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CHEST PAIN

When EMS personnel are called to attend a patient experiencing chest pain, a rapid and thorough assessment is important to determine appropriate interventions. Injuries and medical complications involving the chest can be serious and life threatening.

If the chest pain is believed to be cardiac in origin, the patient requires appropriate assessment, early intervention, early initiation of load and go, and ongoing monitoring.

GENERAL

- personal protective equipment should be utilized as required
- body substance isolation techniques should be utilized as required
- perform primary survey
- place the patient in a low or high Fowler's position if tolerated or in a position of comfort
 - loosen tight clothing
 - reassure the patient
- administer high flow oxygen
- consider load and go criteria
- perform secondary survey and measure vital signs
- obtain and record pertinent current and past medical history
 - obtain information related to the chest pain
 - onset
 - activity at onset
 - location
 - severity (pain scale)
 - duration
 - radiation
 - associated symptoms
 - history of prior episodes of chest pain
 - mechanism of injury, if any
 - obtain pertinent past medical history
 - smoking
 - cholesterol status
 - diabetes mellitus
 - angina, myocardial infarction, coronary artery bypass surgery
 - other risk factors for cardiovascular disease
 - family history of cardiovascular disease

- record any medication(s) taken by the patient, and their effects
 - specifically ask whether the patient is taking sildenafil or other drugs for erectile dysfunction (Viagra™), or tadalafil (Cialis™) as this will impact the use of nitroglycerine
 - if the patient has taken sildenafil or other drugs for erectile dysfunction (Viagra™) within the last 24 hours or tadalafil (Cialis™) within 72 hours the use of nitro is contraindicated
- identify any allergies
- EMS personnel can assist a cardiac patient experiencing ischemic chest pain to take his or her own nitroglycerine tablets or spray
 - record the blood pressure prior to and after the first dose, and before and after any subsequent doses
 - one tablet or spray dose every five (5) minutes up to maximum of three (3) tablets or spray dose in fifteen (15) minutes, only if
 - the patient has a prescription for nitroglycerine
AND
 - nitroglycerine presented to the EMS personnel is the patient's own medication
AND
 - nitroglycerine has not expired
AND
 - patient has a systolic blood pressure of 100 mm Hg or greater
AND
 - patient is conscious and able to self administer his or her own medication
 - nitroglycerine use is permitted if the systolic blood pressure is above 100 mm Hg
 - nitroglycerine use should cease if the systolic blood pressure is below 100 mm Hg
 - the patient should be informed that additional doses of nitroglycerine could further lower his or her blood pressure
 - a maximum of three doses should not be exceeded
 - if the patient is using nitroglycerine spray, follow the same procedure as outlined above
 - do not shake the nitroglycerine canister
 - spray the nitroglycerine under the tongue
 - do not allow the patient to inhale the spray
- if patient has own ASA in home and has not taken within 24 hours, has no allergies to ASA or has no evidence of active gastrointestinal bleeding (melena, hematemesis), EMS personnel may encourage the patient to chew and swallow two children's 80 mg ASA or one regular adult 325 mg. Do not repeat dose.
- load and go should be immediately initiated if
 - patient's vital signs are abnormal or unstable
OR
 - patient exhibits dyspnea or respiratory distress
OR
 - patient continues to have chest pain unrelieved either by oxygen or nitroglycerine
- repeat and record vital signs at regular intervals (5-15 mins.) or when there is a change in the patient's status
- prepare to deal with respiratory and cardiac arrest
- do not allow the patient to exert him/herself - e.g. walking, standing unassisted to transfer to the stretcher, etc

- maintain high concentration oxygen delivery to the patient
 - assist ventilations if required

- initiate transport
 - on scene times should be kept to a minimum
 - treat other life-threatening conditions en route
- transport the patient to the nearest appropriate health care facility
 - notify the receiving health care facility of the patient's status as soon as possible
 - monitor and treat the patient en route
 - additional surveys and treatments should be conducted en route
- report all findings to the receiving facility staff, and document on the patient care report

SPECIAL CONSIDERATIONS

- on scene time should be as short as possible, preferably under ten minutes
 - this is to ensure that the patient is transported as soon as possible to the nearest appropriate health care facility where the diagnosis of an acute myocardial infarction can be established or ruled out
 - time is of the essence, as the timely administration of thrombolytic medication to a patient with an acute myocardial infarction can reduce morbidity and mortality
 - if advanced life support (ALS) is available, EMS personnel should consider requesting an ALS response or intercept early
 - initiation of transport should not be delayed for ALS arrival
- **an acute myocardial infarction should be considered in the following patients**
- patients with chest pain or severe epigastric pain, non-traumatic in origin, having components of myocardial ischemia or infarction, such as:
 - central chest, substernal pressure or crushing chest pain
 - pressure, tightness, heaviness, cramping, burning, aching sensation
 - unexplained indigestion or belching
 - pain radiating to the neck, jaw, back, or arm(s)
 - dyspnea
 - nausea or vomiting
 - diaphoresis
 - if a cardiac monitor is available and EMS personnel are trained and certified in its use
 - the patient should be monitored and an ECG strip (eight seconds in duration minimum) should be obtained for reference of the receiving physician
 - this should be done without delaying transport to the nearest appropriate health care facility
 - extremes of age and gender may falsely suggest chest pain of non-cardiac etiology
 - men and women at any age can experience chest pain due to cardiac disease
 - elderly and diabetic patients often present with atypical symptoms
 - EMS personnel should never rule out a cardiac cause for chest pain based solely on age, sex, or lack of a "typical" history

Pain Scale

- the severity of the pain the patient experiences can often be difficult to ascertain
- it is recommended that a “0-10” pain scale be used to measure the patient's perceived pain
- ask the patient to grade the pain on a scale from 0 to 10 where
 - 1 – minimal pain
 - 10 – worse or maximum pain
- ensure that the patient is referring specifically to the chest pain being assessed
- record the patient's initial and subsequent responses regarding the level of pain on the patient care report, including the time
- the level of pain should be reassessed after any interventions (oxygen administration, nitroglycerine administration, etc.)
- include evaluation of pain as part of the patient's response to treatment (no response, deterioration, improvement)
- other sources of pain may be evaluated using this system but should be done on a source-by-source, individual location basis

NOTE

- EMS personnel trained and certified to administer acetylsalicylic acid (ASA) in the setting of suspected ischemic chest pain may do so as outlined in the Acetylsalicylic Acid (ASA) for Suspected Acute Myocardial Infarction Protocol
- EMS personnel trained and certified to administer nitroglycerine may do so as outlined in the Nitroglycerine for Suspected Acute Myocardial Infarction Protocol
- EMS personnel trained and certified to administer morphine may do so as outlined in the Morphine Administration Protocol
- if 12-lead ECG capabilities are available and EMS personnel are trained and certified in its use
 - 12-lead ECG should be obtained based on existing policies and protocols, and transmitted to the receiving health care facility
 - under **NO** circumstances is a pre-hospital 12-lead ECG program to be implemented without prior approval from Emergency Services, Manitoba Health

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