

Cardiology Practice Review™

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Issue 24 - 2022

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Abbreviations used in this issue:

ACC = American College of Cardiology; AHA = American Heart Association
HCM = hypertrophic cardiomyopathy;
TGA = Therapeutic Goods Administration;
USPSTF = US Preventive Services Task Force.

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Welcome to the 24th 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, in relation to topics such as new and updated treatment guidelines, changes to medicines reimbursement and licensing, educational, professional body news and more. And 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

Persistent myocardial dysfunction assessed by global myocardial strain in COVID-19 recovered patients with cardiovascular comorbidities at 3 months after acute infection

Patients with recent COVID-19 infection and cardiovascular comorbidities have significantly reduced echocardiographic left ventricular (LV) global longitudinal strain (GLS) values 3 months after acute infection compared with patients with cardiovascular comorbidities and risk factors but no history of COVID-19, according to a recently published study. A history of coronary artery disease, in particular, at admission with COVID-19 may predict long-term risk for myocardial dysfunction. Of note, the study is a preprint and has not yet been peer reviewed.

The cross-sectional study assessed LV GLS measurements by echocardiography 3 months after hospital admissions with COVID-19 in adults with cardiovascular comorbidities and risk factors from June to August 2021 at one centre in Indonesia. The population comprised 100 patients with pre-existing cardiac comorbidities and risk factors recovered from a COVID-19 hospitalisation (cases), 31 patients with cardiac comorbidities and no prior COVID-19 (control group 1), and 31 healthy subjects without cardiac comorbidities or a history of COVID-19 (control group 2).

The average age of all patients was 52 years. Cases and control group 1 participants were not significantly different with respect to prevalence of diabetes, hypertension, dyslipidaemia, smoking, coronary artery disease, or obesity. Mean LV GLS values were significantly lower ($P < 0.05$) for patients in the case group (-16.17) compared with control groups 1 and 2 (-19.48 and -21.48, respectively). Of parameters evaluated during hospitalisation, only a presence of coronary artery disease was a significant multivariate predictor ($P = 0.038$) of decreased LV GLS in cases compared with the control groups. COVID-19 had no effect on right ventricular free-wall strain at 3 months regardless of cardiovascular comorbidities and risk factors.

The study had a limited sample size and was from a single centre, reducing generalisability. Data on LV GLS prior to COVID-19 infection was not available. Some data on relevant admission parameters, such as C-reactive protein, d-dimer, natriuretic peptides, and troponins were missing.

The findings suggest that patients with cardiovascular comorbidities or risk factors who are hospitalised with COVID-19 are at increased long-term risk for cardiac functional abnormalities and may benefit from follow-up using echocardiographic GLS imaging.

<https://tinyurl.com/237yjd2n>

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RESEARCH REVIEW™

ACC/AHA guideline for the diagnosis and management of aortic disease

This guideline from the American College of Cardiology (ACC) and the American Heart Association (AHA) on aortic disease provides recommendations regarding diagnosis, genetic evaluation and family screening, medical therapy, endovascular and surgical treatment, and long-term surveillance across multiple clinical presentation subsets, ranging from asymptomatic patients to those with acute aortic syndromes.

Among the highlights, the guideline encourages the use of centres with multidisciplinary aortic teams in determining the appropriate timing of intervention. There is also added emphasis on the role of shared decision-making, especially in the management of patients with aortic disease both before and during pregnancy due to the cardiovascular risks of pregnancy, the diameter thresholds for prophylactic aortic surgery, and the mode of delivery.

Regarding CT, MRI, and echocardiographic imaging of patients with aortic disease, the guideline suggests clinicians follow recommended approaches for image acquisition, measurement and reporting of relevant aortic dimensions, and the frequency of surveillance before and after intervention.

At centres with multidisciplinary aortic teams and experienced surgeons, the guideline lowers the threshold for surgical intervention for sporadic aortic root and ascending aortic aneurysms from 5.5 cm to 5.0 cm in selected patients. This threshold is further lowered in specific scenarios among patients with heritable thoracic aortic aneurysms. Additionally, in patients who are significantly smaller or taller than average, the guideline recommends that surgical thresholds may incorporate indexing of the aortic root or ascending aortic diameter to either patient body surface area or height, or aortic cross-sectional area to patient height.

The guideline also defines rapid aortic root growth or ascending aortic aneurysm growth and provides guidance on when to use genetic screening and when valve-sparing aortic root replacement is reasonable. It also discusses the increasing role for thoracic endovascular aortic repair in the management of uncomplicated type B aortic dissection.

According to the authors, most of the current recommendations for patients with aortic disease are based on expert opinion and data from observational studies, large registries, and prospective studies, but few are from randomised clinical trials. They say that more data are needed from basic science studies and randomised controlled trials to guide prevention, early diagnosis, and advanced treatment for aortic disease.

<https://tinyurl.com/yck4jvx2>

ACC expert consensus decision pathway on the evaluation and disposition of acute chest pain in the emergency department

This expert consensus decision pathway from the American College of Cardiology (ACC) aims to provide structure around the rapid evaluation and disposition of acute chest pain in patients presenting to the emergency department (ED) for possible acute coronary syndrome. The pathway also encourages the use of rapid clinical decision pathways alongside high-sensitivity cardiac troponin I (hs-cTnI) assays, to reduce ED time and increase the number of patients with chest pain who can safely be discharged without additional testing.

The pathway also urges a strategic focus at the patient level on accelerating the evaluation process and matching the intensity of testing and treatment to patient risk. Engagement of a multidisciplinary team that includes emergency medicine, laboratory medicine, cardiology, and hospital medicine specialties, along with careful ECG review, the inclusion of appropriate patients into a clinical decision pathway that combines hs-cTn measurements with risk assessment, and selective use of noninvasive testing are key to this process.

The ECG remains the best initial test for chest pain evaluation because it is rapid, inexpensive and provides critical diagnostic and prognostic information. The authors note that institutions should work to transition to hs-cTn assays given that their increased sensitivity and precision offer substantial advantages for the accelerated “rule out” of myocardial infarction and can eliminate the need for noninvasive testing in most low-risk patients.

The paper stresses that the clinical decision pathway should augment – not replace – triage, treatment and disposition decisions and that a provider’s clinical judgment at the bedside remains an indispensable tool that may lead to different triage decisions than those suggested by the clinical decision pathway.

For patients who are evaluated to be intermediate risk, additional observation and/or additional noninvasive testing may be required. Patient factors, such as results of prior testing, availability of tests, timeliness of test reporting and institutional expertise should be considered when determining choice of noninvasive tests.

<https://tinyurl.com/26vsp7ww>

Statin use for the primary prevention of cardiovascular disease in adults. US Preventive Services Task Force recommendation statement

To update its 2016 recommendation, the US Preventive Services Task Force (USPSTF) conducted a review of the evidence on the benefits and harms of statins for reducing cardiovascular disease-related morbidity or mortality or all-cause mortality. The USPSTF recommends statins for the primary prevention of cardiovascular disease for adults aged 40 to 75 years who have one or more cardiovascular disease risk factors (i.e., dyslipidaemia, diabetes, hypertension, or smoking) and an estimated 10-year of cardiovascular disease risk of 10% or greater. The USPSTF also recommends that statins are offered for the primary prevention of cardiovascular disease for adults aged 40 to 75 years who have at least one of these cardiovascular disease risk factors and an estimated 10-year of cardiovascular disease risk of 7.5% to less than 10%; the likelihood of benefit is smaller in this group than in persons with a 10-year risk of 10% or greater. The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of statins for the primary prevention of cardiovascular disease events and mortality in adults 76 years or older.

<https://tinyurl.com/bdzzmz45>

<https://tinyurl.com/55ek2fv7>

<https://tinyurl.com/bddbryew>

Radiation protection for healthcare professionals working in catheterisation laboratories during pregnancy

A position paper on radiation exposure during pregnancy states that pregnant women can safely work in an ionising radiation environment if exposure to the foetus does not exceed certain dose thresholds. The position paper aims to avoid discouraging women from pursuing careers in interventional cardiology/electrophysiology (IC/EP). The position paper is a collaboration among the European Association of Percutaneous Cardiovascular Interventions, the European Heart Rhythm Association, the European Association of Cardiovascular Imaging, the European Society of Cardiology Regulatory Affairs Committee, and Women as One.

The position paper outlines regulations in various countries; foetal radiation doses that have been associated with ill effects, including abortion, malformations, and intelligence quotient reductions; the spontaneous probability of having a newborn with a congenital malformation or childhood cancer; and proposals to improve practice.

Highlights include the following:

- European, North American, Japanese, and Australian regulations permit pregnant women to work if closely monitored with an abdominal dosimeter; some countries, such as Austria, Hungary, Portugal, and Romania, do not allow women to work in IC/EP during pregnancy or breastfeeding.
- The maximum foetal dose exposure during pregnancy is 1 mSv in Europe, Australia, and Israel; 2 mSv in Japan; and 5 mSv in the United States.
- Doses associated with foetal harm are 100 times higher than those allowed during an interventional cardiologist’s entire pregnancy.
- There is a negligible risk increase in the spontaneous probability of a newborn having a congenital malformation or childhood cancer when the occupational exposure range of the mother respects a country’s limits.
- No studies have shown an increased risk of noncancerous adverse effects from prenatal radiation exposure <50 mSv.

To improve practice, the position paper suggests the following:

- Fluoroscopy operators must be guided by the “as low as reasonably achievable” principle: obtaining optimal images must be balanced with procedure safety.
- Scatter radiation emitted from the patient is the main source of radiation exposure to the operator and personnel; reducing radiation to the patient will reduce exposure for staff.
- The three fundamentals of radiation safety for an operator are (1) time, (2) distance, and (3) shielding and dosimeter monitoring. Time refers to the amount of time the operator spends using the x-ray system; distance means maximizing distance from the x-ray source; and shielding includes personal, tableside, or external protection, with each form having a degree of lead equivalence defining its radiation protective effect.
- Changes in medical school curricula and creating a friendlier workplace environment for families and pregnant interventionalists are among the strategies that will promote gender equity in the profession.

<https://tinyurl.com/43myttdp>

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ARR: absolute risk reduction. CV: cardiovascular. HF: heart failure. HFH: heart failure hospitalisation. HFrEF: heart failure with reduced ejection fraction. IV: intravenous. NO-sGC-cGMP: nitric oxide-soluble guanylate cyclase-cyclic guanosine monophosphate.



References: 1. Armstrong et al. *N Eng J Med* 2020; 382(20): 1883–1893. 2. Butler et al. *Circulation* 2020; 142(8): 717–719. 3. VERQUVO (vericiguat) Product Information, Bayer Australia Ltd. ABN 22 000 138 714, 875 Pacific Highway, Pymble NSW 2073. Verquvo® is a registered trademark of Bayer Group, Germany. PP-VER-AU-0090-1. SSW. VER-003349-01/RR/PBS. November 2022.



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Regulatory News

TGA – new indications

licosapent ethyl (Vazkepa) is indicated to reduce the risk of cardiovascular events in adult statin-treated patients at high cardiovascular risk with elevated triglycerides (≥ 1.7 mmol/L) and:

- established cardiovascular disease, or
- diabetes, and at least one other cardiovascular risk factor.

<https://tinyurl.com/5d76mnnz>

News in Brief

Use of lipoprotein(a) in clinical practice: A biomarker whose time has come. A scientific statement from the National Lipid Association

Lipoprotein(a) is a well-known independent risk factor for atherosclerotic cardiovascular disease, with 20% of the population thought to have increased levels. Evidence supports a relationship between high concentrations of lipoprotein(a) and increased risk of atherosclerotic cardiovascular disease-related events, such as myocardial infarction and stroke, and valvular aortic stenosis. This scientific statement from the National Lipid Association reviews evidence-based considerations for testing of lipoprotein(a) in clinical practice and the utilisation of lipoprotein(a) levels to guide treatment strategies.

<https://tinyurl.com/2vszhd3w>

Hypertrophic cardiomyopathy: imaging to stratify the risk of sudden cardiac death

This plenary presentation from the ESC 2022 conference outlined the roles of echo cardiography, cardiac MRI and cardiac CT in the risk stratification for sudden cardiac death in hypertrophic cardiomyopathy. The seven key factors included age, maximum LV wall thickness, left atrial size, LVOT gradient, family history of sudden cardiac death, non-sustained ventricular tachycardia, and unexplained syncope as outlined in the latest ACC/AHA 2020 guidelines. While echo cardiography is the imaging cornerstone, cardiac MRI with late gadolinium enhancement can exclude phenocopies such as amyloid or Fabry disease, and CT can add clarification.

Download the presentation [here](#)

COVID-19 Resources for Cardiologists

CSANZ <https://tinyurl.com/y3xp272>

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/y4vj8xb5>

CSANZ <https://tinyurl.com/3mwt5tr>

Cardiac Skills Australia <https://tinyurl.com/zkzlelb>

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/y3zkip3o>

Research Review Publications

[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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