Cardiology Practice Review™

Making Education Easy

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Abbreviations used in this issue:

4D = four-dimensional; **ACC** = American College of Cardiology; **ACE** = angiotensin-converting enzyme; **ACRA** = Australian Cardiovascular Health and Rehabilitation Association; **AHA** = American Heart Association; **ANZSVS** = Australian and New Zealand Society for Vascular Surgery; **ARBs** = angiotensin II receptor blockers; **ARNIs** = angiotensin receptor/neprilysin inhibitors; **CHD** = congenital heart disease; **CIEDs** = cardiac implantable electronic devices; **CMR** = cardiovascular magnetic resonance; **CPD** = Continuing Professional Development; **CSANZ** = Cardiac Society of Australia and New Zealand; **CVD** = cardiovascular disease; **ECG** = electrocardiography; **EMI** = electromagnetic interference; **ESC** = European Society of Cardiology; **HF** = heart failure; **LDL-C** = low-density lipoprotein C; **LVEF** = left ventricular ejection fraction; **MI** = myocardial infarction; **MI-VSD** = ventricular septal defect complicating acute myocardial infarction; **PAD** = peripheral artery disease; **PBS** = Pharmaceutical Benefits Scheme; **QI** =quality indicator; **VSDs** = ventricular septal defects.

Welcome to the 37th issue of Cardiology Practice Review.

This Review covers news and issues relevant to clinical practice in cardiology. It will bring you the latest updates, both locally and from around the globe, about topics such as new and updated treatment guidelines, changes to medicines reimbursement and licensing, educational, professional body news and more. Finally, on the back cover, you will find our COVID-19 resources for Cardiologists and a summary of upcoming local and international educational opportunities, including workshops, webinars, and conferences.

We hope you enjoy this Research Review publication and look forward to hearing your comments and feedback.

Kind Regards,

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Clinical Practice

Clinical consensus statement for diagnosing and managing ventricular septal defect complicating acute myocardial infarction

The European Society of Cardiology (ESC) has developed a clinical consensus statement addressing the diagnosis and management of ventricular septal defects (VSDs) complicating acute myocardial infarction (MI-VSD). Despite advances in acute coronary syndrome treatment, MI-VSD remains a rare but devastating complication with mortality approaching 100% if left untreated.

The incidence of MI-VSD has declined to 0.17–0.44% of acute MI cases in the reperfusion era. Risk factors include older age, female sex, anterior infarction, and delayed reperfusion. Clinical presentation ranges from an incidental murmur to cardiogenic shock. Diagnosis relies on echocardiography, with CT or MRI providing additional anatomical detail.

MI-VSD causes significant hemodynamic disturbances due to left-to-right shunting, leading to increased pulmonary pressures, right ventricular failure, and reduced cardiac output. Management requires a multidisciplinary approach. Medical therapy aims to stabilise haemodynamics but is only a bridge to definitive treatment. Surgical repair remains the gold standard, with techniques including infarct excision, exclusion, or patch closure. Percutaneous device closure has emerged as an alternative in select cases.

The timing of intervention is controversial. While North American guidelines recommend emergency repair, European guidelines suggest a more nuanced approach: immediate intervention for refractory shock but delayed repair, when possible, to allow tissue healing. Mechanical circulatory support may serve as a bridge to definitive treatment in unstable patients.

Mortality remains high (around 45%) for both surgical and percutaneous approaches. Patient selection is crucial, with predictors of poor outcomes including older age, cardiogenic shock, renal insufficiency, and extensive coronary disease. The role of concomitant revascularisation is debated.

The authors highlight significant evidence gaps and call for prospective registries and randomised trials to guide optimal management. Key questions include the ideal timing of intervention, the comparative effectiveness of surgical versus percutaneous approaches, and the role of mechanical support.

https://tinyurl.com/3wdcvm44

Earn CPD

Royal Australasian College of Physicians (RACP) MyCPD participants can claim the time spent reading and evaluating research reviews as CPD in the online MyCPD program. Please contact MyCPD@racp.edu.au for any assistance.

Australian College of Rural and Remote Medicine (ACRRM) Professional Development Program (PDP) participants can claim Educational Activity hours in the self-directed learning category for reading Research Reviews. More info.

GP members of the **Royal Australian College of General Practitioners (RACGP)** are able to include Research Reviews as part of the self-record unaccredited category 2 QI&CPD points by logging onto the RACGP website.

European Society of Cardiology quality indicators: Update for the care and outcomes of adults with heart failure

The ESC has updated the quality indicators (QIs) for the care and outcomes of adults with heart failure (HF), aligning them with the 2023 ESC focused guideline update.

The updated set includes 14 main and 3 secondary QIs across five domains of HF care: structural framework, patient assessment, initial treatment, therapy optimisation, and health-related quality of life assessment. Key changes include a new main QI for prescribing sodium-glucose cotransporter 2 (SGLT2) inhibitors to all patients with HF regardless of left ventricular ejection fraction (LVEF), reflecting recent evidence of their benefits across the LVEF spectrum. Another significant update is the promotion of a secondary QI to main status, recommending follow-up care within 6 weeks after HF hospitalisation, based on findings from the STRONG-HF trial.

The QIs emphasise comprehensive patient assessment, including documentation of HF type, ECG findings, natriuretic peptide levels, and blood tests. They also stress the importance of prescribing evidence-based medications such as beta-blockers, ACE inhibitors/ARBs/ARNIs, and mineralocorticoid receptor antagonists for patients with reduced ejection fraction. New attention is given to intravenous iron therapy for iron-deficient patients with HF with reduced ejection fraction and HF with mid-range ejection fraction.

Structural QIs focus on the availability of multidisciplinary teams and dedicated professionals for HF education. The set also includes indicators for cardiac rehabilitation referral and device therapy consideration in appropriate patients.

These updated QIs aim to support the integration and evaluation of adherence to clinical practice guidelines, enabling healthcare institutions to monitor, compare, and enhance the quality of care provided to HF patients. The authors acknowledge limitations in their approach, including potential subjectivity in expert-based QI selection, which they attempted to mitigate through the modified Delphi method and adherence to ESC criteria.

https://tinyurl.com/4fj56wud

Clinical impact of novel cardiovascular magnetic resonance technology on patients with congenital heart disease

A scientific statement from the Association for European Paediatric and Congenital Cardiology and the European Association of Cardiovascular Imaging highlights the clinical impact of novel cardiovascular magnetic resonance (CMR) technologies on patients with congenital heart disease (CHD). CMR is recognised as the gold standard for assessing CHD in both children and adults, with guidelines endorsing its use. The document discusses the evolution of CMR techniques, emphasising that while some novel methods are already clinically implemented, others require further evaluation.

Recent advancements in CMR include techniques such as lymphatic imaging, diffusion tensor imaging, and virtual reality, which are not yet routine in clinical practice. More established methods, like four-dimensional (4D) flow imaging and myocardial tissue characterisation via parametric mapping, are increasingly integrated into clinical guidelines due to their demonstrated benefits. The statement underscores the necessity of normative data for these techniques to enhance their clinical application and decision-making processes.

The report addresses practical considerations regarding magnetic field strength in CMR. While 1.5 T systems are standard, 3.0 T systems offer improved signal-to-noise ratios, which can enhance spatial and temporal resolution. However, these systems also present challenges, such as increased sensitivity to inhomogeneities. The potential of ultra-high-field CMR (≥7 T) is acknowledged, although its clinical use remains limited. Conversely, low-field MRI systems (≤1.0 T) are gaining traction due to their safety advantages and cost-effectiveness, which may improve access to quality imaging.

The document details specific CMR sequences and their applications, particularly 4D flow imaging, which allows comprehensive analysis of blood flow dynamics in CHD. This technique facilitates the quantification of various haemodynamic parameters and is beneficial for assessing complex anatomical situations. Additionally, myocardial tissue characterisation is highlighted as crucial for understanding patient outcomes, with several mapping techniques providing insights into diffuse myocardial changes.

Overall, the statement emphasises the transformative potential of novel CMR technologies in managing CHD, advocating for their integration into routine clinical practice to enhance patient outcomes. The authors call for ongoing research to establish reference values and optimise the application of these advanced imaging techniques, thereby improving clinical decision-making for patients with CHD.

https://tinyurl.com/bdemncrs

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Palliative pharmacotherapy for cardiovascular disease

A scientific statement from the American Heart Association (AHA) emphasises the critical role of palliative pharmacotherapy in managing CVD, particularly as it progresses to advanced stages. CVD remains a leading cause of morbidity and mortality, especially in individuals aged 65 and older. While traditional therapies aim to prolong life, they often fail to address the complex symptomatology associated with advanced CVD, which can lead to repeated hospitalisations and a significant decline in quality of life. The statement advocates for a palliative approach to medication management that integrates both disease-modifying and symptom-relieving therapies.

Palliative care is defined as holistic care aimed at alleviating suffering due to serious health conditions, including CVD. The statement highlights the underuse of palliative pharmacotherapy in this context, noting that many patients experience distressing symptoms such as dyspnoea, pain, and fatigue. Effective management of these symptoms requires a thoughtful approach to medication, which may include both cardiovascular drugs and common palliative medications. However, there is a notable lack of clear guidelines on which medications should be continued or deprescribed, underscoring the need for clinicians to make informed decisions based on individual patient circumstances.

The document stresses the importance of shared decision-making and goal-oriented care, which are essential for aligning treatment plans with patient preferences and values. As patients transition through various stages of CVD, their goals may shift from life-prolongation to symptom management and quality of life improvement. This necessitates ongoing discussions about treatment objectives and the potential for deprescribing medications that may no longer provide benefit, particularly in cases of polypharmacy or when patients face limited life expectancy.

The statement also discusses deprescribing, which involves systematically withdrawing medications to improve patient outcomes. This process is particularly relevant for patients with advanced CVD, where the risks of continuing certain therapies may outweigh their benefits. Clinicians are encouraged to use tools such as the American Geriatrics Society's Beers Criteria to identify potentially inappropriate medications and to consider the emotional implications of deprescribing on patients.

In conclusion, the statement serves as a vital resource for clinicians, advocating for the integration of palliative pharmacotherapy throughout the continuum of cardiovascular care. By prioritising symptom management and aligning treatment with patient goals, healthcare providers can enhance the quality of life for individuals facing the complexities of advanced cardiovascular disease.

https://tinyurl.com/5n6uysku

Periprocedural management and multidisciplinary care pathways for patients with cardiac implantable electronic devices

The AHA has released a scientific statement addressing the evolving landscape of cardiac implantable electronic devices (CIEDs), emphasising the need for updated clinical guidelines for their periprocedural management. With advancements such as leadless pacemakers and subcutaneous defibrillators, alongside an increasing patient population, the document outlines a comprehensive framework for ensuring patient safety and optimal device function throughout the procedural continuum.

The statement highlights the importance of multidisciplinary care pathways that involve various healthcare professionals, including anaesthesiologists, electrophysiologists, and nursing staff. These pathways are designed to enhance patient safety and device management during procedures that may impact CIED functionality. The authors stress that meticulous planning must begin early in the process, ideally at the time of the decision to proceed with an operative intervention.

Key components of the preprocedural evaluation include thorough patient screening to identify relevant medical history, the type and location of the CIED, and any potential sources of electromagnetic interference (EMI). The document emphasises the need for collaboration with the CIED care centre to ensure continuity of care and to address any specific device features that may influence procedural outcomes. This includes understanding the patient's rhythm status, device programming, and any recent arrhythmia events recorded by the device.

During the procedure, careful attention to EMI sources, particularly from electrosurgical devices, is critical. The statement outlines the risks associated with different surgical techniques and the potential for device malfunction, which can lead to serious haemodynamic consequences. Strategies for mitigating these risks include using bipolar electrosurgery when possible, minimising monopolar electrosurgery bursts, and ensuring proper placement of return electrodes.

The statement advises restoring device settings and monitoring for adverse events post-procedure. Communication between the procedural team and the CIED care centre is essential to ensure appropriate follow-up and management of the device. This scientific statement serves as a vital resource for a wide range of healthcare professionals involved in the care of patients with CIEDs, aiming to enhance patient outcomes through improved education and practice standards.

https://tinyurl.com/mr4ytvjx

Regulatory News

Hereditary transthyretin amyloidosis

Patisiran (Onpattro®; 10 mg/5 mL injection, 5 mL vial) is now listed on the PBS for the treatment of hereditary transthyretin amyloidosis. Authority applications for initial, grandfather and continuing treatments can be made either in real-time using the Online PBS Authorities system or in writing.

https://tinyurl.com/34zdepxt

Chronic heart failure

Empagliflozin (Jardiance®; 10 mg tablet) is listed on the PBS for the treatment of chronic heart failure and a change to the listings to allow prescribing by nurse practitioners in a Shared Care Model. Prescriptions for treatment are Authority required (STREAMLINED).

https://tinyurl.com/34zdepxt

Transthyretin amyloid cardiomyopathy

Tafamidis (Vyndamax®; 61 mg capsule) has had an update to the restriction for the treatment of transthyretin amyloid cardiomyopathy. Authority applications for initial and grandfather treatments can be made either in real-time using the Online PBS Authorities system or in writing. Authority applications for continuing treatment can be made either in real-time using the Online PBS Authorities system or by telephone.

https://tinyurl.com/ycxra8sj

Familial heterozygous hypercholesterolaemia & non-familial hypercholesterolaemia

Inclisiran (Leqvio®; 284 mL/1.5 mL injection, 1.5 mL syringe) has had a change to the restrictions for the treatment of familial heterozygous hypercholesterolaemia & non-familial hypercholesterolaemia. Authority applications for initial and grandfather treatments can be made either in real-time using the Online PBS Authorities system or by telephone. Prescriptions for continuing treatment are Authority required (STREAMLINED).

Alirocumab (Praluent®; 75 mg/mL injection, 2 x 1 mL pen devices; 150 mg/mL injection, 2 x 1 mL pen devices) has had a change to the restrictions for the treatment of familial heterozygous hypercholesterolaemia & non-familial hypercholesterolaemia. Authority applications for initial treatment can be made either in real-time using the Online PBS Authorities system or by telephone. Prescriptions for continuing treatment are Authority required (STREAMLINED).

Evolocumab (Repatha®; 140 mg/mL injection, 1 mL pen device; 420 mg/3.5 mL injection, 3.5 mL cartridge) has had a change to the restrictions and a change in authority level for the treatment of familial heterozygous hypercholesterolaemia, non-familial hypercholesterolaemia & familial homozygous hypercholesterolaemia. Prescriptions for initial and continuing treatments are now both Authority required (STREAMLINED).

https://tinyurl.com/ycxra8sj

Earn CPD

Nursing and Midwifery Board of Australia (NMBA) Journal reading and watching videos (including Research Reviews') may be considered a self-directed activity set out in the NMBA Registration Standard: Continuing Professional Development. One hour of active learning will equal one hour of CPD. Details at NMBA CPD page.

News in Brief

Half of Australians unaware of major cardiovascular disease risk factor

A recent Heart Foundation survey reveals nearly half of at-risk Australians are unaware of their family history of CVD, a major risk factor. This finding supports the call for a national screening program to assess CVD. Despite 630,000 Heart Health Checks since 2019, 58% of eligible adults have not had one in two years, highlighting the need for proactive identification and recall of at-risk individuals.

https://tinyurl.com/fhzrurae

Cardiovascular risk assessment and management for people with schizophrenia

A recent state-of-the-art review highlights the complex relationship between severe mental illness, including schizophrenia, and cardiovascular disease. Patients with severe mental illness have significantly higher cardiovascular morbidity and mortality, attributed to biological, patient, and healthcare system factors. The authors emphasise the need for tailored cardiovascular risk assessment, prevention strategies, and multidisciplinary care models for these patients. They advocate for improved screening, aggressive management of risk factors, and addressing disparities in cardiovascular care to reduce the mortality gap in this vulnerable population.

https://tinyurl.com/tjrb7met

Team-based care to overcome therapeutic inertia in peripheral artery disease

A recent article discusses therapeutic inertia in managing peripheral artery disease (PAD), which affects over 200 million people globally. It highlights the OPTIMIZE-PAD-1 trial, demonstrating that a team-based care approach, including pharmacists, significantly improves LDL-C reduction compared with usual care. The findings emphasise the need for further research to sustain these benefits and address barriers to implementing such care models effectively.

https://tinyurl.com/yckb642j

COVID-19 Resources for Cardiologists

CSANZ https://tinyurl.com/y3xp2729

ACC https://tinyurl.com/y68aud3a

ESC https://tinyurl.com/wn3fsts

Conferences, Workshops, and CPD

Please click on the links below for upcoming local and international cardiology meetings, workshops, and CPD.

ACRA https://tinyurl.com/y4yj8xb5

CSANZ https://tinyurl.com/3mwt5ttr

Cardiac Skills Australia https://tinyurl.com/7hx6zmdt

Heart Foundation https://tinyurl.com/2wfmd3f3

Australian Centre for Heart Health https://tinyurl.com/e2yjcreu

ACC https://tinyurl.com/y2khytpz

AHA https://tinyurl.com/zajc9a7

ESC Congresses and Events https://tinyurl.com/y6ko68yf

ESC Education https://tinyurl.com/y3zkjp3o

Research Review Publications

Dapagliflozin treatment effect in patients with chronic kidney disease, heart failure

Dapagliflozin across the range of ejection fraction in heart failure and type 2 diabetes

Acute Coronary Syndrome Research Review with Professor John French

Atrial Fibrillation Research Review with Dr Andre Catanchin

Cardiology Research Review with Associate Professor John Amerena

Heart Failure Research Review with Professor Andrew Coats, and Dr Mark Nolan

Interventional Cardiology Research Review with Conjoint Professor Craig Juergens

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