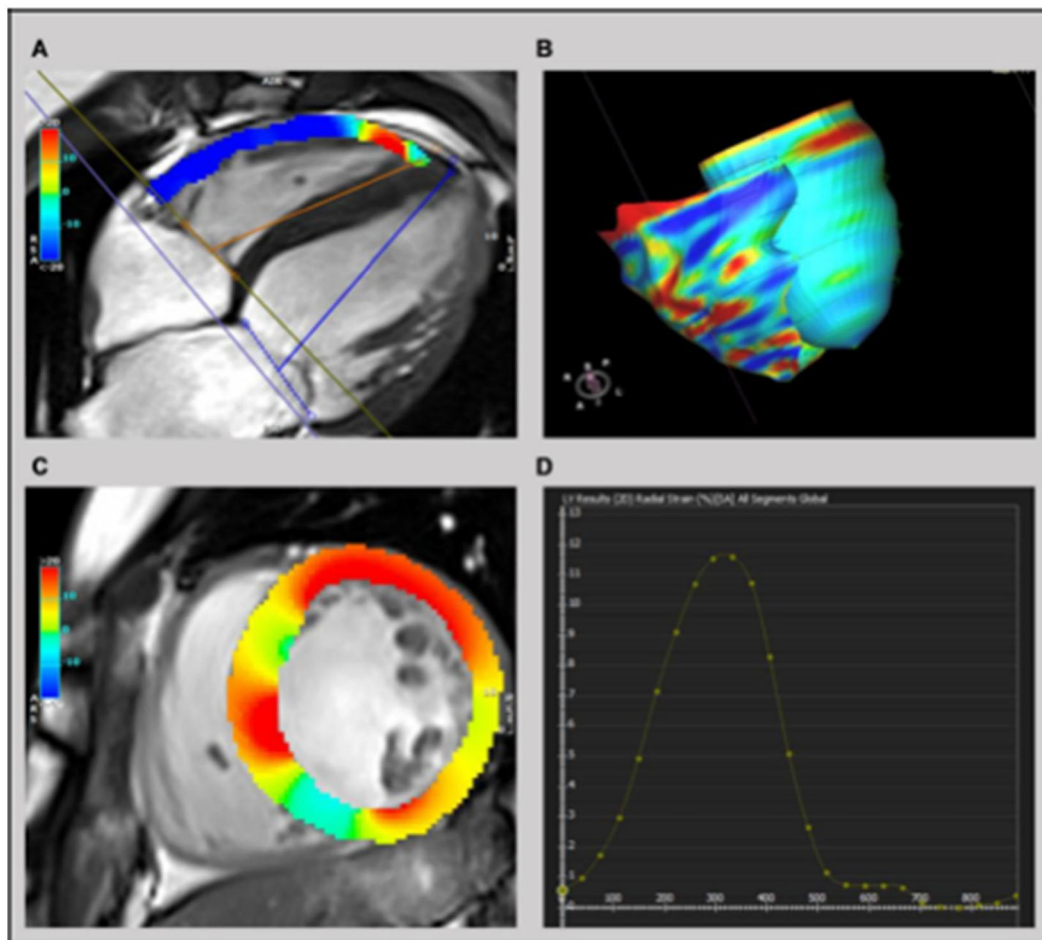


Figure 2. Example of feature tracking strain analysis in a patient with heart failure with reduced ejection fraction. Shown is a colour-coded visualisation of the right ventricular (from reference [20]).

use and an increased risk of adverse CV events cannot be ruled out [22].

Bacterial infective endocarditis (IE) is a life-threatening condition for which a prompt treatment is mandatory to avoid heart valve destruction and septic embolism. These dreadful complications continue to be the leading causes of mortality and morbidity from IE, despite significant progresses in diagnostic methods and algorithms [23–25]. Vandoren et al. published a nice image focus reporting the

case of a patient with IE who eventually died from right coronary artery septic embolisation. Interestingly, the diagnosis was made on catheter coronary angiography, which is the most common diagnostic procedure for coronary embolizations as it is indicated preoperatively in IE when a surgical valve replacement is contemplated [26].

In this issue of *Acta Cardiologica*, several focus images and cases highlighting interesting clinical conditions have also been reported [27–29].

Disclosure statement

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

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