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<tr>
<td>Dr Ranjit More &amp; members of the Cardiac Network Clinical Advisory Group</td>
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1 PURPOSE.

To improve the care pathway and transfer of patients presenting with Acute Coronary Syndrome (ACS) within Lancashire and South Cumbria.

2 SCOPE.

This protocol applies to all medical staff both referring and treatment centres across Lancashire and South Cumbria and implemented by Cardiac Network.

3 PROTOCOL (Excludes ST elevation/Left Bundle Branch Block (LBBB))

3.1 HIGH RISK: URGENT INVASIVE ASSESSMENT: PATIENTS TO BE TRANSFERRED AS AN EMERGENCY TO THE TERTIARY CENTRE (TRANSFER TIME <24 HOURS)

The following criteria are agreed:

3.1.1 Patients who are experiencing recurrent chest pain despite medical therapy (including intravenous (IV) nitrates) with ST depression of >1 mm in at least two leads

These patients should be discussed for urgent transfer and angiography. Ensure clopidogrel is given and consider the use of iv Glycoprotein IIb/IIIa inhibitors.

(i) Patients should be discussed with a Consultant Physician/Cardiologist at the DGH prior to the on call registrar liaising with the Tertiary Centre.

(ii) The electronic whiteboard, Algorithm (Appendix 1) and Transport guidelines for all cardiac transfers between District General Hospitals (DGHs) and Tertiary Centre (Lancashire Cardiac Centre, LCC) (Appendix 2) should be used for all patients.

3.1.2 Patients who are experiencing refractory chest pain despite medical therapy (including intravenous (IV) nitrates)

3.1.3 Patients with haemodynamic instability or heart failure

3.1.4 Patients with life threatening arrhythmias (VF/VT)

3.2 EARLY INVASIVE ASSESSMENT: PATIENTS WITH CHEST PAIN TO BE TRANSFERRED AS AN URGENT CASE TO THE TERTIARY CENTRE (TRANSFER TIME <72 HOURS)

3.2.1 Patients with elevated troponin (I or T) levels

3.2.2 Patients with dynamic ST/T wave changes

3.2.3 Early post MI angina

3.2.4 Recent PCI (<6/12) - if chest pain is considered to be highly suspicious for myocardial ischaemia

3.2.5 Intermediate/high risk according to GRACE or TIMI score
3.3 ELECTIVE ASSESSMENT: PATIENTS WHO CAN BE STABILISED AND ASSESSED AT THE DISTRICT GENERAL HOSPITAL. THESE PATIENTS SHOULD BE INVESTIGATED LOCALLY (E.G. BY NON-INVASIVE IMAGING)

3.3.1 Patients with intermittent ongoing chest pain unaccompanied by ECG changes and normal troponin levels

3.3.2 Patients with no recurrence of pain and normal ECG and troponin levels

3.4 PATIENTS WITH CO-MORBIDITY

Angiography may need to be delayed in the following circumstances

- Recent Cerebro Vascular Accident (CVA) within six weeks
- Haemoglobin (HB) drop of > 2g/dl during same admission
- Renal failure (Creatinine >200)
- Significant general frailty
- Significant other Comorbidity e.g. Chronic Obstructive Pulmonary Disease (COPD)/acute infection

3.5 PROCEDURES TO BE COMPLETED PRIOR TO INVESTIGATION FOR NON-EMERGENCY PATIENTS

- Ensure patient is informed of the potential procedures that they may undergo (arrange viewing of Heart to Heart video if possible)
- Treat any confounding issues that may influence the decision to catheterise or revascularise
- Consultant Cardiologist at the referring centre should be consulted, in particular if there are any complicating issues, before referral
- Methicillin-Resistant Staphylococcus Aureus (MRSA) status to be checked in all patients, although this should not delay transfer of high risk patients

Additional points:

(i) At present there is not an agreed policy across the Network and indeed there is no agreed policy nationally either regarding choice of Troponin assay. It would be helpful if referring to LCC, doctors indicate their hospital’s normal upper limits to doctors at LCC taking referrals.

(ii) There is a formal Bed Management Protocol arranged between the Tertiary Centre and all District General Hospitals to accommodate these proposals.

3.6 DOCUMENTS REQUIRED TO ACCOMPANY THE PATIENT:

- Inpatient notes (or copies) including ECGs
- Patient’s local notes
3.7 DRUG ISSUES

3.7.1 Glycoprotein IIb/IIIa Inhibitors should only be started under the direction of a Consultant Cardiologist or as part of an agreed protocol with the Cardiologists. The use of the specific IIb/IIIa inhibitor should be decided locally. If intermittent ongoing chest pain accompanied by new or transient ECG changes, and with raised troponins consider Glycoprotein IIb/IIIa inhibitor as well as clopidogrel.

If the patient is receiving a IIb/IIIa inhibitor other than Reopro, the patient should be sent with a sufficient supply of the drug they are receiving to cover the journey to LCC. Once the patient has arrived at LCC, they will be clinically assessed and a decision made whether to discontinue the IIb/IIIa inhibitor or change the patient’s current treatment to Reopro.

3.7.2 Warfarin
All patients on therapeutic doses of Warfarin should have their International Normalised Ratio (INR) checked urgently and the result communicated to the accepting doctor at LCC. The issue of combining dual anti-platelet therapy to patients already taking Warfarin should be discussed with a Consultant Cardiologist.

3.8 CARDIOLOGY REVIEW
All patients with a diagnosis of ACS syndrome should be seen by the local cardiology team within 24 hours

3.9 CONTACT WITH LCC
• Out of hours or urgent/emergency transfers – contact on-call Cardiology SpR
• Early transfers during daytime hours – contact the Transfer Coordinator and complete patient details on the electronic whiteboard
• Please record the patient’s GRACE/TIMI score in the referral notes
• Patients can be tracked by electronic whiteboard

3.10 VALUE OF ECHO
In ACS patients echocardiography provides very useful information on LV function and concomitant valve disease and should ideally be performed prior to transfer – this however may not be feasible in many of the high risk urgent invasive assessment category patients.

3.11 TROPONIN ELEVATIONS
Elevated troponins should be in the context of chest pain suggestive of myocardial ischaemia for a diagnosis of ACS to be made – mild elevations in troponin levels in the context of arrhythmias such as fast AF in the absence of chest pain does not mean the patient has an ACS.

4. ATTACHMENTS.
Appendix 1 ACS Protocol Algorithm
Appendix 2 Transport Guidelines for all cardiac Transfers between DGH and Tertiary Centre (LCC)
5. **ELECTRONIC AND MANUAL RECORDING OF INFORMATION.**
Database for Policies, Procedures, Protocols and Guidelines
Archive/Policy Co-ordinators office Blackpool Fylde & Wyre Hospitals NHS Trust
Archived at the Cardiac and Stroke Networks Office. Room 176, Preston Business Centre, Watling Street Road, Fulwood, Preston, PR2 8DY or via the Cardiac Network website – www.csnlc.nhs.uk

6. **LOCATIONS THIS DOCUMENT ISSUED TO.**

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7. **OTHER RELEVANT /ASSOCIATED DOCUMENTS.**

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8. **AUTHOR//DIVISIONAL/DIRECTORATE MANAGER APPROVAL.**

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<tr>
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<th>Dr Ranjit More</th>
<th>Checked By</th>
<th>Sally Chisholm</th>
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<tr>
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<td>Consultant Cardiologist/ Network Clinical Lead</td>
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Acute Coronary Syndrome Treatment Algorithm
2009 - 2010

Chest Pain>15 mins/suspected ACS – excluding ST elevation/LBBB

Aspirin, Clopidogrel (Loading dose 300 mg – 600 mg followed by 75 mg daily), Beta blockers, Low Molecular Weight Heparin (LMWH) or Fondaparinux 2.5 mg sc.
High dose statin (standard); Ca channel blockers, Nicorandil, Nitrates (all optional)

ECG Normal or transient
ECG changes only

12 hr (from pain) Troponin negative

Dynamic ST-T wave changes
Early post MI angina
Recent PCI (less than 6 months)
Intermediate/high risk TIMI or GRACE score

LOW RISK

Stress test if appropriate
Stop Clopidogrel

12 hr (from pain) Troponin positive

MEDIUM RISK

Refer for inpatient angiography (transfer within 72 hours)

HIGH RISK

Liaise with Tertiary Centre

Suitable for Revascularisation?

NO

Consider IV GP Ilb/IIa
Re-discuss with Tertiary Centre if symptoms persist

Consider IV GP Ilb/IIa.
Transfer within 24 hours

NB Angiography may need to be delayed if a patient has significant co-morbidities (e.g. recent CVA, severe anaemia etc)

All patients with a diagnosis of ACS syndrome should be seen by the local cardiology team within 24 hours
TRANSPORT GUIDELINES FOR ALL CARDIAC TRANSFERS BETWEEN DGH AND TERTIARY CENTRE (Blackpool)

BFWH SPR accepts patient by phone identifies type of transfer required AS1 AS2 CTV

BFWH SPR checks CCU bed availability if Group 1 patient

BFWH SPR informs Cardiac Pathway Coordinator (CPC) and asks for transfer to be arranged according to Protocol

ACS: GROUP 1
Emergencies <24hrs

ACS: GROUP 2
Urgent transfers <1week

ACS: GROUP 3
Delayed transfer until patient fit for procedure

ACS: GROUP 4
Routine admission

Office hours

Patient taken direct to BFWH CCU.

CPC contacts DGH and confirms bed availability.

CPC arranges transport via AS1/999/Ambulance control

Delegated to CCU staff

Crew will establish routing

LAS control will not accept any requests for booking of cardiac CTV transport. Advice will be given to contact the CPC.

Out of Office Hours

CPC confirms patient accepted by BFWH

CPC contacts crew daily with detailed list of transfers in or out of BVH

Crew will confirm with ward expected time of arrival for collection and delivery

CPC allocates patient to ward and informs CTV

CPC in contact via mobile phone for urgent changes with CTV

Following admission to BVH, patient is assessed clinically and, if for angiogram, placed on whiteboard in Cath Lab

CPC confirms patient is on whiteboard

Patients In

CPC contacts crew for urgent changes with CTV

Patients Out

Confirms patient is on whiteboard

Delegated to Ward 11 staff at BVH for out of hours

ITEMS FOR TRANSFER WITH PATIENT

LOCAL NOTES

LOCAL X-RAYS

MOST RECENT BLOOD RESULTS

PATIENTS OWN AND HOSPITAL-PRESCRIBED MEDICATION AND AIDS E.G. DIABETIC PENS

Cardiac Pathway Coordinator will hand responsibility for transfers out of hours to:

AS1 = CCU at BFWH

CTV = Ward 11 staff

Cardiac Transfer Vehicle crews will have the authority to refuse to carry inappropriate patients for their vehicle

KEY

LAS – Lancashire Ambulance Service

CPC – Cardiac Pathway Coordinator

CTV – Cardiac Transfer Vehicle

DGH – District General Hospital

Version 2.2