

San Doctor

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CT Coronary Angiography

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In 2016 CT coronary angiography (CTCA) is an established mainstream technique - reflected in 2013 ESC guidelines. However, evidence now demonstrates CTCA, rather than being merely "an alternative that should be considered", has significant advantages in particular situations, building the case for its mandatory use.

In stable symptomatic patients, CTCA, due to its high (for practical purposes, "perfect") negative predictive value, rules out obstructive coronary disease (CAD) avoiding unnecessary invasive coronary angiography (ICA) and associated complications (0.11% mortality, 1.7% major complication). In a recent American database of 400,000 patients, 40% of ICA patients were normal and 60% had no "relevant" coronary stenoses.

If CTCA, as the first test, does not rule out obstructive CAD, then management will proceed along the established algorithm (e.g. ICA or functional testing). Importantly, there is, for practical purposes, negligible chance of harm coming to the patient as a result of the CTCA. In contrast, harm can come to patients undergoing functional imaging, especially stress ECG, as the first test, because their inferior sensitivity, can lead to failure to diagnose obstructive CAD. CTCA is appropriate in stable symptomatic patients at low to intermediate (15% to 50%) risk for CAD and also after a non-conclusive functional test or if functional testing contraindicated (2013 ESC guidelines). There remains conflicting opinion as to the role of CTCA in stable symptomatic patients at low (<15%) or high (>50%) pretest probability for CAD.

In SCOTHEART CTCA correctly reclassified the post stress ECG diagnosis of CAD in 27% of patients and angina in 23% with a resultant strong trend to reducing myocardial infarction and cardiac death.

CTCA is indicated in some asymptomatic patients, e.g. reduced LVEF or LBBB and possibly though family history.

CTCA, especially when including calcium scoring (CS), non obstructive CAD. Utilising CS, calculation of 10 year risk of myocardial infarction or death is 18 X more accurate than Framingham score. ICA provides some non-obstructive CAD information but less than CTCA and insufficient to perform the above calculation. Functional testing neither diagnoses or excludes non-obstructive CAD. Non obstructive CAD is prognostically significant, changes preventive management: statins (2013 Guidelines), antihypertensives (SPRINT) and aspirin (USPSTF). Accumulating evidence suggests improved prognosis results. All CTCA/CS patients, regardless of indication and including asymptomatic patients, potentially benefit from the scan in this way.

Experts agree CS is appropriate in asymptomatic patients with intermediate (10-20%) 10 year risk of coronary events as well as low (0-10%) risk patients with a family history of premature CAD. CS may also be warranted in low risk women, aged 50-70. A significant number would be reclassified to higher risk and thus benefit from statins +/- other therapy. There is also some evidence that CS improves compliance with medication and lifestyle modification.

CTCA and/or CS are not indicated as a screening test in unselected patients. Repeat CS improves prognostic prediction but this is insufficient to warrant its routine use.

There is no role for CTCA in acute myocardial infarction per se, however, emergency department patients, immediately discharged after one set of normal biomarkers and CTCA demonstrating normal coronary arteries or minimal CAD, have downstream adverse cardiac events of <1%/yr, demonstrating a potential indication for these patients.

In 1,196 consecutive patients aged 70 years or older "nearly all of the CCTA images were fully acceptable for diagnosis." Image quality was "poor" in only 1.8% of cases.

CTCA rules out future adverse events with a long-term (> 5 year) "warranty period" surpassing the previous best, up to 2 year, "warranty period" of SPECT (e.g. sestamibi).

The radiation dose for CTCA is ~3mSv with an additional ~3mSv for a concurrent CS. Concurrent CTCA+CS uses significantly less radiation than if done separately. Ideally, prior to each scan, the active clinical decision is taken as to whether CTCA or CS or



Figure 1. CT Coronary Angiography

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CT Coronary Angiography *(continued from page 1)*

both are indicated. CTCA doses are reported as low as 1mSv with individuals achieving 0.06mSv. By comparison ICA ~5mSv and SPECT ~15mSv.

Medicare provides a rebate for CTCA (when referred by a cardiologist) for symptomatic patients but not for asymptomatic patients. There is no Medicare rebate for CS alone. Some providers will include concurrent CS with CTCA at no extra cost.

CTCA has appropriately displaced historical now obsolete approaches to cardiological care. As the clinical scientific evidence accumulates and the technology evolves, its role continues to grow.

References available on request.

Rhinology *(continued from page 4)*

2. Removal of eosinophilic mucin or other debris which are stimulating an immunological response which in turn is causing the inflammation and polyp formation.

It is therefore imperative that surgical intervention in a patient with CRSwPolyps consists of a wide cavity operation opening up all the sinuses. The concept of simply removing nasal polyps in order to create an airway is no longer sound and not justified. Patients are consented regarding the philosophy behind surgical consideration and are informed that nasal polyps, particularly of eosinophilic origin is "an asthma like" condition of the upper airway and whilst it is well controlled, it is never curable with today's current knowledge.

The treatment approach consists of utilising intranasal steroid solution in a high volume low pressure sinus rinse bottle. It is important, that both the sinus status and the delivery method are optimised in order for a good long term result. The use of intranasal steroid sprays, are inadequate for the long term control of nasal polyposis.

References available on request.