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Department of Health Research
Ministry of Health and Family Welfare, Government of India

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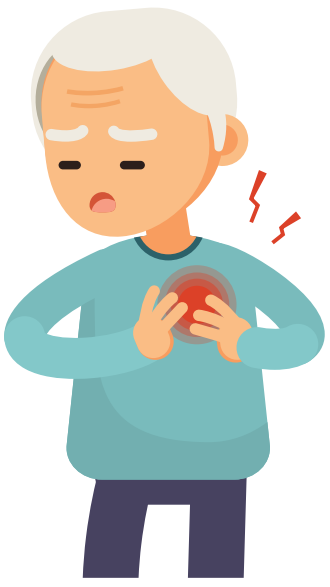
Standard Treatment Workflow (STW) for the Management of
STABLE ANGINA
ICD-10-I20.9

PATIENT PRESENTING WITH CHEST PAIN



CONSIDER ANGINA IF

- Diffuse retrosternal pain, heaviness or constriction, radiating 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

Likelihood more if known patient of CAD

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

CATEGORIZE ANGINA

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

For management: refer to STEMI/ NSTEMI STW

STABLE ANGINA
Any effort related pain fitting in previous category, relieved by rest or NTG in 1-2 min

STABLE ANGINA: GENERAL MANAGEMENT

1. Manage factors potentaiting angina
   - Anemia, Thyrotoxicosis, Pregnancy, febrille illness
   - Hypertension, Ventricular hypertrophy, CHF
   - Tachy or brady-arrhythmia
   - Drugs : bronchodilators, steroids
2. Risk factor control
3. Other atherosclerotic CV disease : PVD, stroke
4. Secondary prevention : Statins, BB, ACE-I

INVESTIGATIONS

ESSENTIAL INVESTIGATIONS

1. Hemogram
2. Urea, Creatinine, Electrolytes
3. Sugar, HbA1C
4. Lipids
5. Liver function test
6. ECG
7. Plain X-ray chest

DESIRABLE INVESTIGATIONS

1. Echocardiography
2. Exercise Treadmill Test
3. Thyroid Function Test
4. Iron profile
5. Uric acid

OPTIONAL INVESTIGATIONS

1. Stress radionuclide/ echocardiographic imaging
2. CT scan including multi-slice coronary angiography
3. Coronary Angiography
4. Coronary Fractional Flow Reserve
5. Intra-vascular Ultrasound/ OCT

MANAGEMENT

MANAGEMENT AT PHC/ CHC LEVEL

1. Control angina : Metoprolol
   Add nitrates if symptoms not controlled
2. ECG for Q waves, ST - T changes, BBB or chamber enlargement
3. Aspirin & high intensity statins
4. Refer to higher centre electively

MANAGEMENT AT DISTRICT HOSPITAL LEVEL

1. Optimise anti-anginal treatment
2. Echocardiography for LV function or structural heart disease
3. Risk stratify by exercise treadmill test in low, intermediate or high risk (DUKE risk score) for cardio-vascular events , if patient is ambulatory and ECG is interpretable
4. Refer to tertiary centres if:
   - Angina uncontrolled on optimal medical therapy
   - Echo reveals abnormality
   - Non-ambulatory patient or un-interpretable ECG
   - High risk on exercise stress test for possible re-vascularization

MANAGEMENT AT TERTIARY LEVEL

1. Reassess and optimise drug therapy: If uncontrolled choose from trimetazidine, nicorandil ranolazine and ivabid
2. Risk stratify with exercise treadmill test if not already done
3. Stress imaging if following:
   - Non ambulatory patient
   - Abnormal or uninterpretable baseline ECG
   - Exercise treadmill test result is equivocal
   - Compromised LV function

RISK CATEGORIZATION

Based on clinical features, GRACE score & TIMI score

A. Very high:
- -Acute LVF
- -Hypotension
- -Uncontrolled Ventricular arrhythmia
- -Severe MR

B. High Risk:
- -GRACE score > 140 or TIMI score >4

C. Intermediate Risk:
- -GRACE score 109-140 or TIMI score 2-3

D. Low Risk:
- -Grace score <108 or TIMI score 0-1

RISK CATEGORY MANAGEMENT

Low/ Intermediate Risk Group

1. Optimal anti-anginal therapy
2. Follow up 3-6 monthly at primary/ secondary care centre
3. Refer to tertiary centre when change in symptomatic status

High Risk Group

1. Discuss pros and cons of possible revascularization and dual anti-platelet therapy
2. Angiography, if any of following
   - Angina not controlled on optimal medical therapy
   - High risk on non-invasive testing
   - Cardiac arrest survivor or documented VT

REVASCULARIZATION

1. Revascularize if anatomy is suitable
2. Prefer CABG over PCI in DM with multivessel disease or left main disease
3. Complete re-vascularization is preferable
4. Use invasive functional and imaging modalities (FFR, IVUS, OCT) when indicated
5. Stress on continuing dual anti-platelets (aspirin and clopidogrel) after PCI

DRUGS & DOSAGE

Anti-platelets
1. Aspirin 75 mg OD
2. Clopidogrel 75 mg OD (if intolerant to aspirin)

Statins:
Atorvastatin: 40-80 mg OD
Rosuvastatin: 20-40 mg OD

Ace-inhibitor
Ramipril: 2.5-10 mg OD
Enalapril: 2.5-10 mg BD

Anti-ischemic:
1. Metoprolol:
   Short acting: 25-100 mg BD
   Long acting: 25 -100 mg OD
2. Nitrates:
   Isosorbide mono-nitare: 20 to 60 mg in 2 devided dose
   Nitroglycerine sustained release: 2.6 to 6.5 mg BD
3. Calcium channel blockers:
   Verapamil 40-80 mg TDS
   Diltiazem 30 to 90 mg TDS
4. Nicorandil: 5-10 mg BD
5. Ranolazine: 500 -1000 mg BD
6. Trimetazidine: 20 mg mg TDS

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES : STRENGTHEN SECONDARY PREVENTION WITH STATINS, BB & ACE-I

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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