



Standard Treatment Workflow (STW) UNSTABLE ANGINA/NSTEMI ICD-11-BA40.0



CONSIDER ANGINA IF

- Diffuse retrosternal pain, heaviness or constriction. Radiation to arms or neck or back
- Associated with sweating
- Easily reproduced with post-meal exertion
- Consider atypical presentation: Exertional fatigue or breathlessness or profuse sweating or epigastric discomfort

More likelihood if known patient of CAD/ multiple risk factors

ACUTE CORONARY SYNDROME:

- Angina at rest or lasting more than 20 minutes
- Recent worsening of stable angina (crescendo) to CCS class III
- New onset effort angina of less than 1 month in CCS class II/III
- Post infarction angina

ECC:

- If ST Elevation: Follow ST Elevation MI (STEMI) STW
- If no ST Elavation: UA/NSTEMI

RED FLAG SIGNS

- Pain lasting for more than 20 minutes
- Recurrent or ongoing pain or rest pain
- Associated breathlessness, profuse sweating or syncope
- Hemodynamic instability

Refer as emergency to nearest Primary PCI/Thrombolysis capable centre

Rest pain beyond 24hrs or without above features may be referred early for further evaluation

LOOK FOR OTHER CAUSES OF PROLONGED CHEST PAIN

Dissection of aorta (unequal/absent peripheral pulses)

Respiratory Evaluation: Pleuritis/ pneumonitis/ embolism/ pneumothorax

Pericardial rub

Neuralgia or herpes

ANGINA UNLIKELY IF:

Variable location or characteristic

Long lasting (hours to days) or short lasting (less than a minute)

Restricted to areas above jaw or below epigastrium

Localized to a point

Pricking or piercing or stabbing type of pain

Precipitated by movement of neck or arms or respiration

MANAGEMENT

PHC/CHC LEVEL

- ECG, Troponin.
- Start
 - Aspirin, Clopidogrel in loading dose
 - Heparin/ LMWH
 - High dose statin
 - Metoprolol
- Risk stratify GRACE score or TIMI score
 - Refer High/ Intermediate risk to PCI capable centre
 - Refer Low risk for further evaluation to DH
- Refer to PCI capable centre if:
 - Acute LVF
 - Hypotension
 - Systolic murmur
 - Arrythmia

DISTRICT HOSPITAL

- Admit in ICU equipped with ECG monitoring and defibrillator
- Troponin & bio-chemistry if not done
- Serial ECG & echocardiography
- Continue Aspirin, Clopidogrel, Heparin & Metoprolol
- Add nitrates if needed
- Management for different risk categories:
 - Very high, High or Intermediate risk or LVEF <40%: Refer for revascularization
 - Low risk patients: Conservative management
 - Life style modification
 - Risk factor control
 - Secondary prevention

TERTIARY CENTRE

- Admit, reassess clinically and monitor in ICCU
 - Continue aspirin and heparin
 - Load with clopidogrel or prasugrel or ticagralor if not already done
 - Optimal medical therapy to continue (BB, high dose atorvastatin, ACE-inhibitors, intra-venous nitrates if ongoing pain, severe MR or LVF)
 - Detailed echocardiography
 - Low risk patients may undergo non-invasive risk stratification with exercise stress test, CT coronary angiography or stress imaging
 - Very high risk, high risk and intermediate risk patients may be subjected to coronary revascularization
- Revascularization:
- Discuss pros & cons of re-vascularization and prolonged dual anti-platelet therapy
 - Revascularize if anatomy is suitable
 - Prefer CABG over PCI in DM with multivessel disease or left main disease
- Revascularization strategy:
- Very High risk: Urgent re-vacularization (within few hours) after loading preferably with Ticagrelor or prasugrel if PCI is planned
 - High risk patients: Early revascularization (within 24 hours)
 - Intermeditae risk patients: Revascularization (within 72 hours)
 - Continue Dual anti-platelets in patients undergoing PCI for atleast 12 months in DES and for 3 months in BMS

1. GRACE SCORE:

Killip Class	Points	SBPI mm Hg	Points	Heart rate Beats/ min	Points	Age. y	Points	Creatinine Level, mg/ dL	Points	Other risk factors	Points
I	0	<80	58	≤50	0	≤30	0	0-0.39	1	• Cardiac arrest at admission	39
II	20	80-99	53	50-69	3	30-39	8	0.40-0.79	4	• ST-Segment Deviation	28
III	39	100-119	43	70-89	9	40-49	25	0.80-1.19	7	• Elevated Cardiac Enzyme Levels	14
IV	59	120-139	34	90-109	15	50-59	41	1.20-1.59	10		
		140-159	24	110-149	24	60-69	58	1.60-1.99	13		
		160-199	10	150-199	38	70-79	75	2.00-3.99	21		
		≥200	0	≥200	46	80-89	91	>4.0	28		
						≥90	100			Sum Total= GRACE score of patient	

2. TIMI SCORE:

One point for each of following

- Age >65 yrs
 - More than 3 risk factors
 - Known CAD (>50% lesion)
 - Recurrence of angina in 24 hrs
 - Aspirin use within 7 days
 - ST deviation >0.5 mV
 - Raised cardiac markers
- Sum total = TIMI score of patient

INVESTIGATIONS

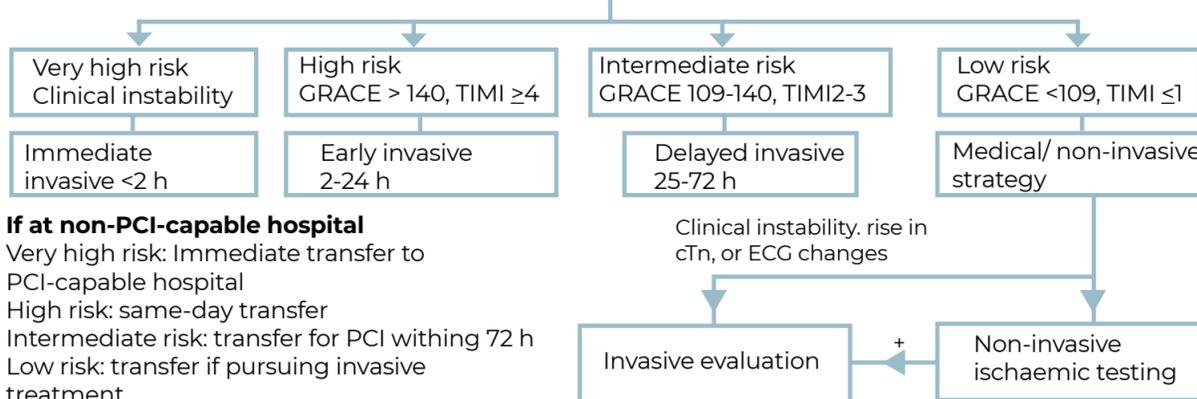
ESSENTIAL INVESTIGATIONS

- Hemogram
- Creatinine
- Sugar, HbA1C
- Fasting lipids
- ECG
- Troponin T/ Troponin I
- Plain X-ray chest
- Echocardiography

OPTIONAL INVESTIGATIONS

- Coronary Angiography
- CT scan including coronary angiography
- Stress Radionuclide/ echocardiographic imaging
- MRI
- Coronary Fractional Flow Reserve
- Intra-vascular Ultrasound

UNSTABLE ANGINA OR NSTEMI DIAGNOSIS



If at non-PCI-capable hospital

Very high risk: Immediate transfer to PCI-capable hospital
 High risk: same-day transfer
 Intermediate risk: transfer for PCI within 72 h
 Low risk: transfer if pursuing invasive treatment

UA/NSTEMI: RISK CATEGORIZATION:

Based on clinical features, GRACE score & TIMI score

- Very high risk:
 - Acute LVF
 - Hypotension
 - Uncontrolled Ventricular arrhythmia
 - Severe MR
- High Risk:
 - GRACE score > 140 or TIMI score >4
- Intermediate Risk:
 - GRACE score 109-140 or TIMI score 2-3
- Low Risk:
 - GRACE score <108 or TIMI score 0-1

UA/NSTEMI: RISK CATEGORY MANAGEMENT:

- Low risk:
 - Conservative management: Aspirin, clopidogrel, BB and statin
 - CT coronary angiography/TMT within a week to risk stratify
 - Refer low risk for re-vascularization if
 - Recurrent pain
 - Hemodynamic deterioration
 - New ECG change
- Intermediate/ Very High/ High risk:
 - Re-vascularization

DRUGS & DOSAGE

Anti-platelets

- Aspirin: Loading dose 325 mg followed by 75 mg OD
- Clopidogrel: Loading dose 300 mg followed 75 mg OD
- Prasugrel: Loading dose 60 mg followed by 10 mg OD
- Ticagralor: Loading dose 180 mg followed by 90 mg BD

Anti thrombotics:

- Enoxaparin: 1 mg/Kg SC 12 hrly
- Unfractionated heparin: Bolus of 60 U/Kg (maximum 5000 U) followed by 12 U/Kg hourly infusion to maintain APTT at 50-70 sec

Ace-inhibitor

- Ramipril 2.5-10 mg OD
 Enalapril 2.5-10 mg BD

Anti-ischemic:

- Metoprolol:
 - Short acting 25-100 mg BD
 - Long acting 25-100 mg OD
- Nitrates:
 - Isosorbide mono-nitrate 20 to 60 mg in 2 divided dose
 - Nitroglycerine sustained release 2.6 to 6.5 mg BD
 - Nitroglycerine IV 5-25 mcg/min infusion

Statins:

- High dose Atorvastatin 80 mg OD or Rosuvastatin 20-40 mg OD

REFERENCES

- Byrne RA et al. 2023ESC guidelines for the management of acute coronary syndrome. European Heart J (2024) 44, 3720-3826
- Rao SV et al. 2025 ACC/AHA/ACEP/NAEMSP/SCAI guidelines for the management of acute coronary syndrome. J Am Coll Cardiol(2025) 85, 2135-2237

ASSESS SWIFTLY, TREAT PRECISELY

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit our web portal (stw.icmr.org.in) for more information.

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