Cardiology Update

Dr Fiona Stewart

Department of Cardiology, Auckland City Hospital, New Zealand

What is new in Cardiology?

As always there are plenty of new developments in Cardiology over the past few years. Some of the key areas by subspecialty are:

Ischaemic Heart Disease:
Treatment of acute coronary syndromes has become guideline driven with early angiography, dual antiplatelet therapy, aggressive statin management of lipids, β-blockers and ACE inhibition. In NZ, the development of the ANZACS-QI (All NZ ACUTE Coronary Syndrome – Quality Improvement) registry has enabled us to capture data on every patient admitted to a NZ hospital since late 2013, leading to major initiatives to improve equity of service whether by geographical location, patient ethnicity or gender. Through NHI tracking and pharmacy data bases information is also available on patient adherence to treatment in the longer term. There is increased interest in the group with ACS and non-obstructive coronary disease including Takotsubo syndrome, coronary spasm and microvascular disease.

Percutaneous intervention for chronic coronary disease is most effective for patients with haemodynamically significant disease with evidence of inducible ischaemia on functional testing or by Fractional Flow Reserve. Medical therapy is preferred for moderate coronary disease.

New generation stents are less thrombogenic. Surgery should be delayed by 1 month post PCI where possible.
Biomarkers – high sensitivity troponins and BNP have increased utility in the diagnosis and management of ACS and CHF.

PREDICT scores for prediction of cardiovascular risk are central to risk stratification in the community but this can be further improved with the addition of calcium scoring.

Statins remain the most effective preventative agents despite the groundswell of "fake news" around their safety. They do not impair cognition or cause dementia and are often not the cause of muscle aches. The risk of major cardiovascular events is reduced by 20% per year for every 1mmol/l reduction in LDL cholesterol and mortality by 10% per year. PCSK9 inhibitors are promising as highly effective new cholesterol lowering agents but their cost and administration by subcutaneous injection will limit their use.

Valvular Heart Disease
TAVR (transcatheter aortic valve replacement) is now recommended for intermediate as well as high risk patients. Heart Failure: BNP is increasingly useful for both the diagnosis and prognosis of patients with heart failure. Epleronone is now available as an angiotensin receptor blocker and an alternative to spironolactone giving the same benefit without the troublesome gynaecomastia. Neprilysin inhibitors are on the horizon but not yet available in NZ.

Arrhythmias
Monitoring systems for detecting arrhythmias have improved with the use of phone ap based devices (Kardia) and implanted monitors.

Leadless pacemakers and ICDs will reduce the long-term risks of these devices in younger patients.

AF: Rhythm control is being pursued more actively with PVI (pulmonary vein isolation) procedures using cryoablation in appropriate patients.

Rate control is important at rest and with exercise. B-blockers and diltiazem are the first line agents. Digoxin is rarely used and amiodarone is reserved for acute use or in selected high risk patients.

Anticoagulation based on a CHADS VASc score of 2 or more is recommended. Dabigatran or rivaroxaban are usually preferred to warfarin except with prosthetic valves. Bridging anticoagulation preop is only recommended with prosthetic valves and high-risk patients with a recent CVA.

For patients with a recent PCI and AF - triple therapy with aspirin, clopidogrel +NOAC for 1/12 followed by clopidogrel + NOAC until 1y then NOAC alone.

Hypertension

New guidelines in NZ and US are favouring treatment of BP to below 130/80. This carries an increased risk of syncope and renal impairment but is associated with fewer cardiac events. Treatment guidelines for preoperative BP control are less tight with concern about intraoperative hypotension causing myocardial ischaemia and renal impairment.

There is increasing interest in cardiac disease in the context of comorbidities. Cardio-oncology has become a recognised subspecialty with an increasing number of cardiac complications recognised from chemotherapy, hormonal and radiotherapy. Obesity is strongly associated with both diabetes and obstructive sleep apnoea. OSA is associated with a high risk of atrial fibrillation. There are newer diabetic medications some of which lower cardiac risk. Inflammation is an important risk for the development of coronary disease. HIV and autoimmune disorders such as rheumatoid arthritis therefore have an increased risk of CAD.

Cardiac genetics is a significant new frontier in cardiology. There are recognised genetic causes of arrhythmias (LQT, Brugada, Catecholaminergic VT), cardiomyopathies (DCM and HCM) and aortopathies. Work is progressing on identifying patients whose genotype may determine which treatment suits them best but has not yet become mainstream cardiology.

Despite all these advances a good history, examination, estimation of functional capacity and an ECG remain the cornerstones of good cardiac care.