Ischemic Heart Disease (IHD)

This guideline is NOT for treatment of Acute Cardiac Ischemia. Refer to local chest pain protocols.

Case Definitions

Ischemic heart disease (IHD) consists of a range of clinical syndromes resulting from atherosclerosis (blockages) in the coronary arteries. This includes:

1. **Previously documented IHD:**
   - Myocardial infarction (MI) or "heart attack".
   - Unstable angina (symptoms of IHD that have escalated rapidly with reducing levels of exertion oroccurring at rest).
   - History of coronary artery bypass graft or percutaneous coronary intervention.
   - Abnormal coronary angiogram.
2. **Stable angina:**
   - Symptoms of IHD during physical activity or exercise that are predictable and unchanging (i.e., not at rest).
3. **Asymptomatic coronary artery narrowing:**
   - Which may cause silent MIs or ischemia.

Symptoms

Any patient at risk – ask annually about symptoms of IHD:

- **Classical symptoms**: crushing or heavy central chest discomfort that can radiate to neck, throat, jaw, associated shortness of breath, sweating, palpitations, nausea and vomiting.
- **Atypical symptoms**: atypical pain that may be located in the chest, back or upper abdomen (e.g., vague chest discomfort, sharp pain, "indigestion"), shortness of breath and reduction in exercise tolerance.

Screening

Modifiable risk factors for IHD include:

- Smoking.
- Diabetes.
- Poorly controlled hypertension.
- Dyslipidaemia.
- Obesity as defined by body mass index (BMI) >30 or waist circumference >94cm (men) and >80cm (women).
- Albumin-to-creatinine ratio (ACR) ≥3.6mg/mmol and/or known chronic kidney disease (CKD) (refer Kimberley Clinical Guideline: CKD).
- Sedentary lifestyle.
- Unsafe levels of alcohol consumption.

Non-modifiable risk factors for IHD include:

- Aboriginality.
- Family history (first degree relative with onset of coronary artery disease (CAD) at <65 years (female), <55 years (male).
- Age.
- Male gender.

Assessment

1. Document CAD risk factors (refer above, Screening).
2. Perform a set of observations each visit, namely:
   - Blood pressure (BP), pulse, BMI, waist circumference.
3. Baseline electrocardiogram (ECG)
   - At least five-yearly in patients deemed at risk.
   - Yearly in patients with Type 2 diabetes.
4. Full blood count, urea and electrolytes (UEC), estimated glomerular filtration rate (eGFR), liver function tests, lipids, urine ACR, iron studies, thyroid function tests, HbA1c.
5. Chest x-ray as soon as practical.

Investigate symptoms suggestive of stable angina and confirm diagnosis by:

1. **Stress ECG** (continuous ECG monitoring to assess for ischaemia while patient exercises on treadmill or stationary bike); **or**
2. **Dobutamine stress echo** (for patients who are unable to physically exercise due to mobility issues or lung disease). Involves using medication (dobutamine) to augment heart rate (HR) and contractility to mimic exercise. Uses continuous ECG and intermittent echocardiography to assess for ischaemia); **or**
3. **Exercise stress echo**. Involves continuous ECG monitoring and intermittent echocardiography to assess for ischaemia while patient exercise on treadmill or stationary bike. Best used in these patient groups:
   - Left bundle branch block (LBBB) or abnormal ST segments on resting ECG.
   - Peri-menopausal women.

Consider wait times and availability when choosing which stress test to request.

Stress Testing

Preparation for stress testing:

If a patient is taking beta-blockers, Digoxin, Verapamil (KSDL) or Diltiazem these medications will need to be withheld for **48 hours prior** to stress echo or stress ECG.

Absolute contraindications to stress testing:

Acute myocardial infarction or new LBBB, high risk unstable angina, severe aortic stenosis, uncontrolled arrhythmia, which is symptomatic or with haemodynamic instability, unstable heart failure (HF), acute pulmonary embolus, acute aortic dissection

Relative contraindications to stress testing:

Left main coronary stenosis, severe arterial hypertension, electrolyte abnormalities, hypertrophic obstructive cardiomyopathy, uncontrolled arrhythmia.

If any contraindications present discuss with Cardiologist.

Principles of Management

Non-pharmacological management:

- No alcohol is best.
- Encourage smoking cessation and avoid passive smoking (refer Kimberley Clinical Guideline: Smoking Cessation).
- Healthy diet +/- dietician input if appropriate (refer Kimberley Clinical Guideline: Healthy Living).
- Exercise: encourage walking or aerobic exercise for 30 minutes at least five days a week (150 minutes a week).
- Manage other CAD risk factors such as diabetes, CKD, hypertension and dyslipidemia.
- Be aware of co-existent HF (refer Kimberley Clinical Guideline: HF)
- Treat co-existing anaemia.

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Allied health input:

If available, refer motivated patients for cardiac rehabilitation.

Vaccinations:

Ensure annual influenza and pneumococcal 23PPV vaccinations are up to date:

- Pneumococcal vaccine at age 60 and 65 years.
- Aboriginal patients older than 5 years, two vaccinations five years apart.

Post-admission:

- Review discharge summary and action plans.
- Add tasks/reminders for specialist appointments or any additional pathology or follow-up tests.
- Update medication lists and duration of therapy.
- Update the patient's medical history.
- Upload any investigations (e.g., echo, ECG, angiograms).

Always note the duration of therapy for new anti-coagulant and anti-platelet medications.

Therapeutic Guidelines

The following guideline is appropriate to manage:

1. Suspected IHD
2. Stable angina
3. Post myocardial infarction.

1. Aspirin (KSDL) 100mg daily
   (If contraindicated use Clopidogrel (KSDL) 75mg daily)

2a. If HR >60 use a beta blocker
- Atenolol (KSDL) 50mg daily, double dose after two weeks to maximum 100mg daily.
  (If contraindications discuss with physician)
- If associated HF use Bisoprolol (KSDL) (refer Kimberley Clinical Guideline: HF)

2b. If HR <60 use isosorbide mononitrate MR (KSDL)
- 30mg daily doubling dose every two weeks to maximum of 120mg daily

3. Glyceryl Trinitrate (GTN) (KSDL) 400mcg spray to use PRN

Lipid management:

- Regardless of initial lipid status add a statin:
  - Atorvastatin (KSDL) 40mg daily, increasing to 80mg (refer Kimberley Clinical Guideline: Dyslipidaemia).

Blood pressure control:

- Treat hypertension (BP >120/80) with ramipril (KSDL), starting with 2.5mg daily (refer Kimberley Clinical Guideline: HF)

If episodes of angina persist:

- Add Isosorbide Mononitrate MR (KSDL) 30mg daily (if not taking already); and
- Double every two weeks to maximum 120mg once daily.

If angina continues:

- Add Nifedipine SR (KSDL) 30mg daily and double the dose to 60mg daily after two weeks as needed.
- Then if pain continues add Nicorandil (KSDL) 5mg BD and double weekly to maximum dose 20mg BD.
- **If patient is requiring three to four agents for angina referral to cardiologist / physician should be escalated.**

Anticoagulation:

- Check patient's anticoagulant medications which may be commenced on admission.
- Confirm the duration of planned therapy and document in patient file.

Women of child-bearing age:

- Encourage use of reliable contraception, pre-pregnancy counseling and early antenatal care.

If pregnant:

- Discuss with obstetrician/physician as soon as pregnancy is confirmed.
- With specialist input review medications, including:
  - Nitrates, Nicorandil (KSDL), ACEIs and statins.
  - Substitution of Atenolol (KSDL) with Labetalol (KSDL).
  - Aspirin (KSDL) and GTN (KSDL) (if indicated).

If breastfeeding:

- **Avoid** Statins, Nitrates and Nicorandil.
- Continue Aspirin (KSDL) 100mg daily.
- If ACEI required, use Enalapril (KSDL) 2.5-40mg.
- If on Beta-Blocker change to Metoprolol (KSDL)or Labetolol (KSDL).
- If on Nifedipine (KSDL) continue.

Follow Up

Review patients within one week of any hospitalisation and every two weeks when titrating medications.

Stable IHD:

- Three-monthly: review angina symptoms; and check BP, BMI, waist circumference and smoking status.
- Six-monthly: pathology – UEC, eGFR.
- Annually: ECG, ACR, HbA1c

Refer and Discuss

Cardiologist +/- Physician (for local input):

- Newly diagnosed unstable angina.
- Persisting angina despite maximal therapy.
- Contraindications to stress testing.
- Significant comorbidities e.g., HF, chronic renal failure and valvular heart disease.
- Consideration of coronary intervention or bypass surgery.

Resources

- Absolute CVD disease risk management: Quick reference guide (National Vascular Disease Prevention Alliance)
- CVD resources (Heart Foundation and Australian Chronic Disease Prevention Alliance)
- Health Professional Tools (Heart Foundation)
- Kimberley Clinical Guidelines (KAHPF)
- Kimberley Standard Drug List (KSDL) (KAHPF)

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