Coronary CT Angiography (CCTA) Clinical Pathway

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May 2024 replaces June 2013

Primary Sources: 1. Maroules CD, Rybicki FJ, Ghoshhajra BB, et al. 2022 use of coronary computed tomographic angiography for patients presenting with acute chest pain to the emergency department: An expert consensus document of the Society of Cardiovascular Computed Tomography (SCCT). . 2022;17(2):146-163. doi:10.1016/j.jcct.2022.09.003

2. Gulati M, Levy PD, Mukherjee D, et al. 2021 AHA/ACC/ASE/Chest/Saem/SCCT/SCMR guideline for the evaluation and diagnosis of chest pain: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. . 2021;144(22). doi:10.1161/cir.0000000000001029

Pathway Applicability:
Patients with acute chest pain with symptoms concerning for Acute Coronary Syndrome (ACS) presenting to the Emergency Department

Patient clinically appropriate (Table 1)?
- No → No CCTA
- Yes → Patient technically appropriate (Table 2)?

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- No → No CCTA
- Yes → Patient appropriate for beta-blockers (Table 3)?

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- No → No CCTA
- Yes → Order CCTA

Order CCTA
18-20 gauge IV in antecubital fossa
Give Beta-blocker 30 to 60 min prior to CT scan :
Metoprolol 25 mg PO for HR 55-59
Metoprolol 50 mg PO for HR 60-65
Metoprolol 100 mg PO for HR > 65
HR Goal: <60 bpm

Patient appropriate for nitroglycerin (Table 4)?
- No → Transport patient to CT
Return to ED after scan completion
- Yes → 1/2 inch nitropaste to chest 60 min prior to CT
OR
0.4-0.8 mg sublingual nitroglycerin tabs or spray 5 min prior to contrast

Table 1: Clinical Appopriateness for CCTA
-low to intermediate probability of ACS or stenotic CAD
-no known CAD, history of stents or bypass
-no ischemic changes on initial ECG
-normal troponin at 0 hrs, 2 hrs (hs troponin)
-evidence of CAD will change ED management or disposition

Table 2: Technical Appropriateness for CCTA
-able to follow instructions
-can breath hold for 10 seconds
-GFR > 60
-HR < 110
-sinus rhythm, <10 PVCs/min
-BMI < 50
-no severe contrast allergy

Table 3: Beta-blocker Contraindications
-Systolic blood pressure <100
-Active Bronchospasm/ COPD Flare
-Heart block
-Acute Heart Failure
-Severe Aortic Valve Stenosis
-severe allergy

Table 4: Nitroglycerin Contraindications
-Systolic blood pressure < 90
-Sildenafil use within last 24 hrs
-Tadalafil use within last 48 hrs
-severe aortic stenosis
-severe allergy