

# UCLA Acute Myocardial Infarction Program

## *The CLOT Team Protocol-00/01*

Rapid patient triage and administration of therapy aimed at reperfusion is an essential component in the care of patients presenting with acute myocardial infarction. The UCLA Acute MI Program is a multi-disciplinary approach designed to facilitate rapid triage and management of patients presenting to UCLA Medical Center with acute myocardial infarction. This program has had a major impact on acute myocardial infarction patient care at UCLA and the ongoing efforts by the entire nursing, technical, pharmacist, and physician staff are to be commended.

The National Heart, Lung, and Blood Institute has issued guidelines that optimal care of patients with acute myocardial infarction who are suitable candidates should include the initiation of therapy aimed at reperfusion within 30 minutes of hospital arrival. This requires that the **CCU Fellow on call (9-4CCU)** be notified **within 10 minutes** of Emergency Department arrival of all patients suspected of having an acute myocardial infarction and meeting patient entry criteria. This protocol update includes further refinements to the CLOT team protocol to guide the continued provision of rapid reperfusion therapy to patients with acute myocardial infarction at UCLA.

### **Patient Entry Criteria**

#### *Clinical*

Chest Pain or chest pain-equivalent syndrome consistent with acute myocardial infarction associated with a diagnostic ECG.

- Chest pain, pressure, tightness, or heaviness
- Indigestion or “heartburn”, nausea, or vomiting
- Persistent shortness of breath
- Dizziness, weakness, lightheadiness, or loss of consciousness

Patients with cardiogenic shock, sustained ventricular arrhythmia, complete heart block, or pulmonary edema in whom an acute myocardial infarction may be suspected also meet entry criteria.

#### *ECG*

- 1 mm ST elevation in 2 contiguous limb or precordial leads
- Left bundle branch block, not known to be old

Patients who have sustained symptoms in the absence of a diagnostic ECG should have the ECG repeated in 30 minutes. Patients who have symptoms associated with an ECG showing ST depression which is unrelieved within 30 minutes of initiating medical therapy should be considered to have refractory unstable angina/nonQ wave MI and the CCU Fellow on call should be paged. Patients with relief of chest pain but persistent ischemic changes on ECG should also be called to the CCU Fellow on call.

#### *Laboratory:*

Send troponin I assay STAT on patients who present with chest pain, possibly consistent with myocardial ischemia or infarction. If ECG diagnostic, do not await troponin I results, page CCU fellow immediately. If troponin I positive (  $\geq 0.25$  ng/ml) page CCU fellow immediately.

## Acute MI\CLOT Team Protocol

### Emergency Department Nurse

1. Rapid Triage of Patient with Chest Pain
2. Inform ED or IM Resident assigned to patient and ED Attending of chest pain patient
3. Obtain ECG within 5 minutes of patient arrival and show Physician
4. If suspected MI diagnosis, verify that CCU Fellow on call has been paged
5. If suspected MI diagnosis, ensure prompt administration of medications ordered
6. Initiate MI nursing checklist, preprinted orders
7. If patient is to have direct cardiac catheterization:
  - a) administer catheterization pre-medications
  - b) place two IV lines
  - c) place foley catheter
  - d) prepare patient for transport (monitor, escort)

### Emergency Department or Internal Medicine Resident

1. When informed of chest pain patient, perform initial assessment and stand by to review ECG
2. If suspected acute MI, **page-CCU Fellow on Call (9-4CCU) immediately** (or tell ED clerk to page **CCU Fellow on Call**) This should occur within ten minutes of patients arrival in the EMC
3. Rapid History and Physical Exam (see MI Practice Guidelines)
4. Start initial therapy with ASA, IV Heparin, and IV beta blocker (using standard MI orders sheet)
5. For patients with an initial ECG that is nondiagnostic, send troponin I level STAT and repeat ECG in 30 minutes. Patients with a nondiagnostic ECG who have chest pain not relieved within 30-45 minutes of arrival to the ED should be considered to have refractory unstable angina and the CCU Fellow should be paged. If troponin I level is elevated, the CCU fellow should be paged. If the chest pain has resolved but ischemia persists on the ECG, the CCU fellow should be paged
6. Ensure that CCU Fellow is informed within 10 minutes of patient's arrival in the ED. If the CCU fellow has not responded in 5 minutes, page the CCU Attending. If any delay occurs with regards to the CCU fellow, page the CCU attending immediately
7. For patients with a Private Attending Cardiologist, page the Private Cardiologist and the CCU Fellow
8. In patients with pulmonary edema, cardiogenic shock, or cardiac arrhythmia where acute myocardial infarction is suspected, the CCU Fellow should still be notified immediately even if other management issues need to be addressed (such as intubation) and even if the ECG does not show ST segment elevation

### Emergency Department Attending

1. Ensure that chest pain patient is being rapidly evaluated
2. Assist in ECG interpretation and initial patient management
3. If suspected acute MI, verify that CCU Fellow on call has been notified and has responded (Ideally the CCU Fellow will be notified within 10 minutes of patient arrival in all cases). If any delay occurs with regards to the CCU fellow, contact the CCU attending immediately
4. If CCU Fellow and CCU Attending have not responded within 10 minutes of being paged, verify proper physicians have been paged and assume direction of patient's reperfusion therapy. Administer thrombolytic therapy to patients without contraindications.

### Emergency Department Clerk

1. When asked to page CCU Fellow specify to the page operator to page the CCU Fellow on-call (not the Cardiology Fellow, not the Cardiology Consult Fellow, not the CCU Resident, not the CLOT team, and not

the cath lab team).

2. When asked to page any member of the cardiology team on a new patient verify that this is or is not for an acute MI patient and whether it is the CCU or Consult Fellow being requested.
3. If asked to activate clot team or acute MI team, page the CCU fellow on call
4. If CCU Fellow has not responded in 5 minutes, re-page the CCU Fellow **and** page the **CCU Attending** on-call. Verify with the page operator that the proper physicians are being paged

### **CCU Fellow**

1. When called by ED inform the following of potential MI patient in the ED:
  - a. CCU Attending
  - b. Cardiac Cath Lab Staff (during regular hours 56536, 46450)
3. Inform CCU Charge Nurse
2. Rapid obtainment of relevant clinical and ECG data. Present to CCU Attending for prompt therapeutic strategy decision. During after hours, in a patient with a diagnostic presentation and ECG, it may be appropriate to activate the cath lab team based on the ED physician assessment and a faxed ECG alone. If patient does not consent or cath not indicated, the activation may be canceled.
3. If decision to proceed with direct catheterization during regular hours confirm with cath lab staff the lab is ready and the cath attending has been notified. If during after hours, have the page operator page:
  - a. **Adult Cath Lab Team on call** This results in the page operator calling the entire Cath Lab Team (Nurse, Radiology Tech, CV Tech, Diagnostic Cath Lab Faculty on call (beeper 92284), Angioplasty Faculty on call (beeper 97822). Ask that the Adult Cath Lab Team on call be paged (not the CLOT team since this is being confused with requests for the CCU fellow or cath attendings)  
*You must call the page operator yourself since only cardiology fellows or cardiology attendings are authorized to activate the cath lab group page*
  - b. Verify that all the necessary team members have responded
4. Ensure initial therapy with aspirin, heparin, and when appropriate IV beta blocker and/or nitroglycerin have been given (do not delay transport for this)
5. Have patient readied for transport and transport as soon as lab is available
6. Consider need for emergent CABG, call CT surgeon and perfusion tech on call if likely
7. If decision to proceed with thrombolysis, call pharmacy (54133) with patients weight and follow thrombolytic protocol ensuring rapid delivery of thrombolytic agent
8. Ensure that the 9-4CCU pager is always signed over to CCU fellow that is on call
9. Fill out and return the CLOT team report cards on each AMI patient

### **Catheterization Fellow/Advance Practice Nurse**

*(If the catheterization fellow/APN is not in house, the CCU Fellow assumes these responsibilities)*

1. Verify that the cath lab staff and attendings have been notified and responded.
2. Obtain informed consent for diagnostic catheterization and potential PTCA and/or IABP (do not delay transport for this)
3. Administer cath premeds and have foley catheter placed (do not delay transport for this)
4. Assist with patient being readied for transport and transporting as soon as lab is available
5. During any extra time waiting for catheterization laboratory availability, begin prep of patient in ER. Shave groin region and place ECG electrodes in cath lab configuration

### **CCU Attending**

1. Make rapid therapeutic decision
2. Remain readily available to decide whether to proceed with medical therapy, direct PTCA or emergent

CABG in patients undergoing direct catheterization

### **Catheterization Attending**

1. Ensure appropriate medical therapy has been initiated and that rapid patient transfer/prepping is taking place
2. Have CCU attending stand by or be immediately available by phone to make final PTCA vs CABG decision
3. In cases that have a high probability of direct PTCA consider using 8F sheaths initially, performing diagnostic cath of infarct related artery with guide catheter. Also consider delaying LV gram, delaying swan and other ways of shortening time until reperfusion. In cases where another attending will be performing the angioplasty have them immediately available and ready to start.

### **Catheterization Nurse and C.V. Tech**

1. When possible have extra staff assist with the initial transfer and prep of patient
2. Ensure an ultra-rapid transfer and prep of patient
3. Prepare lines and coronary manifold as physicians obtain access
4. Have fellow and attending assist in any way that will save time
5. Document time of reperfusion, notify CCU charge nurse when PTCA is nearing completion

### **CCU Resident**

1. Page CCU fellow immediately if called by EMC for suspected AMI patient
2. Perform brief evaluation of all chest pain/rule out MI patients and review ECG within 10 minutes of being informed of admission, call CCU fellow if any question on ECG or delays in assessment

### ***Important Phone Numbers***

<b>Emergency Dept.</b>	52111
<b>Room 10</b>	60174, 60175, 61872
<b>Cath Lab</b>	56536, 46450, 57129
<b>CCU</b>	54482, 59596
<b>4th Floor Pharmacy</b>	54133, 68796 (if no answer, beep 91674)

<b>CCU Fellow</b>	<b>beeper 9-4CCU (94228)</b>
<b>Cath Lab Staff</b>	<b>call page operator</b>
<b>Diag Cath Attend</b>	beeper 9-CATH (92284)
<b>Angioplasty Attend</b>	beeper 9-PTCA (97822)

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UCLA Myocardial Infarction Quality Improvement Committee  
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