

Coronary CTA: Information for Physician Offices

Who should be considered for Coronary CTA? What are the indications?

The single most important step for patients trying to determine whether they should consider a Coronary CTA is consultation with their primary physician. This is because some Coronary CTA uses are more appropriate than others, and the scan carries some risk from X-ray exposure that may result in cancer. Also contrast dye exposure carries the possible risk of allergic reactions and kidney damage.

Overall, Coronary CTA examinations have tended to help determine a lack of significant narrowing and calcium deposits in the coronary arteries, as well as a presence of fatty deposits. This has been found to be particularly valuable in asymptomatic patients with higher risk for coronary disease, in patients with atypical symptoms but lower risk of coronary disease, or in patients with unclear stress-test results. As a result, we currently support the careful use of Coronary CTA for patients who have:

- Intermediate to high-risk profiles for coronary artery disease, but who do not have typical symptoms (especially chest pain, shortness of breath, or fatigue during heavy physical activity.)
- Unusual symptoms for coronary artery disease (such as chest pain unrelated to physical exertion), but low to intermediate risk profiles for coronary artery disease, unclear or inconclusive stress test (treadmill test) results.

For these types of patients, Coronary CTA can provide important insights to their primary care physician into the extent and nature of plaque formation with or without any narrowing of the coronary arteries. Coronary CTA also can non-invasively exclude narrowing of the arteries as the cause of chest discomfort. It may also detect other possible causes of symptoms. But again, initial consultation with their primary physician is key for patients seeking to determine the appropriateness of Coronary CTA.

Who should not have Coronary CTA? What are the contraindications?

To date, Coronary CTA has not been proven as effective as the coronary angiogram in detecting disease in the smaller heart arteries that branch off the major coronary arteries. For that reason, we do not consider Coronary CTA as an adequate substitute for needed coronary angiography in patients with strong evidence of narrowing of the coronary arteries. Such patients include those with a history of chest pain during heavy physical activity, a history of positive stress-test results, or a known history of coronary artery disease or heart attack. Coronary CTA also is of limited use in patients with extensive areas of calcified, or hardened plaque. Patients who are extremely overweight (body mass index >40%), or who have abnormal heart rhythms tend not to be suitable candidates for this test because imaging quality is compromised.

Contraindications

Atrial fibrillation, bigeminy, trigeminy, high grade heart block are considered as absolute contraindications.

Relative contraindications to beta blockers (and calcium channel blockers) are generally considered a significant limitation to an diagnostic study and any patient who is considered for CTA who cannot be pre-medicated needs to be informed the exam may not result in diagnostic information.

Inability to control heart rate to less than 65BPM -- *Note that with the current 64 detector scanners, a heart rate of over 65 BPM is considered a threshold heart rate above which the image quality of a coronary CTA is usually severely compromised and typically does not produce images of*

diagnostic quality. (In special circumstances, exceptions can be made, please discuss such cases directly with the radiologist). Patients who cannot receive beta-blockers or calcium channel blocker will require discussion with the radiologist prior to scheduling.

Renal Insufficiency or Anaphylactic or Anaphylactoid reactions to dye-IV contrast allergy (or failed steroid prep for contrast allergy) is another contraindication. As is Morbid Obesity (Must discuss with scheduling nurse if patient over 250 pounds). A BMI (body mass Index) in excess of 40% may not allow for an adequate exam.

Relative Contraindication - May result in non-diagnostic exam.

- Too many PVC's may cause data loss during PVC and result in non-diagnostic segments
- Heavily calcified coronary arteries –blooming artifact can obscure a patent lumen
- Stent patency ---dependent on stent and stent location
- Obesity –decreased sensitivity for plaque detection and wall evaluation
- Coronary CTA is unable to assess TIMI flow and retrograde filling

What is the procedure for getting a Coronary CTA examination at The Sparrow Hospitals?

Because the Heart Center at Sparrow is a collaborative imaging effort between Cardiology and Radiology we support partnerships with patients and their primary physicians in the delivery of advanced non-invasive imaging, the following steps for referral for Coronary CTA need to be followed:

- Patients and their primary physician must decide on the appropriateness of Coronary CTA, including indications (intermediate-high risk profile without symptoms vs. atypical symptoms with low-intermediate risk profile vs. uncertain stress-test results) and level of safety (unnecessary X-ray exposure in young adults - especially women) should be avoided; histories of significant allergic reaction are best avoided; creatinine < 1.8 mg/dL required.

For Physician Offices: Mandatory Patient preparation for CT Coronary Angiography

Patients need a prescription for Beta-blocker from ordering physician – to get to a target heart rate of approximately 60bpm.

Routine dose: Metoprolol 100mg PO 1 hr prior to exam, preferably to be taken upon arrival for the CTA appointment. The patient is to take the medication one hour before the test and should plan to arrive at least one hour prior to the exam. The dose will depend on the patient's weight and basal heart rate and blood pressure. For higher resting heart rates and blood pressures, Metoprolol IV during the exam will be prescribed by the radiologist. For low resting heart rates and blood pressures, no drug may be administered.

Calcium channel blockers may be used for severe asthma, COPD.

Verapamil 80mg oral dose will be administered one hour prior to the exam.

Ordering physician office should distribute patient information sheet (and consent form) explaining the following:

- Nothing by mouth except for water and routine medications for 4 hours prior to CTA exam
- No Cialis, Viagra, or Levitra for 72 hrs prior to the study
- No caffeine for 24 hours prior to the study and avoid energy drinks
- 18 Gauge IV access in R better than L antecubital fossa for iodinated IV contrast
- If no access, or known difficult IV stick, an appointment must be made with Interventional Radiology in conjunction with CT to place the necessary IV access

Scheduling Information for Physician Offices

These tests can ONLY BE ORDERED BY A PHYSICIAN. Please contact your physician to determine if this testing is appropriate for you.

Physician Instructions: To order a coronary artery CT arteriogram please write prescription and ask Central Scheduling specifically for 'coronary artery CTA' to ensure the correct type of scan is performed and to facilitate optimal patient preparation prior to the scan. This may require ordering Metoprolol so the patient can have it to take one hour prior to the exam.

For scans needing to be scheduled at Sparrow Hospital (including the St. Lawrence Campus), call the Central Scheduling Department at 517.364.3659.

Please then fax a current History & Physical document demonstrating the indications for this exam, a list of current medications and current BUN and creatinine to 517.364.3960. We must have lab results conducted within 30 days of scheduled testing date. If there is no current laboratory value for these tests, please have the patient undergo a blood draw for these values at a Sparrow facility so that these lab tests can be available prior to the examination.

For all questions regarding this test or its relevant pretest issues please call the CTA nurse at 517.364.2345.