

Chest Pain / Suspected Cardiac Symptoms: Immediate Care

This protocol is intended to be used for individuals with sudden onset of chest pain or other potential cardiac symptoms. If a student is the first responder, they should get help to summon a supervising clinician who will take over care. Meanwhile, the student should initiate the first steps of this protocol.

WARNING: IF SYMPTOMS SUGGEST MI OR IF PATIENT BECOMES UNCONSCIOUS, CALL 911.

- 1. Calm and reassure the patient.**
- 2. Monitor vital signs.**
- 3. Do not leave the patient unattended. Instruct someone to get help and aspirin, and, as necessary, call 911 and bring the AED.**
- 4. If the patient has nitroglycerin, have them take it unless systolic blood pressure is <90 or they have taken medication for erectile dysfunction or pulmonary hypertension in the previous 24 hours.**
- 5. Give adult aspirin to patient (unless the patient has a known allergy to aspirin).**
- 6. Apply oxygen if the patient appears to be in shock, has signs of cardiac failure, or has a measured oxygen saturation < 94%.**
- 7. Apply AED or CPR as necessary.**

Presentation

Any of the following signs and symptoms in combination with chest pain/pressure or acute shortness of breath of recent onset (within 24 hours) may indicate cardiac origin and warrant emergency medical intervention:

- ANY history of MI, coronary artery bypass, angioplasty or stent placement (especially, but not limited to, within the previous 4-6 weeks)
- Left or right arm or shoulder pain; left jaw pain (these can occur even without chest pain)
- Shortness of breath (may occur without chest pain)
- Levine's sign (holding a clenched fist over the chest).
- Sweating, agitation, distress, nausea, palpitations.

Atypical presentations

Note that elderly patients may have a classic presentation in only 1/3 of cases and instead

may present primarily with confusion and restlessness or with a combination of dyspnea, palpitations and sweating. Likewise, women and diabetics may also present atypically.

Emergent Intervention

If a supervising clinician is not already present, send someone to get one.

If Patient is Unconscious

- Assess pulse and respiration
- In case of cardiac or respiratory arrest, administer CPR and/or AED as appropriate.
- Have an assistant call 911 and stay on the phone to maintain communication. Be sure to provide the patient's exact location.

If Patient is Conscious:

- Question about known cardiac problems. If the patient has a prescription for nitroglycerine, have them take it unless systolic blood pressure is <90 or they have taken medication for erectile dysfunction or pulmonary hypertension within the previous 24 hours. (If nitro stabilizes the patient, then it is most likely not a medical emergency.)
- If MI or unresponsive angina is suspected, have an assistant call 911 and stay on the phone to offer guidance. Be sure to provide the patient's exact location.
- Calm and reassure the patient. Ask for permission to contact family.
- Have the patient chew an aspirin (325 mg)¹ unless they are allergic to aspirin.
- Do not apply oxygen unless the patient appears to be in shock, has signs of cardiac failure, or has a measured oxygen saturation < 94%.² In those cases, provide oxygen by nasal cannula if available (rate no more than 2 liter/minute, if severe COPD).
- Monitor pulse, respirations and BP.

Non-emergent Intervention

In the absence of clear signs of a cardiac emergency, proceed with history and examination.

- Take a history and perform a physical exam to rule out a cardiac origin of the chest pain.
- If the evaluation indicates possible angina pain which has resolved, non-ischemic cardiac pain, or if the cause of the pain is still unclear, refer to the patient's PCP for further evaluation. Give the patient emergency precautions that he or she

¹ Acute therapeutic levels range from 160–325-mg. (Hauser 2015)

² Oxygen may carry some risks. Four trials involving 430 participants and 17 deaths reported a pooled RR of death of 2.05 (95% CI 0.75 to 5.58) in an intention-to-treat analysis and 2.11 (95% CI 0.78 to 5.68) in participants with confirmed AMI. While suggestive of harm, the small number of deaths recorded means that this could be a chance occurrence. (Cabello 2013)

should call 911 or proceed to the emergency room if:

- Chest pain or pressure becomes severe, is located in the center or the chest, and/or lasts more than a few minutes.
- Acute onset of shortness or breath, unexplained nausea or vomiting, profuse sweating, lightheadedness, or irregular heartbeat.
- Provide follow-up management as appropriate.

Lowest risk for MI:

- Chest pain that is sharp/stabbing and
- no prior history of heart disease and
- pain that is completely pleuritic or is fully reproduced by palpation or movement/position.

Note: Some patients may use the word "sharp" to convey severe pain rather than stabbing pain; in this case, it is not indicative of lower risk. Likewise, chest pain which is *inconsistently* aggravated by a deep breath, coughing or position does not suggest lower risk.

Communication Steps

- Inform clinic administrative staff as soon feasible, no later than immediately after emergency intervention is administered.
- If patient needs to be transported, inform facilities staff to facilitate ambulance access. Ask the paramedics where the patient will be taken.
- Contact patient's PCP.
- Inform patient's UWS attending physician, if any.
- Complete all appropriate documentation.

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The listing of an item in this protocol does not imply that it should be addressed in all cases. Selection is based on the presenting complaint and the doctor's clinical judgment.

Current Prehospital Treatment Recommendation (Savino 2013)

There is no evidence that the routine use of oxygen to patients with normal oxygen saturation rates provides any benefit but may cause harm.

Level A Recommendations

We recommend against routine oxygen supplementation in normoxic patients (oxygen saturation of 94% or greater) with suspected ACS [acute coronary syndrome]. We recommend using supplemental oxygen for those patients with suspected ACS and signs of heart failure or shock.

We recommend the administration of aspirin to adults with chest pain due to suspected ACS. In making this recommendation we place a higher value on the benefits of aspirin (decreased mortality and decreased complications of MI), which outweigh the risks of adverse effects (gastrointestinal bleeding). Aspirin is contraindicated in the setting of known aspirin allergy.

Level C Recommendation

If nitroglycerin is used, then the following contraindications should be part of the protocol (expert consensus):

- Contraindication with hypotension (i.e., blood pressure less than 90mmHg), by expert consensus.
- Contraindication with the recent use of erectile dysfunction or pulmonary hypertension medications.

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