Articles

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**A systematic review and meta-analysis of the effects of supervised exercise therapy on modifiable cardiovascular risk factors in intermittent claudication.**
[This systematic review and meta-analysis shows favorable effects of SET on modifiable cardiovascular risk factors, specifically blood pressure and cholesterol levels. Despite the moderate quality, small trial sample sizes, and study heterogeneity, these findings support the prescription of SET programs not only to increase walking distances but also for risk factor modification.]

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**Advanced airway management during adult cardiac arrest: A systematic review.**
Granfeldt A. *Resuscitation* 2019;139:133-143.
[We identified a large number of studies related to advanced airway management in adult cardiac arrest. Three recently published, large randomized trials in out-of-hospital cardiac arrest will help to inform future guidelines. Trials of advanced airway management during in-hospital cardiac arrest are lacking.]

**Atrial fibrillation type and renal dysfunction as important predictors of left atrial thrombus.**
[In real-world AF patients with majority on oral anticoagulation, LAA thrombus was found in approximately 6%. Two variables not included in the CHA2DS2-VASc score (AF type and renal dysfunction) proved strong, independent predictors of LAA thrombus and might improve thromboembolic risk stratification.]

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**Cardiac Arrest and Subsequent Hospitalization-Induced Posttraumatic Stress Is Associated With 1-Year Risk of Major Adverse Cardiovascular Events and All-Cause Mortality.**
[To compare 1-year all-cause mortality and major adverse cardiovascular events in cardiac arrest survivors with and without posttraumatic stress disorder symptomatology at hospital discharge.]

Computed tomographic coronary angiography in risk stratification prior to non-cardiac surgery: a systematic review and meta-analysis.
Koshy AN. *Heart* 2019;;-. 
Severity and extent of CAD on CTA conferred incremental risk for perioperative MACE in patients undergoing non-cardiac surgery. The ‘rule-out’ capability of CTA is comparable to other non-invasive imaging modalities and offers a viable alternative for risk stratification of patients undergoing non-cardiac surgery.

**Effect of Trans-Nasal Evaporative Intra-arrest Cooling on Functional Neurologic Outcome in Out-of-Hospital Cardiac Arrest: The PRINCESS Randomized Clinical Trial.**
Nordberg P. *JAMA* 2019;321(17):1677-1685.
[Among patients with out-of-hospital cardiac arrest, trans-nasal evaporative intra-arrest cooling compared with usual care did not result in a statistically significant improvement in survival with good neurologic outcome at 90 days.]

**Effect of ultra-short-term treatment of patients with iron deficiency or anaemia undergoing cardiac surgery: a prospective randomised trial.**
[An ultra-short-term combination treatment with intravenous iron, subcutaneous erythropoietin alpha, vitamin B12, and oral folic acid reduced RBC and total allogeneic blood product transfusions in patients with preoperative anaemia or isolated iron deficiency undergoing elective cardiac surgery.]

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**Effects of tolvaptan add-on therapy in patients with acute heart failure: meta-analysis on randomised controlled trials.**
[The result suggests that comparing with the standard diuretic therapy, tolvaptan add-on therapy did not reduce the incidence of WRF and short-term mortality, however, it can decrease body weight and increase the sodium level in patients who are with ADHF. Further researches are still required for confirmation.]

*Freely available online*

**Efficacy and safety of platelet-rich plasma in treating cutaneous ulceration: A meta-analysis of randomized controlled trials.**
[Platelet-rich plasma effectiveness and safety in treating cutaneous ulceration depend on what is the ulceration etiology. For diabetic ulcers, PRP showed no satisfactory results suggesting that PRP may not be suitable for diabetic patients. However, PRP could be efficient and more beneficial for vascular ulcers and effects on pressure ulcers remain unclear. Thus, PRP option should be carefully considered for each patient in accordance with their ulceration etiologies.]

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**Efficacy of primary treatment with immunoglobulin plus ciclosporin for prevention of coronary artery abnormalities in patients with Kawasaki disease predicted to be at increased risk of non-response to intravenous immunoglobulin (KAICA): a randomised controlled, open-label, blinded-endpoints, phase 3 trial.**
Combined primary therapy with IVIG and ciclosporin was safe and effective for favourable coronary artery outcomes in Kawasaki disease patients who were predicted to be unresponsive to IVIG. 

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Immunotherapy for cardiovascular disease.
Lutgens E. European Heart Journal 2019;:ehz283.
[This review discusses the potential of novel immunotherapeutic targets that are currently considered to become a future treatment for cardiovascular disease.]

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[These results, based on an IPD meta-analysis of randomized trials, confirm the benefit of ExCR on HRQoL and exercise capacity and support the Class I recommendation of current international clinical guidelines that ExCR should be offered to all HF patients.]

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Iron Supplementation Improves Cardiovascular Outcomes in Patients with Heart Failure.
Zhou X. The American Journal of Medicine 2019;:--.
[Our meta-analysis suggests that iron therapy can reduce heart failure hospitalization, increase cardiac function, improve quality of life, and decrease serum levels of NT-proBNP and CRP in patients with heart failure.]

Levels of Lipoprotein (a) in patients with coronary artery disease with and without inflammatory rheumatic disease: a cross-sectional study.
[Conclusions: Our data do not support a link between inflammation and Lp(a) levels in coronary artery disease (CAD) and in general Lp(a) levels were not correlated with other risk factors for cardiovascular disease.]

Meta-analysis of clinical trials examining the benefit of structured home exercise in patients with peripheral artery disease.
[This meta-analysis suggests that structured home exercise programmes are effective at improving walking performance and physical activity in the short term for patients with PAD.]

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Meta-Analysis of Direct-Acting Oral Anticoagulants Compared With Warfarin in Patients >75 Years of Age.
[DOACs were found to be safer and more effective than warfarin for the treatment of nonvalvular AF in older patients. Apixaban appears to provide the best combination of
efficacy and safety in this population.]
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**Myocardial injury after non-cardiac surgery: diagnosis and management.**
Devereaux PJ. *European Heart Journal* 2019::ehz301.
[This article reviews the definition, diagnostic criteria, pathophysiology, prognosis, characteristics, and pharmacological and surgical management of myocardial injury after non-cardiac surgery.]
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**Optimal Timing of P2Y12 Inhibitor Loading in Patients Undergoing PCI: A Meta-Analysis.**
[The timing of P2Y12 inhibitor loading in patients undergoing percutaneous coronary intervention (PCI) is a matter of debate. The aim of our study was to compare the efficacy and safety of oral P2Y12 inhibitors: clopidogrel, ticagrelor and prasugrel administered at two different time points in relation to PCI: early (> 2 hours pre-PCI) versus late (< 2 hours pre-PCI or post-PCI).]
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**Preoperative Exercise Rehabilitation in Cardiac and Vascular Interventions.**
Drudi LM. *Journal of Surgical Research* 2019;237:3-11.
[Our qualitative findings suggest that prehabilitation may improve clinical outcomes, physical performance, and health-related quality-of-life measures in patients undergoing cardiac and vascular surgery procedures.]
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**Resistance training as a treatment for older persons with peripheral artery disease: a systematic review and meta-analysis.**
[RT clinically improved treadmill and flat ground walking ability in persons with peripheral artery disease. Higher intensity training was associated with better outcomes. Our study makes a case for clinicians to include high-intensity lower body RT in the treatment of peripheral artery disease.]
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**Tai Chi: a promising adjunct nursing intervention to reduce risks of cardiovascular disease and improve psychosocial well-being in adults with hypertension.**
Smith G D. *Evidence-Based Nursing* 2019;22(2):45.
[Tai Chi was shown to significantly lower blood pressure and to improve psychosocial well-being compared with brisk walking. These findings suggest that Tai Chi may provide a non-pharmacological treatment option to reduce the risk of CVD in adults with established hypertension.]
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The Effect of Cardiac Rehabilitation on Health-Related Quality of Life in Patients With Coronary Artery Disease: A Meta-analysis.
[Receiving CR was shown to improve HRQOL, with exercise-, nonexercise-, and psychological-based interventions playing a vital role. Although these improvements in HRQOL were modest they still reflect an incremental benefit compared with receiving usual care.]
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The rise and fall of aspirin in the primary prevention of cardiovascular disease.
Raber I. The Lancet 2019;::doi.org/10.1016/S0140-6736(19)30541-0.
[This narrative review discusses the role of aspirin in primary prevention of cardiovascular disease, contextualising data from historical and contemporary trials.]
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Vasopressors during adult cardiac arrest: A systematic review and meta-analysis.
Holmberg MJ. Resuscitation 2019;139:106-121.
[Controlled trial data suggest that epinephrine improves ROSC, survival to hospital discharge, and 3-month survival in out-of-hospital cardiac arrest. The improvement in short-term outcomes appeared more pronounced for non-shockable rhythms. Differences in long-term neurological outcome did not reach statistical significance, although there was a signal toward improved outcomes. Controlled trial data indicated no benefit from vasopressin with or without epinephrine compared to epinephrine only]

Guidelines

The following new guidance has recently been published:

JAMA Surgery;2019.
https://jamanetwork.com/journals/jamasurgery/fullarticle/2732511
[Enhanced Recovery After Surgery (ERAS) evidence-based protocols for perioperative care can lead to improvements in clinical outcomes and cost savings. This article aims to present consensus recommendations for the optimal perioperative management of patients undergoing cardiac surgery.]
Freely available online

Perioperative cardiovascular risk in patients with obstructive sleep apnea.
UpToDate;2019.
[Several small prospective studies in patients with obstructive sleep apnea (OSA) have demonstrated increased cardiovascular (CV) risk perioperatively. Now in the largest prospective study to date, the increased CV risk was confirmed in 1200 patients undergoing major noncardiac surgery.]
Pulmonary hypertension as a perioperative risk factor.
UpToDate;2019.
[Patients with pulmonary hypertension (PH) face increased risk for perioperative mortality and morbidity. In a study that included nearly 18 million hospitalizations in patients undergoing various types of noncardiac surgery, significantly higher mortality was noted in the nearly 144,000 patients who had a diagnosis of PH (4.4 versus 1.1 percent)]

Risk prediction for sudden cardiac death in arrhythmogenic right ventricular cardiomyopathy.
UpToDate;2019.
[Sustained ventricular arrhythmias (VAs) and/or sudden cardiac death (SCD) are common in patients with arrhythmogenic right ventricular cardiomyopathy (ARVC), sometimes occurring as the initial manifestation of disease.]

Stroke and pulmonary embolism.
UpToDate;2019.
[Studies have suggested an increased risk of stroke among patients with acute pulmonary embolism (PE), thought to be due to paradoxical embolism via a patent foramen ovale (PFO).]

Treatment of anemia or iron deficiency on the day before cardiac surgery.
UpToDate;2019.
[Preoperative anemia is common in cardiac surgical patients; the underlying cause (typically iron deficiency) should be treated before elective procedures when time allows.]

Reports

The following report(s) may be of interest:

Can erection problem medicines help reverse heart failure?
NHS Behind the Headlines; 2019.
[Researchers investigated the effect of the medicine tadalafil, brand name Cialis, on sheep hearts. The sheep developed a condition similar to heart failure in humans after being implanted with a pacemaker that made their heart beat artificially fast. Researchers said the hearts of sheep treated with Cialis retained the ability to contract and push blood around the body, as well as the ability to respond to an adrenaline-like medicine.]
Freely available online

Heart scan may detect young people at risk of sudden cardiac death.
NHS Behind the Headlines; 2019.
[A very small number of people with hypertrophic cardiomyopathy (HCM), estimated to be around 1 in 100, are at risk of sudden cardiac arrest. A new study aimed to see if a special type of cardiac MRI could detect abnormalities of the heart muscle fibres in HCM that are thought to be linked to the high-risk category. It compared the scans of 50 people with HCM and 30 healthy controls and found that they could detect various differences between them.]
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This Bulletin was created by Sian Hudson of NHS East Dorset Knowledge and Library Service