

ACS and Chest Pain Updates

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Disclosures

- None

OHSU

CPD

Learning objectives

- Identify current guideline documents for management of CAD
- Review approach to evaluation of chest pain
- Understand the spectrum of CAD encountered in the inpatient setting
- Understand the role of coronary CT imaging in the evaluation of chest pain and CAD
- Identify modern evidence-based post-PCI antiplatelet and anticoagulant strategies
- Understand the role of secondary prevention medical management in plaque stabilization

Recent CHD guidelines

2021

AHA/ACC/ASE/CHEST/SAEM/SCCT/
Guideline for the Evaluation and Diag
of Chest Pain: A Report of the Ameri
College of Cardiology/American Hea

Associ
Practic
Coronary Artery Revasculariz
Report of the American Colleg
Cardiology/American Heart A

Martha Gulati, MD, M
Vice Chair, Ezra Amst
FACC, MSCCT, ... SHS

2021 ACC/AHA/SCAI Guidelin
Coronary Artery Revasculariz
Report of the American Colleg
Cardiology/American Heart A
Joint Co
Guidelin

Jennifer S. Lawton, MD, FA
FAHA, FSCAI, Eric R. Bates,
and Brittany A. Zwischenbe

2023 AHA/ACC/ACCP
Guideline for the Management of Patie
With Chronic Coronary Disease: A Rep
the American Heart Association/Amer
College of Cardiology Joint Committe
Clinical Practice Guidelines

Salim S. Virani, MD, PhD, FACC, FAHA, FASPC, L. Kristin Newby, MD, MHS, FACC, FAHA, Suzanne V. Arnold, MD, MHA, FAHA
MSPH, FACC, FAHA, MNLA, LaPrincess C. Brewer, MD, MPH, FACC, FASPC, Susan Halli Demeter, DNP, FNLA, FPCNA, Dave L. Dixon, PharmD,
FAHA, FACC, FCCP, FNLA, ... [SHOW ALL](#) ... and Martene S. Williams, MD, FACC [AUTHOR INFO & AFFILIATIONS](#)

JOURNAL ARTICLE GUIDELINES

2023 ESC Guidelines for the management of acute
coronary syndromes: Developed by the task force on
the management of acute coronary syndromes of
the European Society of Cardiology (ESC) FREE

Robert A Byrne ✉, Xavier Rossello, J J Coughlan, Emanuele Barbato, Colin Berry

Alaide Chieffo, Marc J C

[Show more](#)

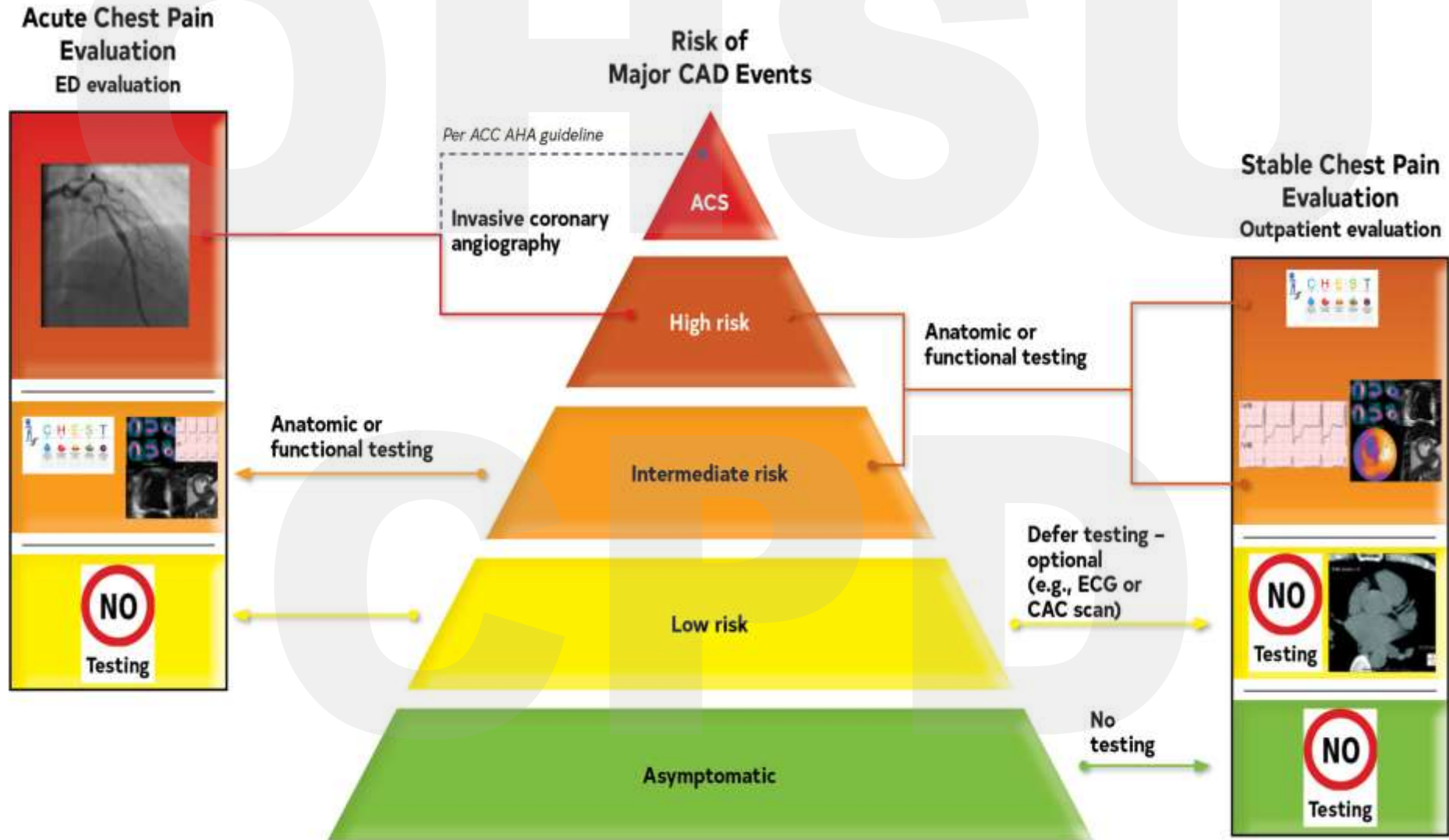
[Author Notes](#)

2024 ESC Guidelines for the management of chronic
coronary syndromes: Developed by the task force
for the management of chronic coronary syndromes
of the European Society of Cardiology (ESC)
Endorsed by the European Association for Cardio-
Thoracic Surgery (EACTS) FREE

Christiaan Vrints ✉, Felicita Andreotti ✉, Konstantinos C Koskinas, Xavier Rossello,
Marianna Adamo, James Ainslie, Adrian Paul Banning, Andrzej Budaj, Ronny R Buechel,
Giovanni Alfonso Chiariello ... [Show more](#)

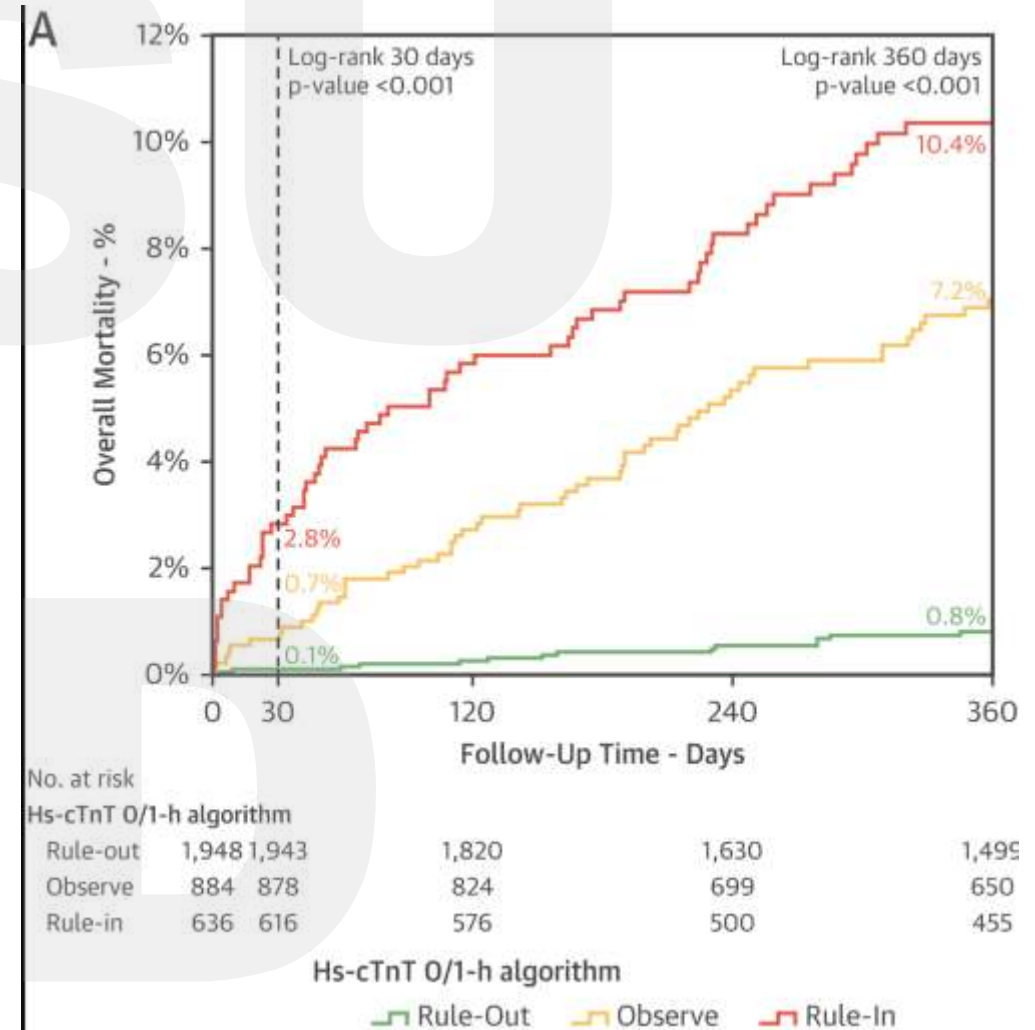
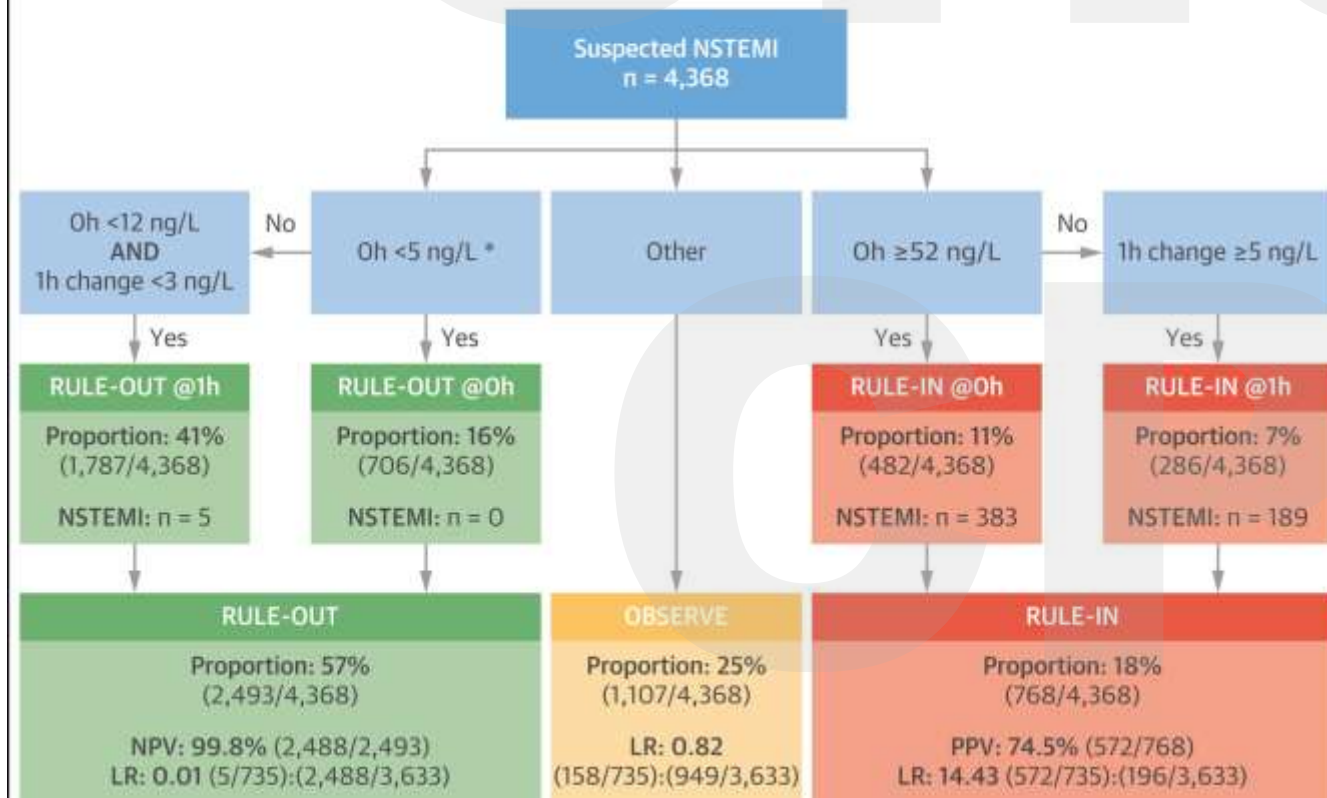
[Author Notes](#)

Hospital evaluation of chest pain



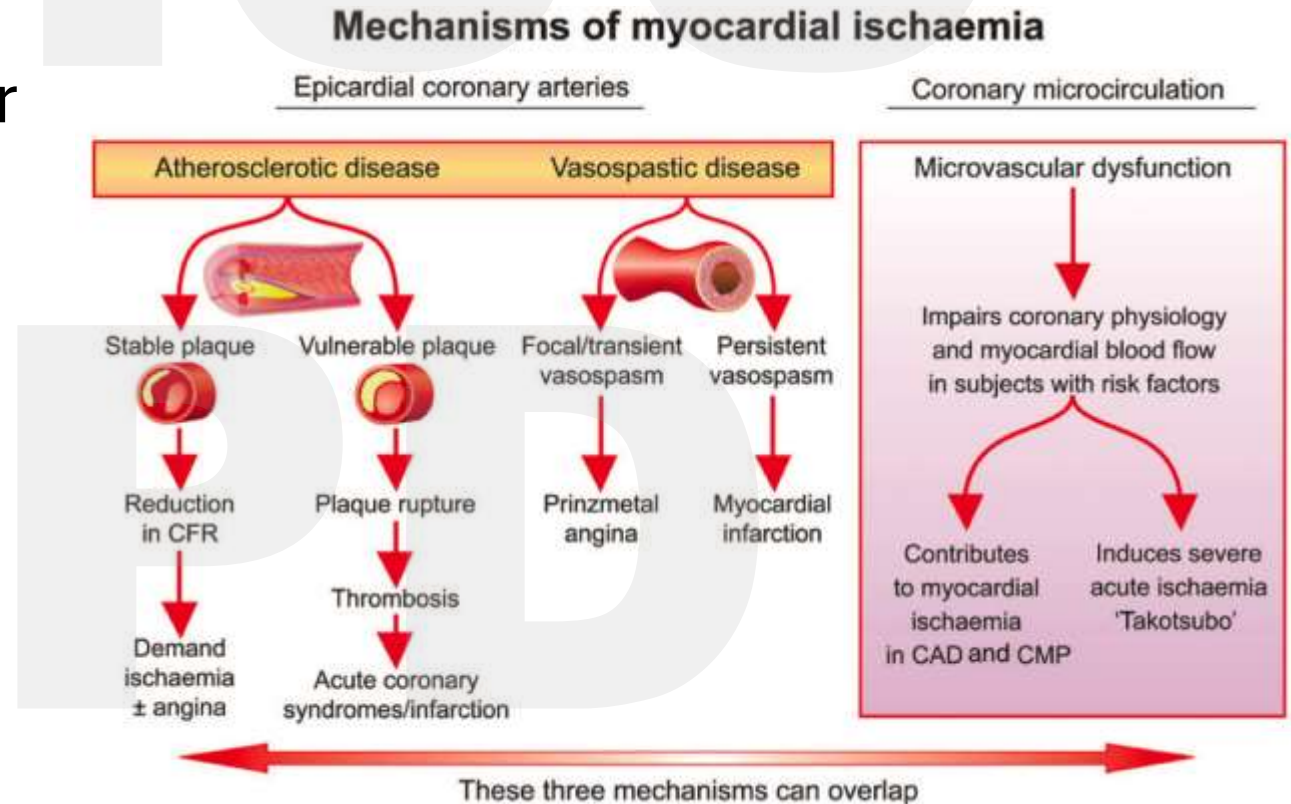
The hsTn evaluation- ESC 0/1 pathway

Disease \ Triage	RULE-OUT		OBSERVE	RULE-IN		Total
	All	@0h		All	All	
no NSTEMI	2,488	(706)	949	196	(99)	3,633
NSTEMI	5	(0)	158	572	(383)	735
Total	2,493	(706)	1,107	768	(482)	4,368



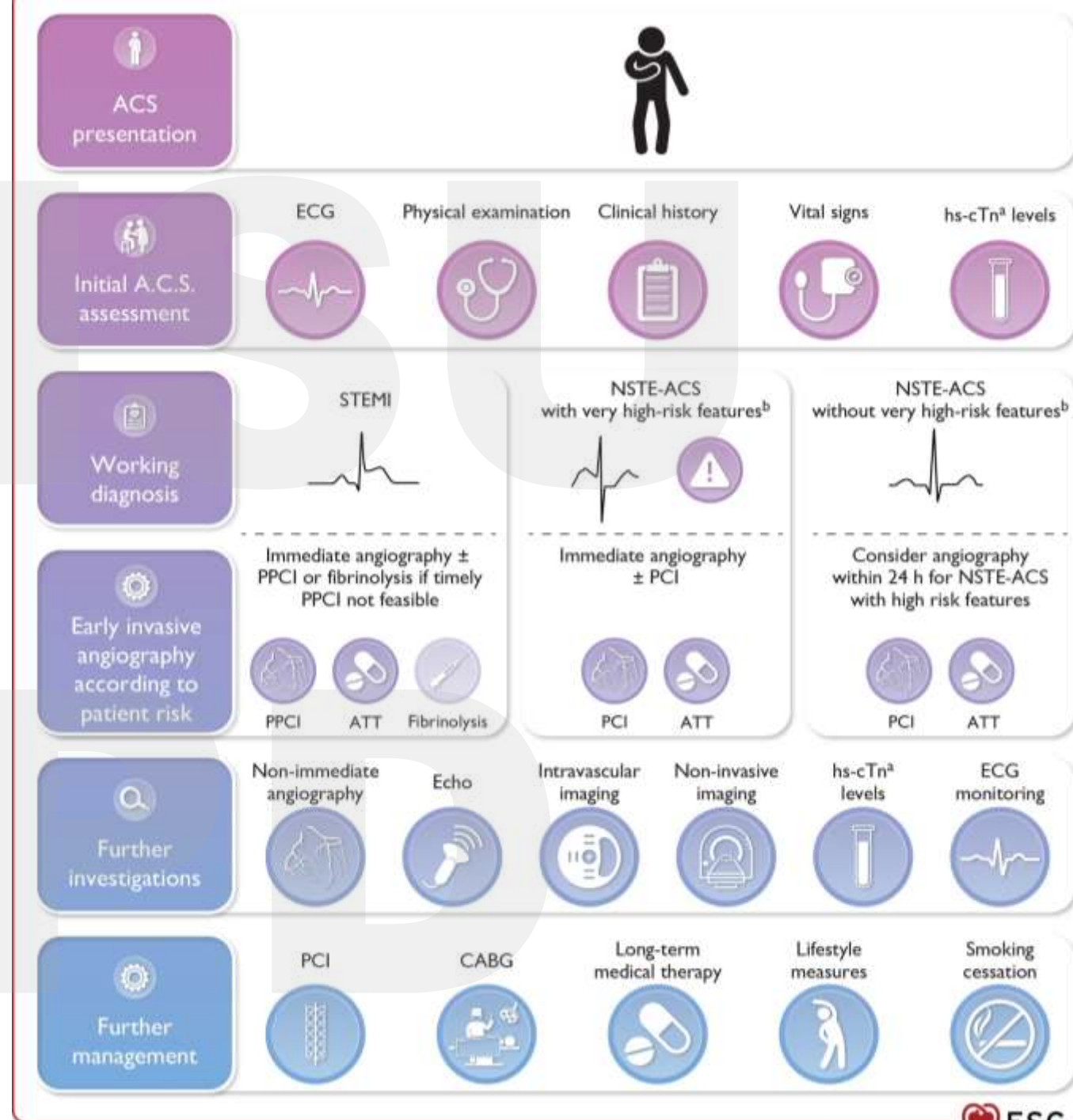
Spectrum of ischemic heart disease

- Atherosclerotic vs non-atherosclerotic
- Stable vs unstable
- Epicardial vs microvascular



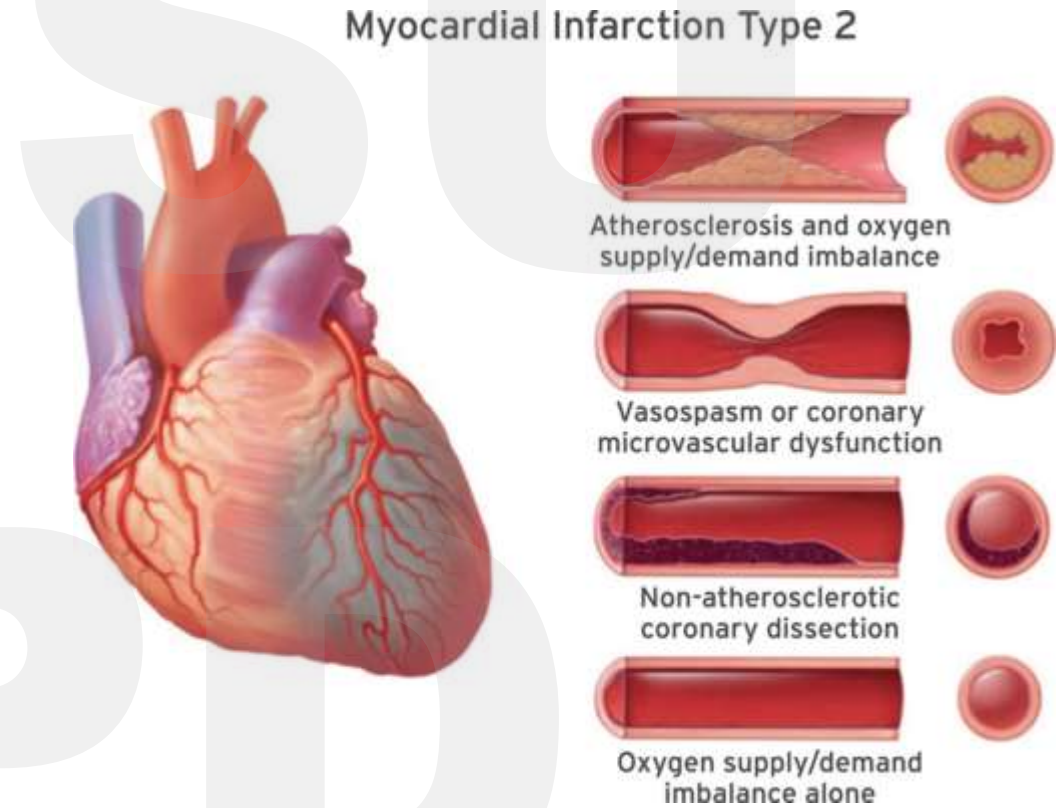
Acute coronary syndromes

- Atherosclerotic plaque rupture
- Minimal change in basic approach over the last 10-15 years

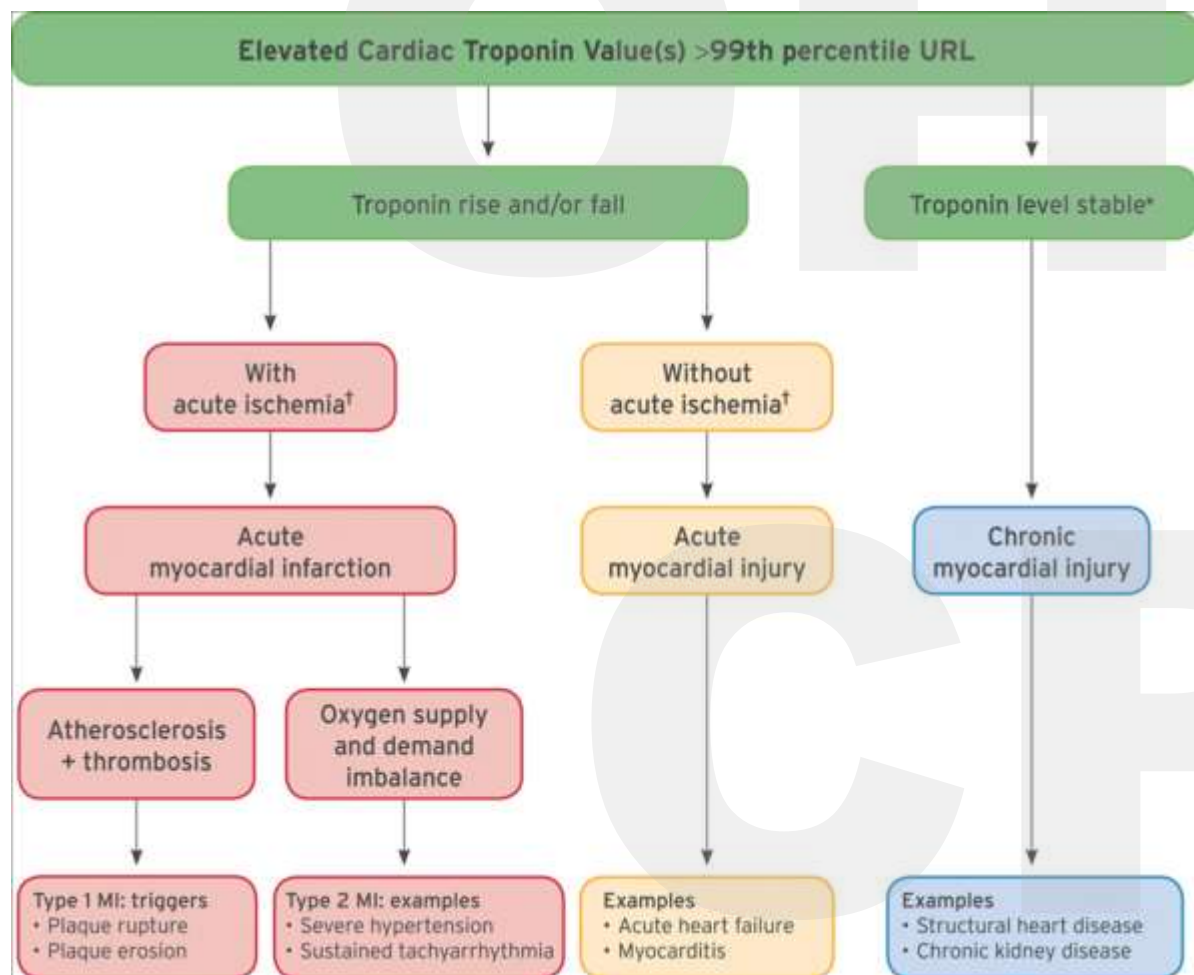


The Type II NSTEMI

- The bane of the hospitalist and cardiologist alike!
- Most think of this as “supply demand mismatch”
- Really just any non-plaque-rupture cause of ischemia



Myocardial Injury



- Differentiation is challenging here!
- Imaging is often helpful
 - LVH
 - Low EF
 - Coronary or non-coronary distribution segmental dysfunction or thinning

The Type II NSTEMI

Pre-test probability of Type 1 MI

Absence of ischemic symptoms
Acute medical illness or recent surgery
Non-diagnostic ECG
Borderline cTn elevation

Low

High

Likely ischemic symptoms
No clear triggers for type 2 MI
Known CAD
ST elevation
Very high cTn
Large cTn change over serial measurements

High

Low

Risk of investigation and treatment

Anemia
Impaired renal function
Anticoagulant therapy
Previous stroke
Previous GI bleed
Chronic NSAID use
Frail
Peptic ulcer disease
Drug or alcohol abuse

Normal hemoglobin
Normal creatinine

Initial strategy

Conservative

Single or no antiplatelet

Dual antiplatelet therapy
Parenteral anticoagulant

Invasive

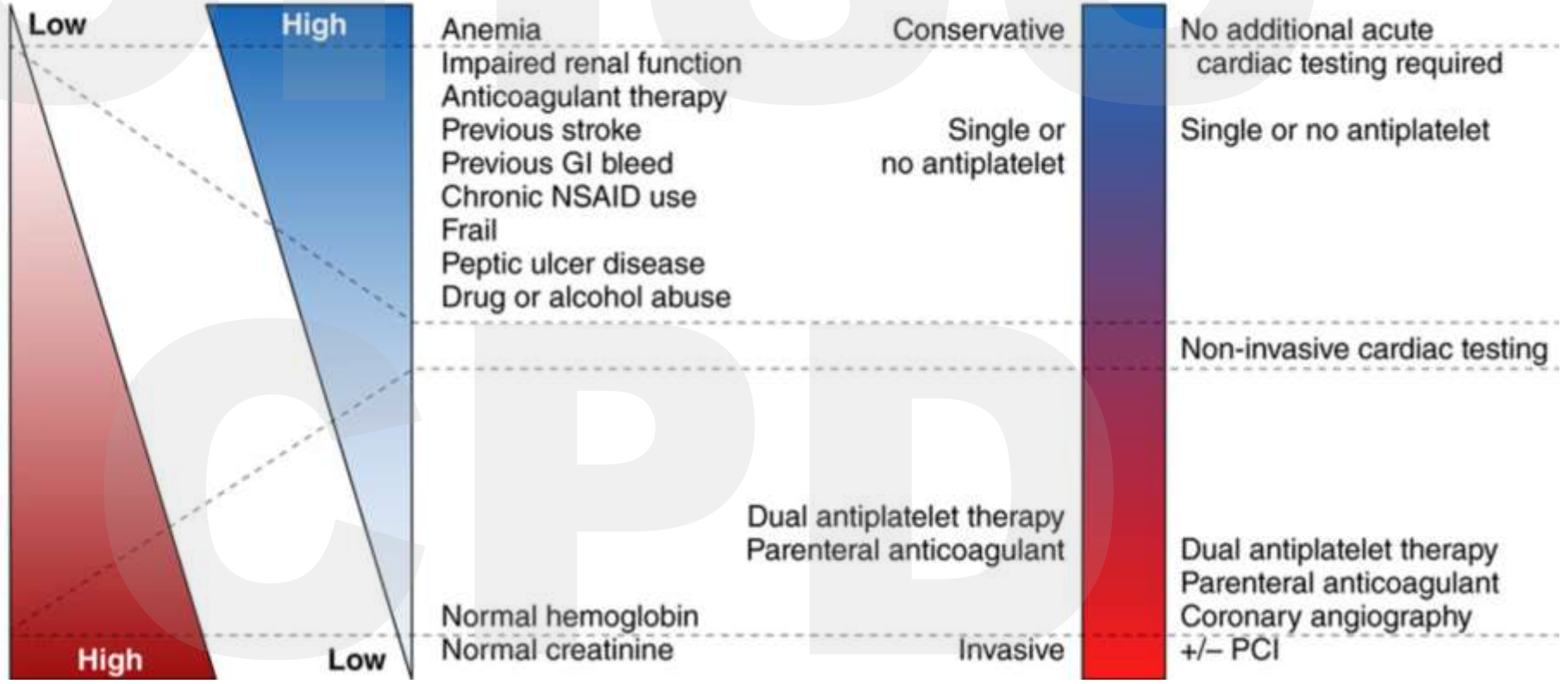
Further investigation and treatment

No additional acute cardiac testing required

Single or no antiplatelet

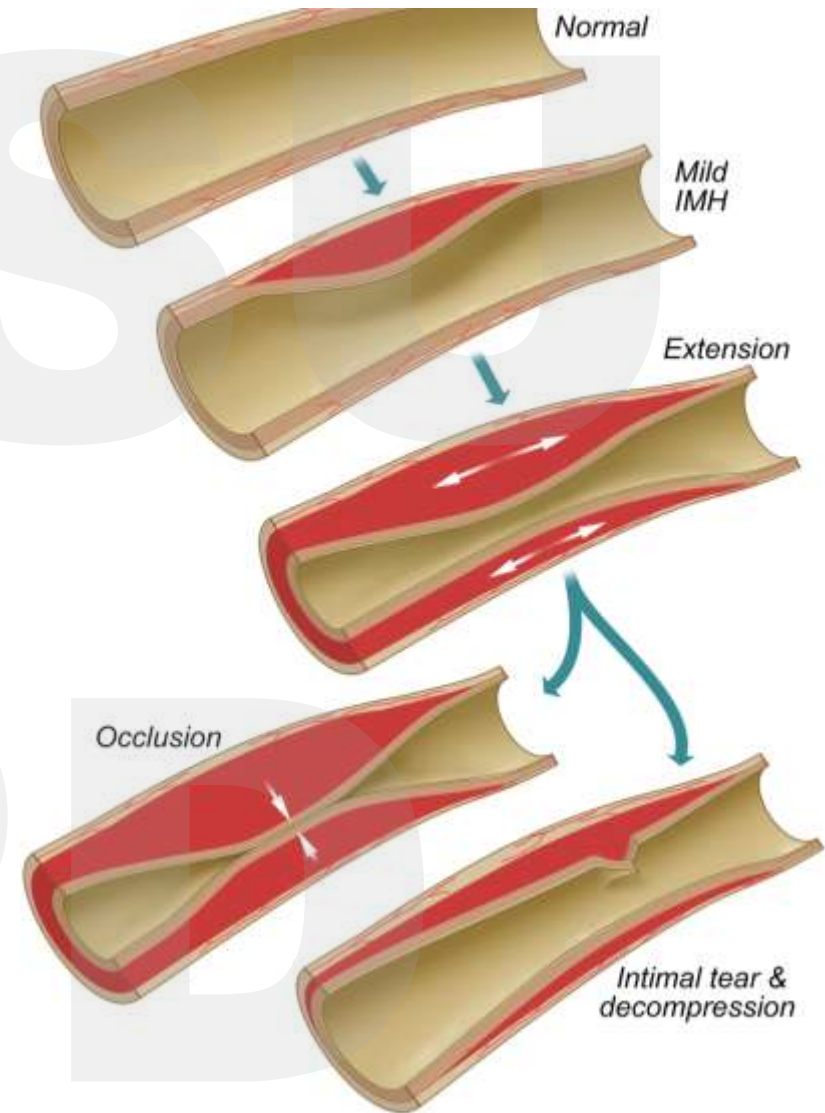
Non-invasive cardiac testing

Dual antiplatelet therapy
Parenteral anticoagulant
Coronary angiography
+/- PCI



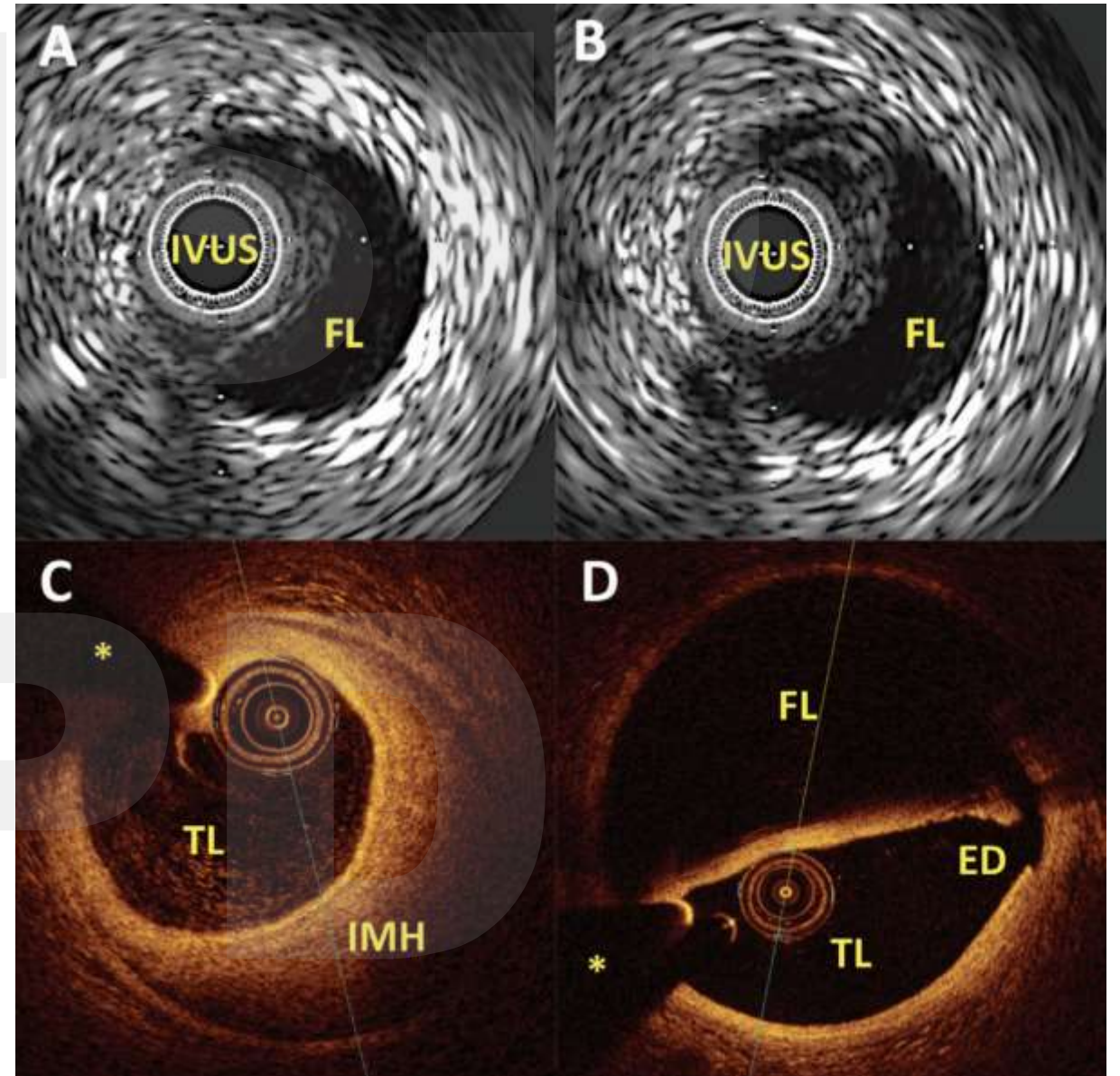
Spontaneous coronary artery dissection (SCAD)

- Technically a “Type II” MI
- Up to 4% of MI presentations
- 35% in women 50 or under



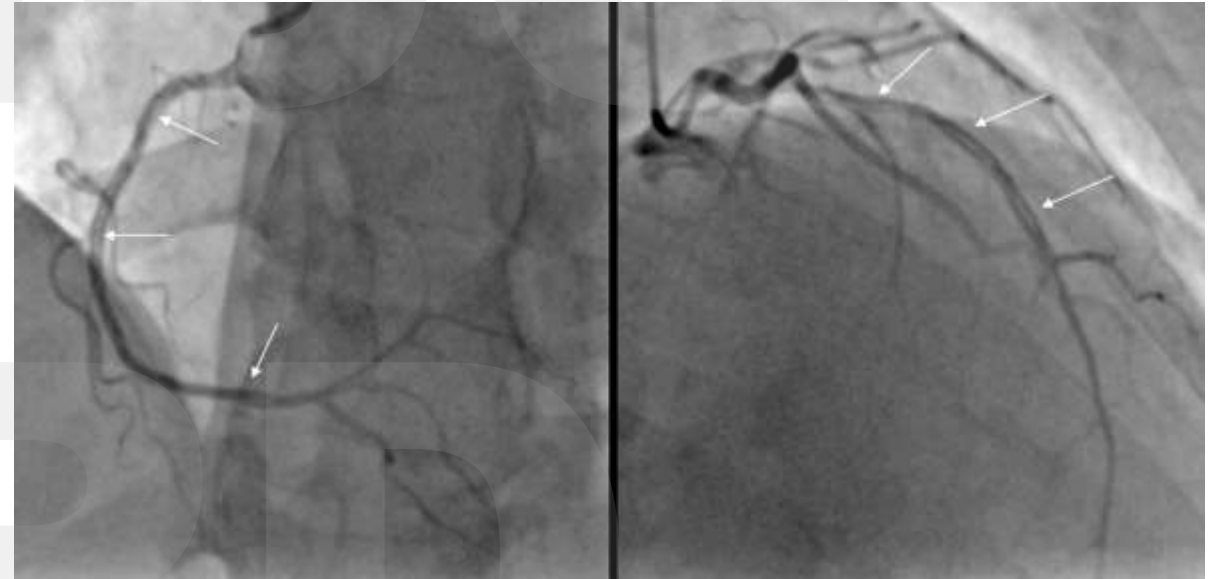
SCAD

- Demographics (pretest prob)
- Angiography (ICA vs CCTA)
- Intravascular imaging



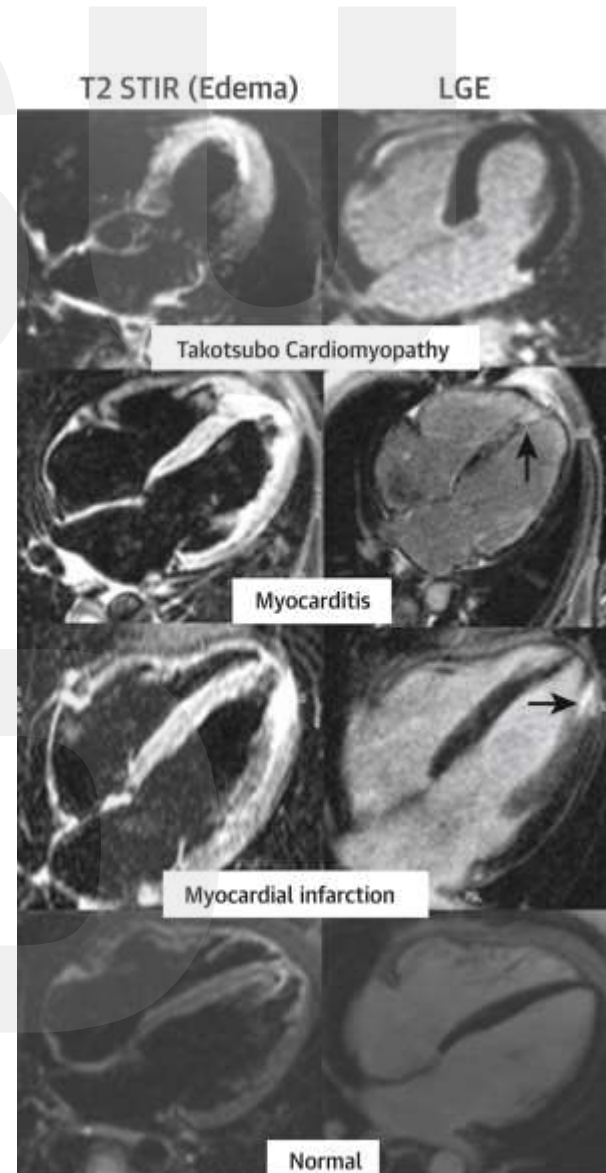
SCAD

- Management is a big challenge here
- Most spontaneously heal
- Frequent recurrent CP
 - Med management
 - CT imaging if available
- Association with FMD- image
- Post-SCAD counselling
 - Recurrence risk
 - Pregnancy



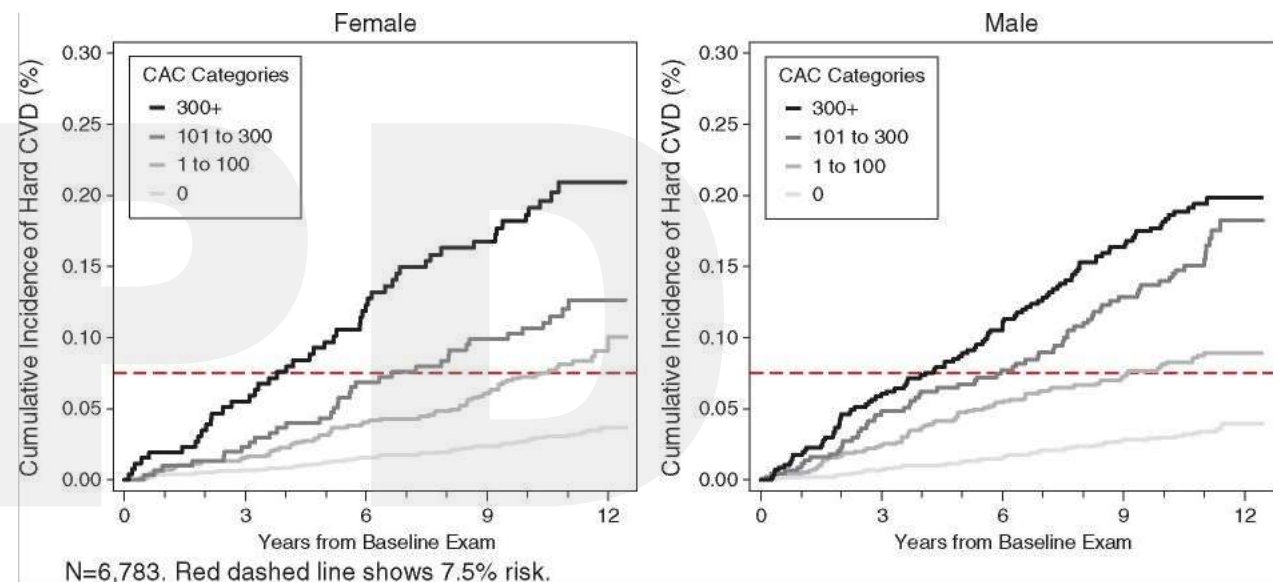
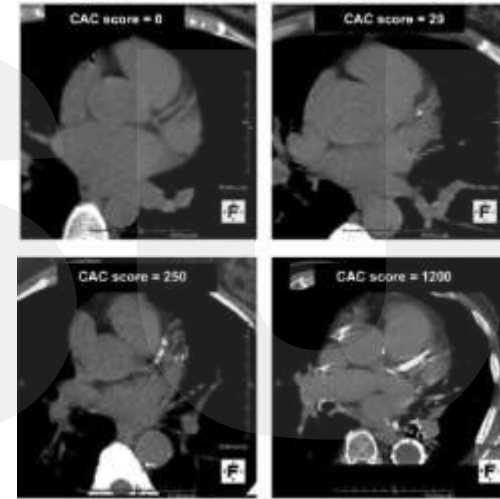
Myocardial infarction with nonobstructed coronary arteries (MINOCA)

- Heterogenous mix of etiologies
 - MRI can make a dx in about 75%
 - ~ 25% MI missed by angiography
 - ~25% Cardiomyopathy- Takotsubo most common
 - ~25% Myocarditis
 - ~25% Unclear



Coronary CT imaging- CAC

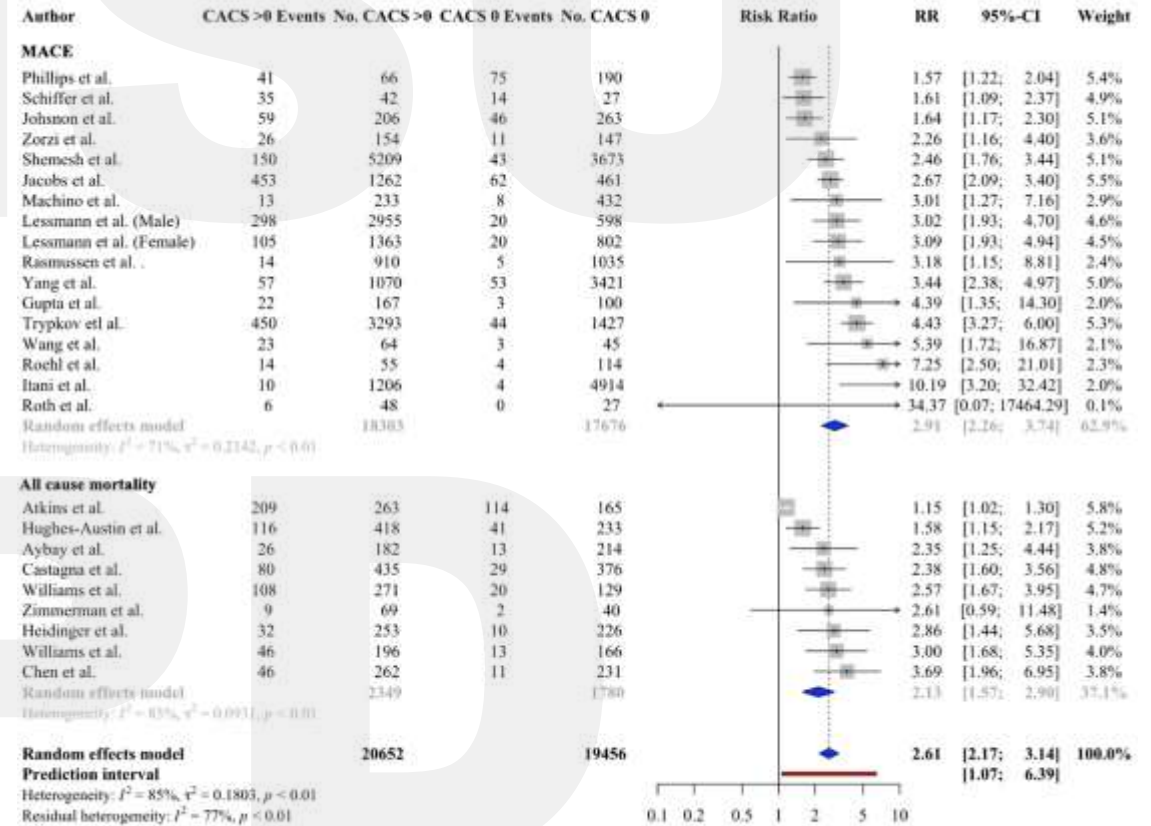
- Reflects calcified coronary plaque (late manifestation of atherosclerosis)
- A useful indicator of atherosclerosis to trigger prevention (statin)
- Calcification \neq Stenosis



Coronary CT imaging- CAC

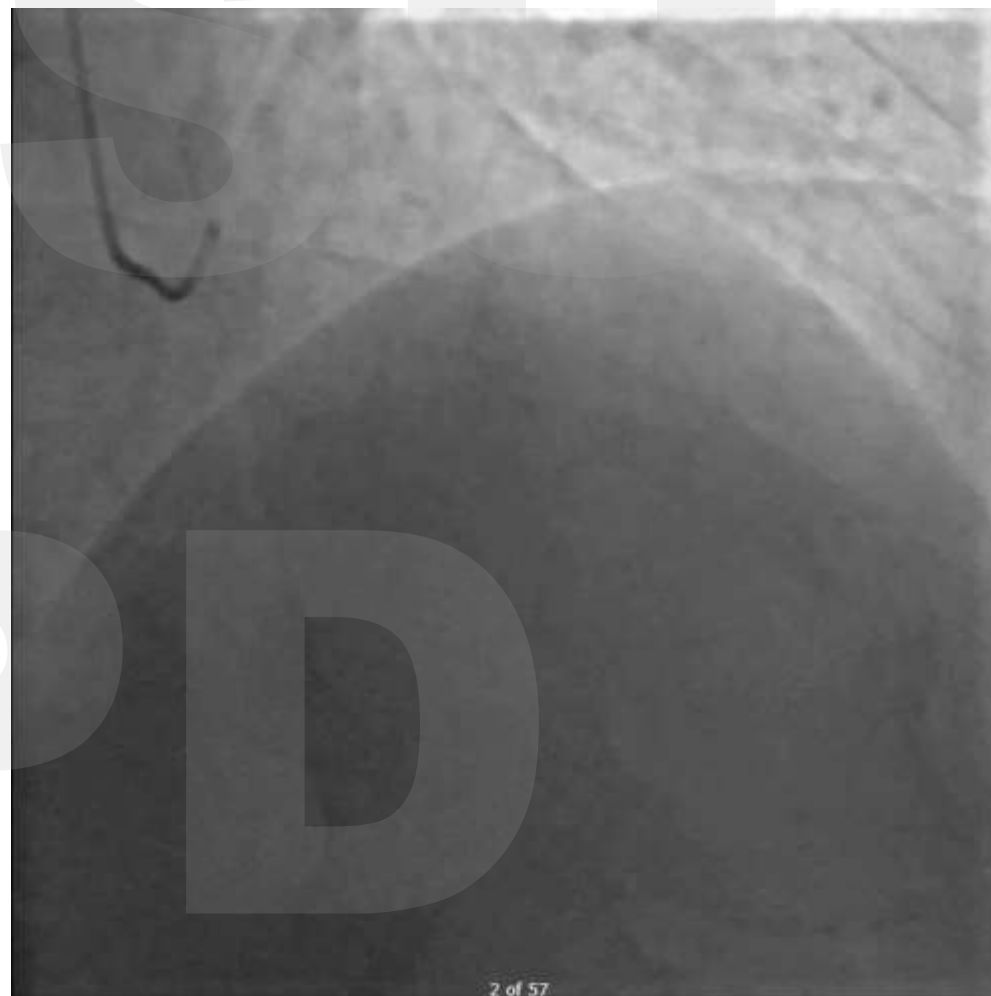
- Chest CT Impressions: “Incidentally identified severe coronary artery calcifications”
- Prognostically significant, but heterogeneously reported!
- Can drive pretest probability and approach to mgmt and prevention
- AI solutions are coming quickly here

From: Prevalence and clinical implications of coronary artery calcium scoring on non-gated thoracic computed tomography: a systematic review and meta-analysis



Forest plot showing the relative risk of major adverse cardiovascular events (MACEs), all-cause mortality, and all events for patients with CACS 0 and CACS > 0

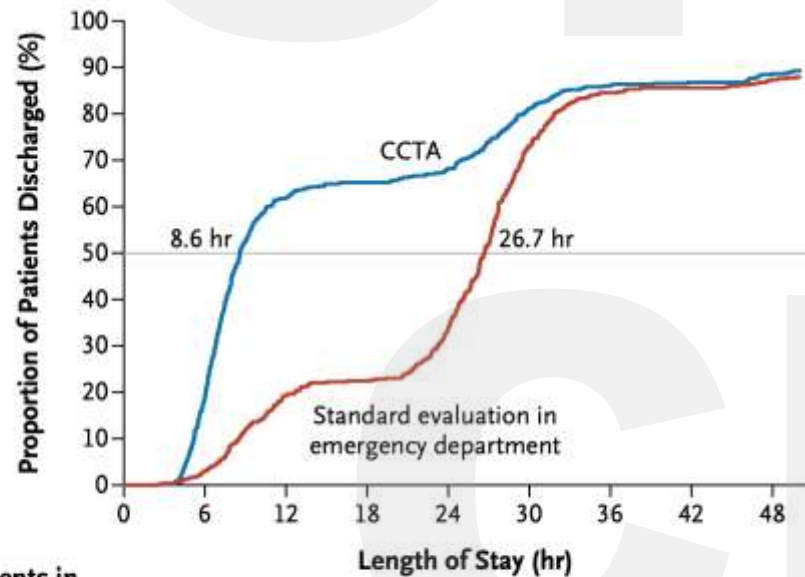
CT Angiography



Coronary CT Angiography



Coronary CT Angiography versus Standard Evaluation in Acute Chest Pain



No. of Patients in Emergency Department or Hospital

CCTA	501	404	191	174	159	95	70	66	57
Standard evaluation	499	484	403	387	331	135	77	72	63

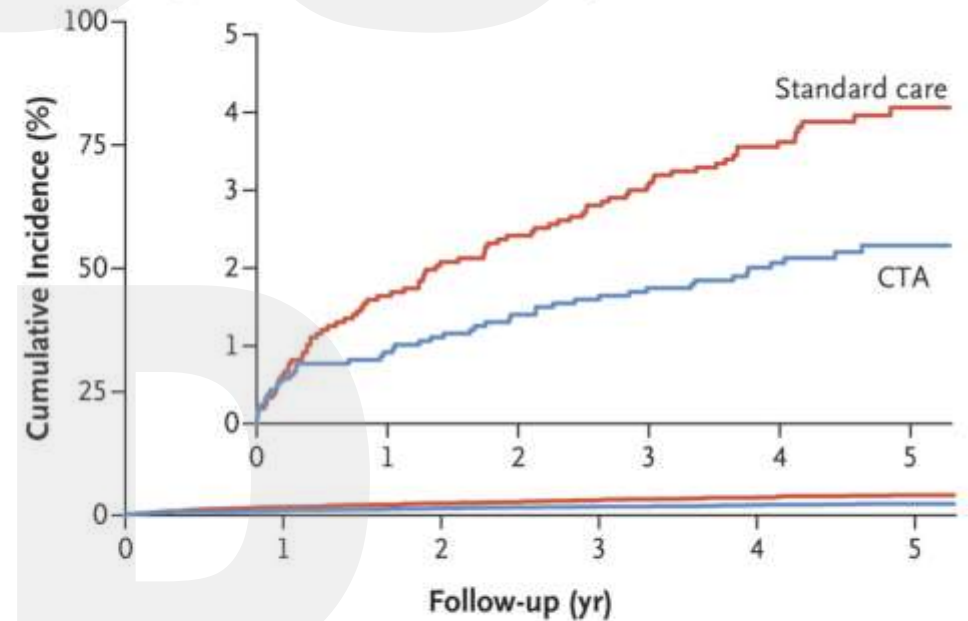
THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Coronary CT Angiography and 5-Year Risk of Myocardial Infarction

The SCOT-HEART Investigators*

A Death from Coronary Heart Disease or Nonfatal Myocardial Infarction

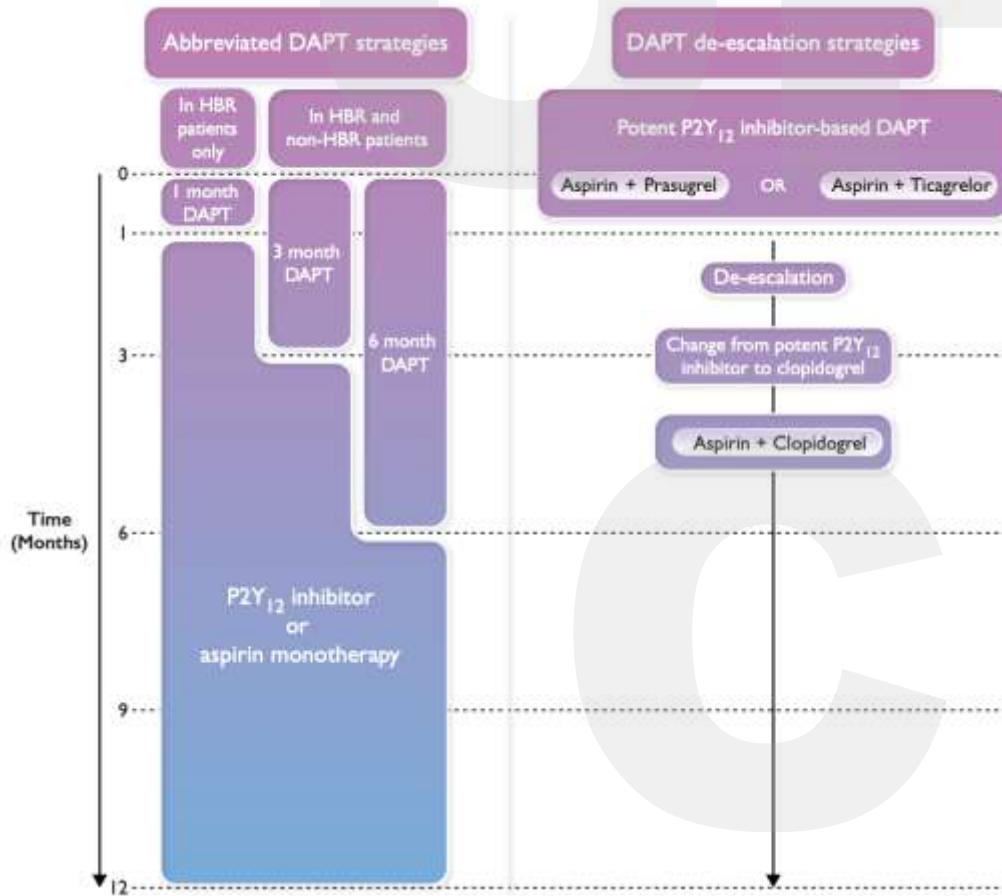


No. at Risk

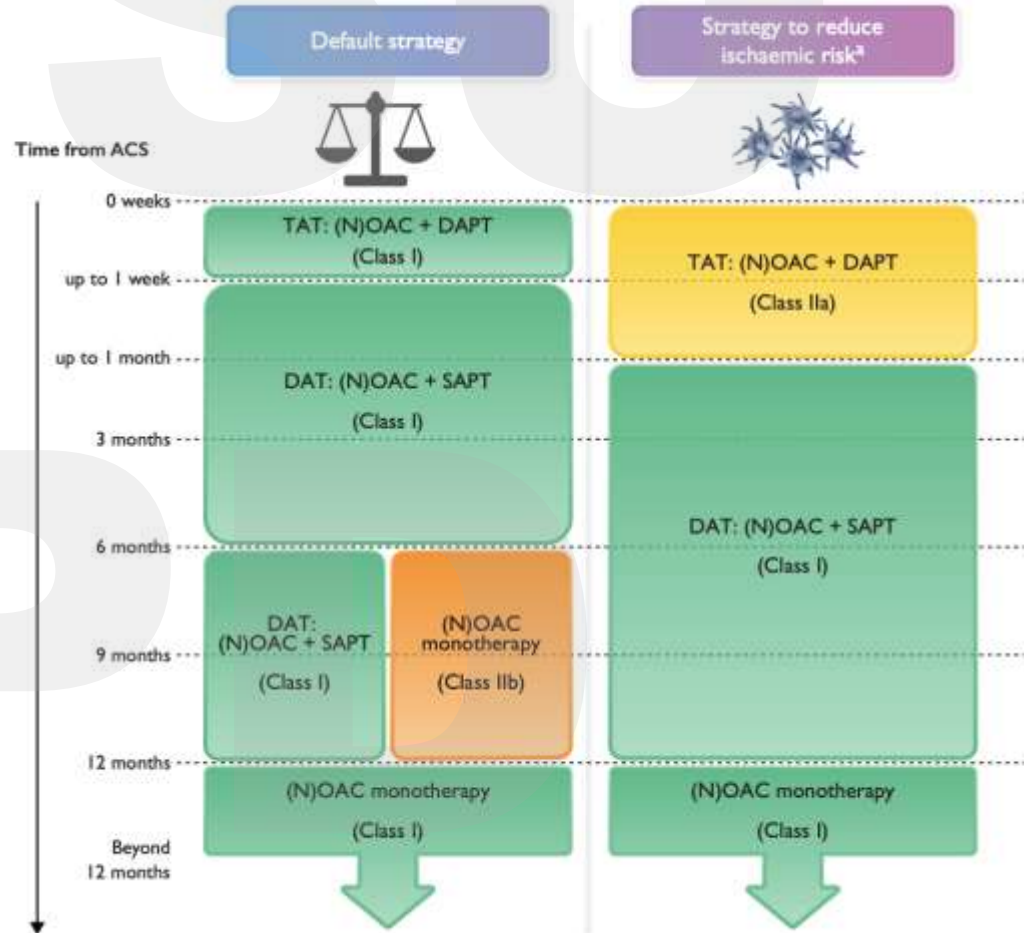
Standard care	2073	2033	2008	1994	1572	856
CTA	2073	2051	2029	2015	1588	872

Anticoagulation and antiplatelets after ACS

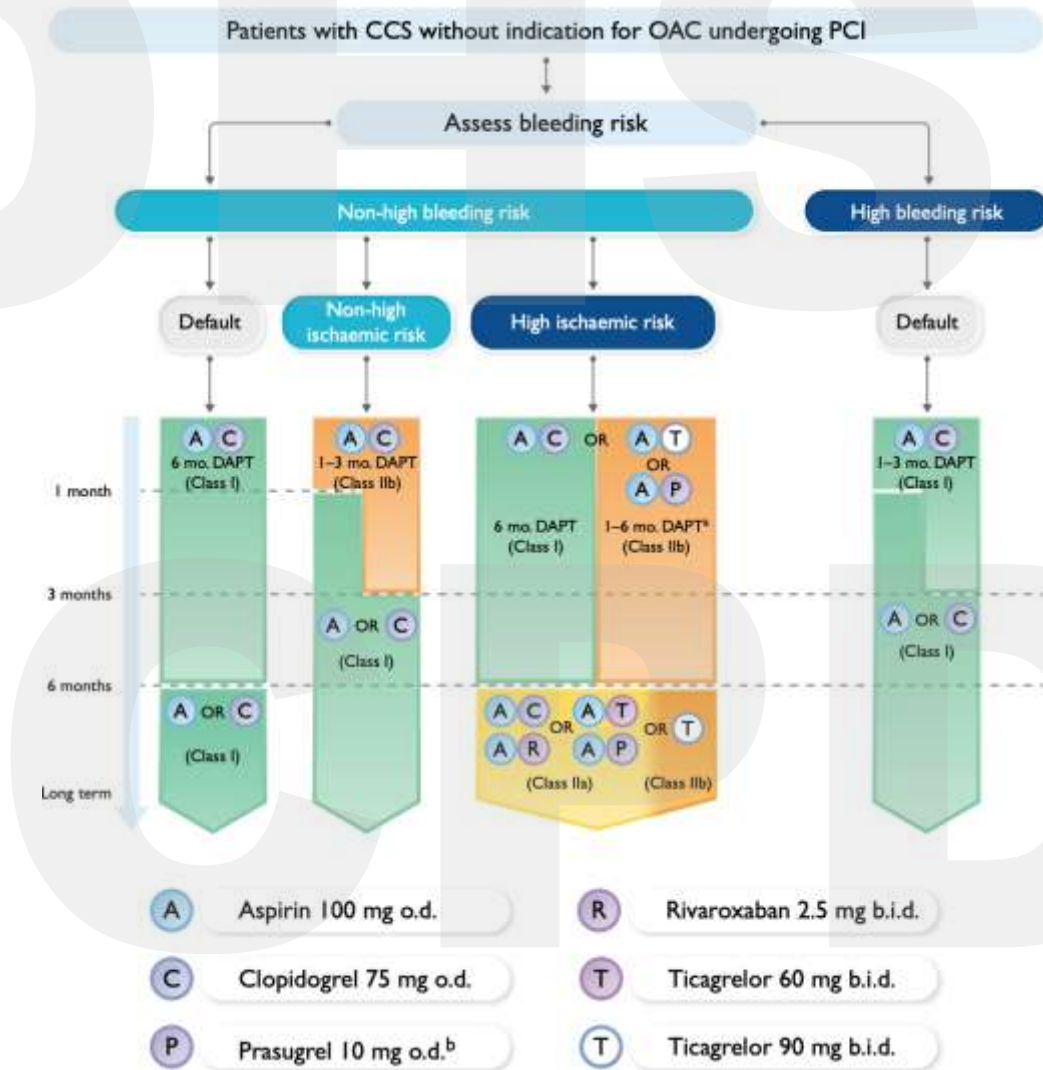
Antiplatelet strategies to reduce bleeding risk in the first 12 months after ACS



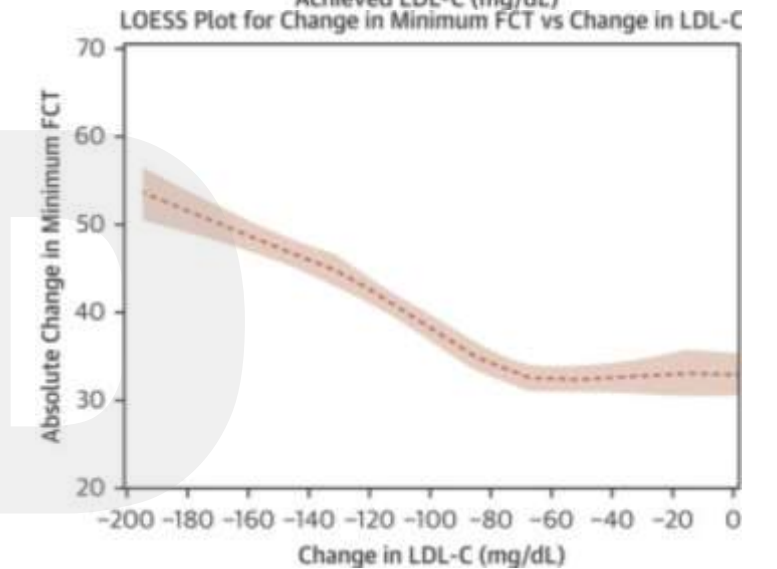
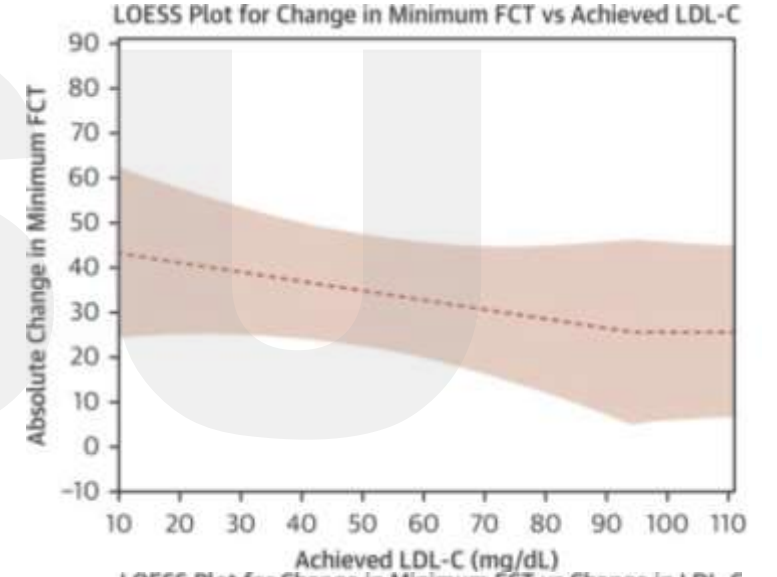
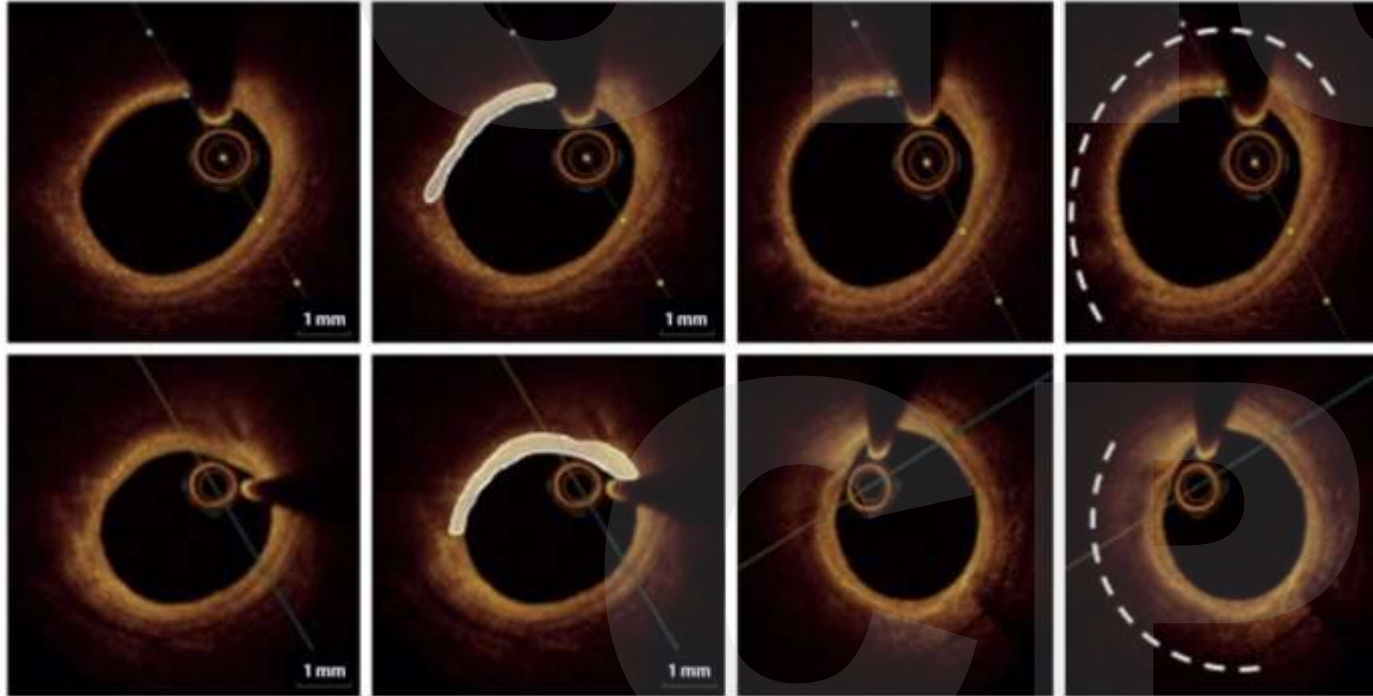
Patients with ACS and an indication for OAC



Antiplatelets after PCI (stable CAD)



Secondary prevention



Thank you

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