iCCnet CHSA Management of Chest Pain/ Suspected Acute Coronary Syndrome

Integrated Cardiovascular Clinical Network CHSA

Patient presents to the Emergency Department with symptoms suggestive of Acute Coronary Syndrome

- **Clinical assessment, ECG and bloods must be performed by a Chest Pain Capable Person* within 10 minutes of presentation**
- Admit to an acute observation cubicle with routine haemodynamic obs
- Administer Oxygen if O_2 sats < 93% on room air (or < 88% for COPD) to achieve O_2 sats > 93% on room air, Aspirin 300 mg and sublingual nitrates
- Record and MO interpret 12 lead ECG within **10 mins of arrival**, if assistance required contact Cardiologist **(08 8378 1133)**
- Insert IV cannula
- Obtain blood samples for: RTropT, ELEC/CREAT (EUC), FBE, LFT, GLUC, INR (if indicated)
- Collect medical history, perform physical examination and record risk factors
- Continuous ECG monitoring, repeat 12 lead ECG at 15 minute intervals if ongoing chest pain

* Doctor/Nurse capable of reliable recognition of acute ST elevation. All ECGs should be uploaded to iPOCCS / MUSE via the SA Health network

ACS Hospital Category 1

- No ECG changes AND
- Negative bedside Troponin T (RTropT) - <40 ng/L

- Angina at rest and prolonged > 20 mins **OR**
- New onset angina **OR**
- Recent acceleration of anginal pattern **OR**
- ECG changes-new ST ↓ or T ↓ **OR**
- Positive bedside Troponin T (RTropT) - >40 ng/L

ECG criteria with persistent (>20 minutes) ST segment elevation in ≥2 contiguous leads of:

- ≥2.5 mm ST elevation in leads V2-3 in men under 40 years **OR**
- ≥2.0 mm ST elevation in leads V2-3 in men over 40 years **OR**
- ≥1.5 mm ST elevation in leads V2-3 in women **OR**
- ≥1.0 mm ST elevation in other leads **OR**
- Development of new onset LBBB **OR**
- New ST ↓ in leads V1-V3 consistent with acute posterior MI

Low Risk Protocol

Admit to Medical Ward

Admission Medications

- Aspirin 100-150 mg daily after a single loading dose of 300 mg
  If aspirin contraindicated consider clopidogrel
- Sublingual GTN PRN

BEWARE of hypotension with first ever use of GTN or if history of hypotension with GTN

Protocol MUST be completed unless a non-cardiac cause of symptoms is established

For on-going or recurrent chest pain:

- Repeat ECG (up to 15 minutely until chest pain relieved)
- Compare serial ECGs to identify potential ischaemic changes
- If pain is not relieved 30 mins post presentation, strongly consider contacting Cardiologist **(08 8378 1133)**

Time 4 hr: ECG

- ECG for serial comparison
- Optional 4 hr bloods for RTropT

No ECG Changes Neg RTropT

Time 8 hr: RTropT, ECG

- ECG for serial comparison

No ECG Changes Neg RTropT

Ensure differential diagnoses have been constructed and worked through

Consider for stress ECG and cardiac assessment. Discuss with iCARnet Cardiologist **(08 8378 1133)** regarding timing and type of stress ECG recommended

POS RTropT or new ECG changes

Recurrent chest Pain or new ECG changes or RTropT +ve

Change to NSTEMI/ USAP Pathway Admit to Monitored Bed
Consultation with Cardiologist required for consideration for immediate transfer

Neg Stress ECG

Pos Stress ECG

If Patient Discharged Home Prior to Stress ECG PRE-DISCHARGE CHECK:

- No on-going chest pain (if chest pain continues d/w cardiologist)
- All ECG's and RTropT's are negative
- No Patient should be discharged with a RTropT>40 ng/L without Cardiologist consultation
- Advice given regarding recurrent chest pain post discharge
- Local Medical Officer follow up arranged

Consult with Cardiologist (08 8378 1133) for consideration

- Elective Coronary Angiography **OR**
- Imaging Stress Test
  Continue Aspirin, Statin, β Blocker and Anti-anginal medication as indicated

All patients should receive CVD risk assessment and advice regarding CVD risk reduction strategies.

Unstable Angina/Non-ST Elevation Protocol

Admit to High Dependency Unit OR Medical Ward (on telemetry)

Admission Medications – Intermediate Risk ACS Patients

- Aspirin 150-300 mg daily
- Clexane: 1 mg/kg every 12 hrs by subcutaneous injection for 48 hrs in people with normal renal function
- +/- GTN – If BP > 100 mmHg commence infusion (via syringe driver) 5 µg/min increments, max 20 µg/min

Beware of hypotension with first ever use of GTN

- Statins: Recommended for all patients with a total cholesterol ≥ 4.0 mmol/L

Troponin Positive or Otherwise High Risk

- Persistent or dynamic ECG changes of ST segment depression greater than or equal to 0.5 mm in 2 or more contiguous leads
- Sustained ventricular tachycardia
- Syncope
- Haemodynamic compromise – systolic BP < 90 mmHg, cool peripheries, diaphoresis, Killip Class >1, and/or new-onset mitral regurgitation
- Left ventricular dysfunction (EF < 0.40)
- Prior PCI within 6 months or prior CABG
- Diabetic
- Chronic kidney disease (GFR < 60 mL/min)

Contact Cardiologist ASAP (08 8378 1133) Consider for immediate transfer

For on-going or recurrent chest pain:

- Repeat ECG (up to 15 minutely until chest pain relieved)
- Compare serial ECGs to identify potential ischaemic changes
- If pain is not relieved 30 mins post presentation, strongly consider contacting Cardiologist **(08 8378 1133)**

Admission Medications – High Risk ACS Patients

- Aspirin 150-300 mg daily
- GTN if BP > 100 mmHg commence infusion (via syringe driver) 5 µg/min increments, max 20 µg/min

BEWARE of hypotension with first ever use of GTN or if history of hypotension with GTN

- Clexane: 1 mg/kg every 12 hrs by SC injection for 48 hrs in people < 75 yr old with creatinine clearance > 30 mL/min or 1 mg/kg every 24 hours for people ≥ 75 yr old or creatinine clearance less than ≤ 30 mL/min
- Ticagrelor 180 mg loading dose then 90 mg BD unless contraindicated (Clopidogrel can be used as an alternative - 300 mg loading dose then 75 mg daily unless contraindicated)
- Consider other antiplatelet therapy after discussion with Cardiologist

Adjunctive Medications

- β Blocker: Initial dose Atenolol 25 mg/day or Metoprolol 25 mg twice daily
  Increase dose until blockade is achieved (HR between 55-60)
- Verapamil or Diltiazem where β blockers are contraindicated
- Statins: Recommended for all patients with a total cholesterol ≥ 4.0 mmol/L

Time 6 hr: RTropT, ECG

NEG RTropT & no ECG changes

POS RTropT or new ECG changes → Contact Cardiologist ASAP

Time 12 hr: RTropT, ECG

NEG RTropT & no ECG changes

POS RTropT or new ECG changes → Contact Cardiologist ASAP

Re-assess risk: based on clinical history, discussion with Cardiologist

LOW RISK

HIGH RISK

Refer to stress ECG. Discuss with Cardiologist **(08 8378 1133)** regarding timing and type of stress ECG recommended.

If Patient Discharged Home Prior to Stress ECG PRE-DISCHARGE CHECK:

- No on-going chest pain (if chest pain continues d/w cardiologist)
- All ECG's and RTropT's are negative
- No Patient should be discharged with a RTropT>40 ng/L without Cardiologist consultation
- Advice given regarding recurrent chest pain post discharge
- Local Medical Officer follow up arranged
- Primary risk factor reduction advised

Early Invasive Management Indicated

- Contact Cardiologist **(08 8378 1133)**
- Transfer for Coronary Angio within 24-48 hrs unless contraindicated – see STEMI protocol
- Continue established therapy

Whilst awaiting transfer or for conservative management

Monitor for:

- On-going or recurrent chest pain
- Haemodynamic instability (shock)
- CHF
- Arrhythmia – VT/VF/AF
- Bleeding

One or more present

None present: Continue established therapy whilst awaiting transfer.

Retrieval
MedSTAR **(13 78 27)**

Time 6 hr: ECG, CP Observations

Time 12 hr: ECG, CP Observations

Time 24 hr: RTropT, ECG, CP Observations

Coronary angiography +/- revascularisation

All patients should have access to Cardiac Rehabilitation and be actively referred to CATCH Central Referral Service – Phone: 08 7117 0601, Fax: 08 7117 0635 or Email: health.chsacardiacrehab@sa.gov.au

ST Elevation MI Protocol

Admit to High Dependency Unit
Administer Thrombolytics < 30 mins if indicated
Contact iCARnet Cardiologist ASAP (08 8378 1133)
Consider for immediate transfer
Upload ECG to iPOCCS / MUSE immediately

Admission Medications

- Within 30 mins TNK 0.5 mg/kg over 30 seconds (max dose 50mg)
- Clopidogrel 300 mg loading dose then 75 mg daily unless contraindicated
- Aspirin 150-300 mg daily
- Clexane: See dosage table (right)
- GTN if BP > 100 mmHg
  Commence infusion (via syringe driver) 5 µg/min increments, max 20 µg/min

Clexane Dosage

Loading Dose
< 75 years:
30 mg IV Bolus plus 1 mg/kg SC
Max. 100 mg dose
≥ 75 years:
0.75 mg/kg SC (No IV Bolus)
Max. 75 mg dose

If CrCl > 30 mL/min

If CrCl ≤ 30 mL/min

Post Loading Dose
< 75 years:
1 mg/kg SC q 12hr
Max. dose 100 mg for first post-loading dose
≥ 75 years
0.75 mg/kg SC q 12hr Max. dose 75 mg for first post-loading dose

Post Loading Dose
1 mg/kg SC daily

If CrCl is unknown at time of diagnosis use normal renal function

Early Transfer for Coronary Angiography indicated

NO

YES

Monitor and Observe while awaiting transfer:

- ECG Monitor Pulse, BP, O2 saturation
- 30, 60, 90 min ECG
- 6 hr ECG (repeat RTropT if initial RTropT neg)
- 12 hr ECG
- 24 hr ECG, RTropT
- GTN patch

Contraindications to Invasive Treatment

- Significant co-morbidity eg. renal failure, dementia, elderly, frail
- Known severe CAD and designated not for further revascularisation attempts
- Respecting patient's choices

If condition changes

- Failed reperfusion (< 50% ST-segment resolution at 60–90 min, and ongoing chest pain)
- Arrhythmia
- CCF/Shock
- Bleeding/Stroke
- Significant co-morbidity increasing risk of medical transport

Non Invasive Medical Treatment Discharge Medications may Include:

- Clopidogrel
- Aspirin
- β Blocker
- Nitrates
- Statin
- ACE inhibitors

Re-infarction

- Recurrent chest pain and/or
- ECG changes >24 hrs post admission and/or
- <14 days since last positive RTropT

Time 0, 6, 12 hr, CKMB

Contact iCARnet Cardiologist for advice regarding a possible re-infarction

Retrieval
iCARnet **(08 8378 1133)**/ MedSTAR **(13 78 27)** conference call

All patients should have access to Cardiac Rehabilitation and be actively referred to CATCH Central Referral Service – Phone: 08 7117 0601, Fax: 08 7117 0635 or Email: health.chsacardiacrehab@sa.gov.au

Government of South Australia
SA Health

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