Gamechangers

INCORPORATING CARDIAC CT INTO CHEST PAIN PATHWAYS

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Chest pain is a common presenting symptom. Identifying patients with underlying coronary artery disease (CAD) is challenging[1].

Across Northern Ireland, Exercise Stress Testing (EST) is the commonest first line investigation at chest pain clinics. EST has a 45-50% sensitivity for predicting CAD.[1] One third of patients diagnosed with non-cardiac chest pain develop ACS or die from IHD within 5 years.[1]

NICE guidelines support Cardiac CT in assessing low-intermediate risk patients. The two key components are CT coronary angiography (CTCA) and Calcium Scoring.

CTCA has a high negative predictive value for excluding CAD making it a potential 'gatekeeper' to invasive angiography. It is proposed as the best non-invasive investigation in the assessment of angina given its high sensitivity (89%) and specificity (96%).[1] Calcium scoring acts as a surrogate marker for atherosclerotic disease and functions as a risk stratification tool. The presence of any detectable calcium on CT is associated with a fourfold increase in coronary events over 3 years.[2]

An emerging use of cardiac CT is incorporating functional assessment of CAD by fractional flow reserve (FFR) to help diagnose ischaemia. CTFFR can provide high diagnostic accuracy for the diagnosis of haemodynamically significant CAD with invasive FFR as the reference standard.[3]

Improved technology has helped reduce some concerns with implementing Cardiac CT. Multi-slice scanners can reduce the imaging field and have less heart rate dependency, helping reduce radiation dose. This also enables imaging of patients previously too challenging e.g. atrial fibrillation.

Compelling evidence exists for incorporating cardiac CT into chest pain pathways. It can help reduce diagnostic uncertainty and guide the use of invasive angiography, improving outcomes for patients.

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THE UNTOUCHED HEART – SUBCUTANEOUS ICDS

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Since 1980 transvenous implantable cardioverter defibrillators (TV-ICDs) have been the cornerstone of sudden cardiac death prevention. They are, however, associated with venous stenosis, thrombosis, endocarditis and lead failure rates of up to 20% at 10 years. Extraction of infected or failed TV-ICD leads is highly challenging[1].

A significant proportion of these complications could be avoided with use of a new subcutaneous-ICD (S-ICD), which comprises a lead tunneled in the subcutaneous tissue along the left sternal edge and to the left anterior axillary line, where a generator is positioned. However, compared with TV-ICDs, there is no provision for long-term bradycardia or anti-tachycardiac pacing (ATP) therapies and the generator is twice as large to accommodate the need for higher energy shocks (80J vs 35J)[2].

The largest, long-term study of S-ICDs to date reported equivalent complication and arrhythmia detection rates compared with TV-ICDs[2], and an inappropriate shock rate of 11%. Recent ESC guidelines recommend that S-ICD be considered in those patients with venous access issues, previous device infections or young patients who meet S-ICD vector screening criteria when bradycardia pacing, ATP or cardiac resynchronization is not required.

In conclusion, subcutaneous ICDs have a role in prevention of sudden cardiac death with appropriate patient selection.

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RHEUMATOID HANDS IN THE BIOLOGIC ERA

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The biologic era has brought exciting opportunities in rheumatology. From cautious beginnings with infliximab we now have five anti-TNF drugs: anti-IL 6, IL1, IL12/23, B and T cell blockers in our armoury. With JAK kinases as emerging oral drugs needles might not remain a necessary inconvenience.[1] The generic biosimilars may achieve similar results at reduced cost, although the degree to which they are equivalent is debated.

Rheumatologists and patients have gained confidence with biologic drugs. Initial fears of cancer, MS and TB are largely unfounded with successful treatment of patients into their eighties. With suitable patient selection side effect rates are not far off placebo in clinical trials.[2]

With such powerful treatments on offer are the textbook cases of rheumatoid deformities a thing of the past? Sadly not all patients respond and some have initially positive responses only to suffer a frustrating failure of their biologic drug a year or so down the line. There are patients who have been through all biologic treatments and wait for the next new molecule, hoping that this one may work for them.

What can we do in these circumstances? We have to rely on joint injections, corticosteroids, physical therapy, and a strong therapeutic relationship with our patients, continuing to care when we cannot cure. The biological era has brought remission to many patients and there are hopeful new drugs in the pipeline but cases of "rheumatoid hands" are not going to disappear just yet.

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