Cardiology Practice Review™

Making Education Easy

Issue 32 - 2024

In this issue:

Abbreviations used in this issue:

ACC = American College of Cardiology;
ACRA = Australian Cardiovascular Health and Rehabilitation Association;
ACS = acute coronary syndromes; **AF** = atrial fibrillation;
AHA = American Heart Association; **ALARA** = As Low As Reasonably Achievable;
CHD = congenital heart disease; **CPD** = continuing professional development;
CSANZ = Cardiac Society of Australia and New Zealand; **CV** = cardiovascular;
CVD = cardiovascular disease; **ECG** = electrocardiogram;
ECMO = extracorporeal membrane oxygenation;
ESC = European Society of Cardiology; **HRS** = Heart Rhythm Society;
IE = ineffective endocarditis; **LDL-c** = low-density lipoprotein cholesterol;
LV = left ventricular; **LVD** = left ventricular diastolic;
non-HDL-c = non-high-density lipoprotein cholesterol;
NSTE-ACS = non-ST-elevation acute coronary syndrome;
PCI = percutaneous coronary intervention;
STEMI = ST-elevation myocardial infarction.

Welcome to the 32nd 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,

Dr Janette Tenne
Editor
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Clinical Practice

2023 European Society of Cardiology guidelines for managing endocarditis

The European Society of Cardiology (ESC) recently published an updated guideline to provide comprehensive support for healthcare professionals in diagnosing and managing patients with infective endocarditis (IE). This infrequent but potentially fatal disease manifests in various clinical scenarios, necessitating updated guidelines since the last publication in 2015.

The new guidelines highlight advancements in IE care, covering refined indications for antibiotic prophylaxis, improved diagnostic capabilities, and the establishment of specialised teams and centres. Key updates include recommendations for antibiotic prophylaxis during dental procedures, infective endocarditis prevention in high-risk patients, and focusing on cardiac procedures to minimise complications. Additionally, the guidelines introduce a new diagnostic algorithm to aid in accurate patient classification.

The updated guidelines also recommend using echocardiography, computed tomography, nuclear imaging, and magnetic resonance to enhance diagnostic precision. The importance of considering outpatient antibiotic treatment for certain patients with left-sided IE, considering stability and absence of complications, is also emphasised.

Neurological complications, such as embolic strokes, are addressed with considerations for mechanical thrombectomy. Pacemaker implantation in specific scenarios and management of musculoskeletal manifestations are also detailed in the guidelines.

Post-discharge, patient education, addiction treatment for those with IE related to drug use, and cardiac rehabilitation are recommended. The guidelines stress the significance of follow-up care, including psychosocial support and screening for anxiety and depression.

Surgical interventions are discussed, ranging from prosthetic valve endocarditis to cardiovascular (CV) implanted electronic device-related IE. The guidelines recommend a multidisciplinary approach and the involvement of specialised centres for complex cases.

Overall, the 2023 ESC IE guidelines highlight the importance of prevention strategies, collaboration within Endocarditis Teams, clear diagnostic criteria, principles of antimicrobial therapy, indications for surgery, and long-term follow-up considerations. The guidelines aim to improve outcomes for IE patients and guide clinicians through the complexities of this challenging disease.

http://tinyurl.com/4svrnrxn

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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.

2023 European Society of Cardiology guidelines for acute coronary syndromes

The 2023 ESC guidelines for diagnosing and managing acute coronary syndromes (ACS) provide a comprehensive approach to healthcare professionals. The guideline is unique as it covers ST-elevation myocardial infarction (STEMI) and non-ST-elevation ACS (NSTE-ACS), offering updated recommendations since the 2017 STEMI and 2020 NSTE-ACS guidelines.

The guidelines emphasise the importance of a thorough initial assessment using the 'A.C.S.' mnemonic—performing an electrocardiogram (ECG) to assess abnormalities or evidence of ischemia, obtaining a targeted clinical history to understand the context of presentation, and conducting a clinical examination to assess stability. The management recommendations span the entire spectrum of ACS, from initial diagnosis and risk stratification to long-term care post-hospitalisation.

Specific focus is given to anti-thrombotic therapy, invasive assessment, and revascularisation. For STEMI patients, primary percutaneous coronary intervention is recommended, while NSTE-ACS patients with very high-risk features may require immediate angiography ± percutaneous coronary intervention (PCI). The guidelines stress the importance of combining antiplatelet and anticoagulant therapy during the acute phase.

Key messages include considerations for epidemiology, diagnostic tools such as ECG and troponin measurements, and management strategies for particular patient subsets, including those with chronic kidney disease, older adults, and patients with cancer.

Post-reperfusion, the guidelines recommend admitting high-risk ACS patients to a coronary or intensive care unit, emphasising ECG monitoring, determination of left ventricular (LV) ejection fraction, and implementing measures for early discharge when appropriate.

Technical aspects during PCI, management of patients with multivessel disease, and special situations like myocardial infarction with non-obstructive coronary arteries are addressed. Long-term treatment strategies, including secondary prevention and patient perspectives, are integrated into the guidelines.

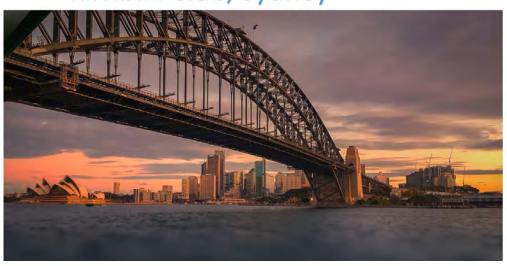
The document highlights the significance of patient-centred care, involving patients in decision-making, educating them throughout the care pathway, and implementing quality indicators to audit and improve clinical outcomes in patients with ACS. Overall, the guidelines offer a comprehensive, up-to-date resource for healthcare professionals managing patients with ACS.

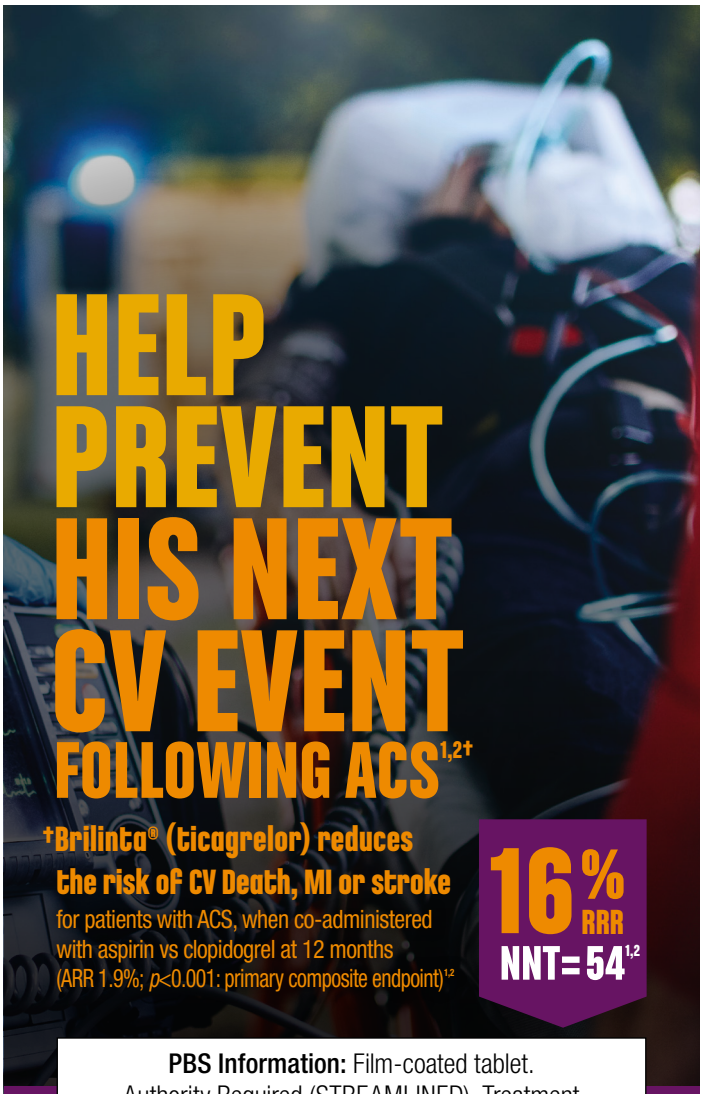
http://tinyurl.com/m7b4k9bw

CSANZ 2024
72ND ANNUAL SCIENTIFIC MEETING OF THE CARDIAC SOCIETY OF AUSTRALIA AND NEW ZEALAND
HOSTED BY CSANZ WESTERN AUSTRALIA
1 – 4 AUGUST 2024 | PERTH CONVENTION AND EXHIBITION CENTRE
WWW.CSANZASM.COM

ANZET24
18th Annual Australia & New Zealand Endovascular Therapies Meeting
Thursday 1 – Sunday 4 August 2024
Perth Convention and Exhibition Centre
www.anzet.com.au

ACNC Australasian Cardiovascular Nursing College
SAVE THE DATE
ACNC 2024
Friday 5th-Saturday 6th April
Kirribilli Club, Sydney





PBS Information: Film-coated tablet. Authority Required (STREAMLINED). Treatment of acute coronary syndrome (myocardial infarction or unstable angina) in combination with aspirin. **Orodispersible tablet**. This product is not listed on the PBS.

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ACS = acute coronary syndrome; ARR = absolute risk reduction; CV = cardiovascular; MI = myocardial infarction; PBS = Pharmaceutical Benefits Scheme; RRR = relative risk reduction.

References: 1. Wallentin L *et al. N Engl J Med* 2009;361:1045–1057 and supplementary appendix. **2.** BRILINTA® Product Information.

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Guideline for diagnosing and managing atrial fibrillation

The 2023 guideline for diagnosing and managing atrial fibrillation (AF) was developed by the American College of Cardiology (ACC)/American Heart Association (AHA) Joint Committee on Clinical Practice Guidelines, in collaboration with and endorsed by the American College of Clinical Pharmacy and the Heart Rhythm Society (HRS). It serves as a comprehensive resource for clinicians, offering updated recommendations to enhance the treatment of individuals with AF.

AF, the most sustained common arrhythmia, is witnessing a rise in incidence and prevalence globally. The 2023 guideline builds upon the foundation laid by the 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation and the 2019 AHA/ACC/HRS Focused Update. The updates incorporate new evidence and introduce novel recommendations addressing atrial fibrillation, thromboembolic risk assessment, anticoagulation, left atrial appendage occlusion, atrial fibrillation catheter or surgical ablation, and risk factor modification for AF prevention.

The top 10 take-home messages outlined in the guidelines emphasise the transition from the previous classification of AF based solely on arrhythmia duration to a new staging system recognising AF as a disease continuum. This approach calls for various strategies at different stages, including prevention, lifestyle modification, risk factor management, screening, and therapy.

Key recommendations highlight the importance of lifestyle and risk factor modification as pillars of AF management, addressing factors like obesity, weight loss, physical activity, smoking cessation, alcohol moderation, hypertension, and other comorbidities. The guideline introduces flexibility in using clinical risk scores, expands beyond CHA2DS2-VASc for stroke and systemic embolism prediction, and considers stroke risk modifiers for shared decision-making.

The guideline also underscores the significance of early rhythm control, upgrading the Class of Recommendation for catheter ablation of AF in selected patients, particularly those with heart failure and reduced ejection fraction. Noteworthy updates are provided for device-detected AF, left atrial appendage occlusion devices, and recommendations for AF identified during medical illness or surgery.

In essence, the 2023 guideline equips healthcare professionals with the latest evidence-based insights to enhance the diagnosis and management of patients with AF, emphasising a holistic and tailored approach across various stages of the condition.

http://tinyurl.com/3f4jjnxr

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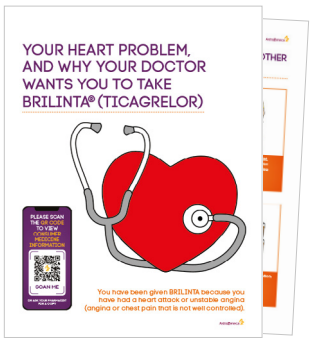

For patients:
a simple guide to ACS and treatment with BRILINTA® (ticagrelor)

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Safety Information

- The most commonly reported ADRs in patients treated with BRILINTA® in the PLATO study were bleeding (PLATO-defined major bleeding 11.6% BRILINTA®; 11.2% clopidogrel) and dyspnoea (13.8% BRILINTA®; 7.8% clopidogrel)[1,2]

BRILINTA® is contraindicated in patients with a history of intracranial haemorrhage, hypersensitivity to ticagrelor or any excipients, active pathological bleeding, moderate to severe hepatic impairment and coadministration with strong CYP3A4 inhibitors (e.g. ketoconazole, clarithromycin, ritonavir, and atazanavir).[2]

Refer to BRILINTA® Product Information for full details of adverse effects and contraindications.[2]

BRILINTA®, in combination with aspirin, is indicated for the prevention of atherothrombotic events (cardiovascular death, myocardial infarction and stroke) in adult patients with acute coronary syndromes (unstable angina [UA], non ST elevation Myocardial Infarction [NSTEMI] or ST elevation Myocardial Infarction [STEMI]) including patients managed medically, and those who are managed with percutaneous coronary intervention (PCI) or coronary artery by-pass grafting (CABG).[2]

PBS Information: Film-coated tablet. Authority Required (STREAMLINED). Treatment of acute coronary syndrome (myocardial infarction or unstable angina) in combination with aspirin. **Orodispersible tablet**. This product is not listed on the PBS.

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ACS = acute coronary syndrome; ADR = adverse drug reactions; CV = cardiovascular; MI = myocardial infarction; PBS = Pharmaceutical Benefits Scheme; PLATO = Platelet Inhibition and Patient Outcomes.

References: 1. Wallentin L *et al. N Engl J Med* 2009;361:1045–1057 and supplementary appendix. **2.** BRILINTA® Product Information.

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Expert consensus statement on cardiac catheterisation for paediatric and adult patients with congenital heart disease

The landscape of cardiac catheterisation in paediatric and adult patients with congenital heart disease (CHD) has evolved significantly over the past 50 years. A recent consensus statement recommends procedural training and competencies, tailoring guidance for paediatric and adult patients with CHD and those in resource-limited environments. The consensus statement was a joint effort from the Pediatric and Congenital Interventional Cardiovascular Society, the Association for European Paediatric and Congenital Cardiology, the Asia-Pacific Pediatric Cardiac Society, the Cardiac Society of Australia and New Zealand (CSANZ), the Society for Cardiovascular Angiography & Interventions, and the Latin American Society of Interventional Cardiology. The Congenital Cardiac Anesthesia Society and the American Association of Physicists in Medicine endorse the statement.

Emphasising the distinctive needs of paediatric/congenital cardiac catheterisation labs, the document covers facility setup, equipment requirements, surgical backup, circulatory support, anaesthesia, and sedation. Further, x-ray imaging and radiation safety, quality and safety metrics, and best practices for pre-, intra-, and post-procedural management are also addressed. Specific recommendations extend to foetal intervention procedures and coronary interventions in paediatric patients. The document aims to empower congenital cardiologists in advocating for acceptable and ideal care standards. The guidance includes directives on catheterisation laboratory management, physician leadership, training requirements, and procedural competency for interventional cardiologists. It distinguishes between operators' proficiency levels and stresses the importance of surgical backup and circulatory support, especially for high-risk cases.

The document offers considerations for adult patients with CHD, even those in resource-limited environments, and emphasises the importance of optimising radiation dose delivery for both patient and medical personnel. It advocates for the ALARA principle and outlines strategies for minimising radiation exposure. The oversight and monitoring section highlights the role of medical physicists and engineers in maintaining equipment and ensuring adherence to safety measures.

Overall, the consensus statement provides a robust framework for delivering optimal care in cardiac catheterisation for adult and paediatric patients with CHD, addressing this patient population's unique challenges and requirements across diverse healthcare settings. It is a valuable resource for congenital cardiologists, informing advocacy efforts for legislative, regulatory, and policy changes to enhance patient care.

http://tinyurl.com/y7y3sn4s

Urgent extracorporeal membrane oxygenation after cardiogenic shock admission could lower mortality

The delayed initiation of extracorporeal membrane oxygenation (ECMO) in patients with cardiogenic shock has been associated with increased in-hospital mortality, according to a comprehensive retrospective analysis of the Extracorporeal Life Support Organization (ELSO) registry. The study involved 8,619 patients who received venoarterial ECMO, excluding those cannulated following an operation. The median duration from admission to ECMO initiation was 14 hours, with 68.2% of the cohort starting ECMO within 24 hours, including 44.2% within 12 hours.

Patients initiated on ECMO within the first 24 hours were generally younger. They also had a more acute myocardial infarction, preceding cardiac arrest, and higher levels of acidosis compared with those with delayed initiation. The analysis revealed that ECMO initiation more than 24 hours after admission was associated with a greater risk of in-hospital death, with an adjusted odds ratio of 1.20 (95% CI, 1.06–1.36; $P = 0.004$). Additionally, every 12-hour increase from admission to ECMO was incrementally associated with a higher adjusted in-hospital mortality rate (adjusted odds ratio, 1.06; 95% CI, 1.03–1.10; $P < 0.001$).

Remarkably, the association between the delay in ECMO initiation and in-hospital mortality was more pronounced in patients with lower shock severity, challenging previous assumptions about the urgency of ECMO initiation in more critically ill patients. The study implies that optimising the door-to-support time and avoiding inappropriately delayed ECMO initiation could significantly impact patient outcomes. The findings suggest that the benefits of early ECMO for acute cardiogenic shock may be particularly notable among patients who are less acutely ill, reinforcing the critical role of prompt mechanical circulatory support in reducing mortality in this population. The results encourage ECMO centres to develop strategies ensuring timely deployment even during off-hours to minimise logistical delays and enhance patient outcomes.

http://tinyurl.com/mskzuudb

Increasing lipids with risk of worsening cardiac damage in adolescents

A recent study on the Avon Longitudinal Study of Parents and Children data provides valuable insights into the relationship between lipid levels and cardiac structure/function changes in youth. The research illuminates potential mechanistic pathways and the risk of cardiac damage progression by examining 1,595 adolescents aged 17 years, with lipid measurements at 17- and 24-year clinic visits.

The findings underscore significant associations between lipid levels and cardiac outcomes. Elevated total cholesterol, low-density lipoprotein cholesterol (LDL-c), and non-high-density lipoprotein cholesterol (non-HDL-c) were linked to a 20–30% increased risk of premature cardiac damage. Moreover, heightened triglycerides correlated with a two-threefold risk of incident and progressive cardiac and structural damage.

The study reveals a rise in the prevalence of LV hypertrophy and LV diastolic (LVD) dysfunction over the seven-year follow-up period. Importantly, each 1 mmol increase in total cholesterol, triglycerides, LDL-c, and non-HDL-c was associated with higher odds of worsening LV hypertrophy progression. Similarly, increased triglycerides were linked to the odds of progressively worsening LVD dysfunction.

Interestingly, high-density lipoprotein cholesterol did not significantly correlate with cardiac structural and functional damage odds. The study also delved into potential mediating factors, revealing that systolic blood pressure and fat mass played a role in mediating the associations of LDL-c with increased LV mass.

In summary, the research suggests that increasing lipid levels during the transition from adolescence to young adulthood are independently associated with progressively worsening cardiac structure and function changes, leading to premature cardiac damage in asymptomatic youth. Identifying potential pathways, including fat mass and systolic blood pressure, provides crucial insights for developing preventive strategies and public health interventions targeting CV health in the young population.

http://tinyurl.com/52fk25pa

Regulatory News

New warnings of romosozumab (Evenity) cardiovascular risks

In a recent investigation into romosozumab (Evenity), a medication used for treating osteoporosis in postmenopausal women and increasing bone mass in men at high risk of fracture, it was found that stronger warnings regarding the risk of myocardial infarction and stroke were needed in the Product Information (PI) and Consumer Medicine Information (CMI). Consequently, romosozumab is now contraindicated in patients with a history of myocardial infarction or stroke.

The updated sections of the documents include Contraindications, Special warning and precautions for use, and Adverse events, reflecting an increased risk of myocardial infarction and stroke associated with romosozumab use. Health professionals should be vigilant about these updated warnings and new contraindications, informing patients and caregivers about the potential CV risks linked to romosozumab.

The benefit-risk balance for romosozumab remains positive. It continues to be a valuable treatment for osteoporosis for certain patients. The investigation, conducted by the Pharmacovigilance Branch, revealed an increased risk of major adverse cardiac events, such as CV death, non-fatal myocardial infarction, and non-fatal stroke, associated with romosozumab in certain trials.

Additional risk minimisation measures, including a Prescriber Guide and a Patient Alert Card, have been implemented to provide information about the CV risks of romosozumab and guidance on prevention, early diagnosis, and management of these events.

The updated PI includes contraindications related to a history of myocardial infarction or stroke, emphasising careful consideration of fracture risk and CV risk factors before prescribing romosozumab. The importance of monitoring signs and symptoms of myocardial infarction and stroke and prompt discontinuation of romosozumab in case of these events is highlighted. The investigation also reported related serious adverse events, reinforcing the need for increased awareness and caution in prescribing romosozumab.

http://tinyurl.com/4hncdes3

News in Brief

European Society of Cardiology guidelines and documents planned for 2024

The following ESC guidelines and documents are planned for 2024:

- Arterial hypertension
- Atrial fibrillation
- Chronic coronary syndromes
- Peripheral arterial and aortic diseases

http://tinyurl.com/532r57bt

Real-world incidence of severe QT prolongation in patients taking antipsychotic drugs

Drug-induced QT prolongation, a known risk for arrhythmias and sudden cardiac death, remains a concern. Past drugs targeting human ether-a-go-go-related gene channels were withdrawn due to high arrhythmia risk. However, antipsychotic drugs like quetiapine and haloperidol, which are integral for schizophrenia treatment, can increase the risk of sudden death risk. A study found 10% of users developed severe QT prolongation, emphasising the need for pre- and post-treatment ECGs, monitoring for exacerbating factors, and considering alternative medications, when possible, to minimise risks associated with antipsychotic drug use.

http://tinyurl.com/5yrxn8ah

Chronic hypertension and the risk of readmission for postpartum cardiovascular complications

A recent retrospective cohort study assessed cardiovascular disease (CVD) readmission risk within a year post-delivery for individuals with chronic hypertension, utilising the Nationwide Readmission Database (2010–2018). CVD hospitalisation rates were significantly higher in individuals with chronic hypertension (645 per 100,000) compared with normotensive ones (136 per 100,000). The elevated risk persisted for a year post-delivery, emphasising the importance of postpartum monitoring and timely care to mitigate blood pressure-related complications.

http://tinyurl.com/2p8jvx67

Utility of smartwatches for identifying arrhythmias in children

In a 4-year analysis, researchers investigated the clinical utility of the Apple Watch in detecting arrhythmias in 145 children with arrhythmia symptoms. Of these, 41 patients (28%) had confirmed arrhythmias, including supraventricular tachycardia, ventricular tachycardia, heart block, and complex tachycardia. The Apple Watch aided in diagnosing arrhythmias in 71% of cases, outperforming traditional ambulatory monitors. It effectively prompted further evaluations, showcasing its potential as a valuable tool for arrhythmia detection in children.

http://tinyurl.com/3emb79ja

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/y34smdoz

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

Finerenone use to delay progressive decline of kidney function in adults with T2DM-associated CKD

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 John Atherton, Professor Andrew Coats, and Dr Mark Nolan

Interventional Cardiology Research Review with Conjoint Professor Craig Juergens

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