Introduction

Cardiac diseases are the major life threatening emergencies worldwide as shown by the data collected by various agencies. Heart Attack and Cardiac arrests are major causes of death worldwide. Every single day someone is facing these emergency situations. Having being trained in CPR you can administer it to any one whose heartbeat may have stopped either due to Choking, Heart attack, drowning or any other medical condition. Administering CPR save the Life of injured if given properly. Chest compressions are followed by mouth to mouth breathing for providing enough oxygen to the casualty to survive.

If a human being is deprived of oxygen for 10 minutes or more the chances for death increases many fold. Brain damage starts if oxygen is not in circulation for 6 to 10 minutes inside the brain.

Understanding CPR

Cessation of heart beat terminates the blood flow inside the body as well as in brain. The brain does not get steady supply of oxygen leading to death or serious damage to brain tissue. Chest compressions are immediately started in CPR for circulating the arterial Oxygen inside the body. It leads to the constant supply of oxygen to the brain, thus minimizing the brain damage.

However if the AED is available, it dramatically increases the chance of survival of the casualty. Early detection and immediate First aid leads to great recovery of pt.

Recommendation

1. If there is untrained rescuer they should only provide chest compressions.
2. Golden rule of first aid says Immediately Activating the EMERGENCY RESPONSE SYSTEM and providing CPR to the casualty.

Good Smaritan Law.

Good Samaritan Law is passed for providing the first aider giving first aid to any one who is ill or injured, or in distress. It gives protection to First aider if he is giving first aid voluntarily without any greed for reimbursement or compensation. Remember to call Emergency team before starting CPR as every second counts.

Golden rule of safety at the accident site from life threatening hazards of first aider should be implemented before starting first aid or CPR . If there is a life threatening situation immediately move the patient to the nearby safe zone. Dont forget to call 911 or emergency response tream. Never look out for pulse initially to check for wellbeing as itmay take too much time. simply tap on the shoulder and ask the pt "Are you Okay?" If there is no response from the casualty call 911 immediately. Start the CPR immediately. If you are all alone CALL 911 than start CPR or if someone is present beside you he will call 911 and you start CPR.

When to Activate Emergency Response System

Activate the Emergency Response system 911 if you are all alone,than immediately start CPR. If AED is present activate AED quickly. If you don't have someone beside you and neither any mobile phone than you can leave the pt for activating EMS. Safety for first aider and as well as making scene safe is priority.

CHECK VITAL SIGNS IN PATIENT

1. Breathing: - Breathing is checked by putting back side of palm infront of the nose and can feel the breath coming out from nostrils.

Note Breathing Pattern a) Fast or slow?

b) Deep or shallow?

C) Easy or hard to breathe?

2. Heartbeat: - Heart beat is listened by putting the ear on the chest of the patient use both ears.

3. Pulse:-check the pulse by putting two fingers on the side of the neck just behind your voice box. Use your index and third finger against windpipe.

Cardiopulmonary resuscitation (CPR)

A combination of mouth-to-mouth resuscitation and chest compressions delivers oxygen and artificial blood circulation to a person who is in cardiac arrest. It can be life-saving first aid.
A 'heart attack' occurs when the heart is starved of oxygen.

A heart attack can 'stun' the heart and interrupt its rhythm and ability to pump. If the heart stops pumping, it is known as a cardiac arrest. This is because the heart does not receive enough oxygen and cannot pump blood around the body. There is no heartbeat because the heart is not working. When the blood stops circulating, the brain is starved of oxygen and the person quickly becomes unconscious and stops breathing. Without treatment the person will die.

Causes of cardiac arrest

A cardiac arrest can be caused by:

1. Heart disease – this is the most common cause of cardiac arrest and is the leading cause of death.
2. Drowning
3. Suffocation
4. Poisonous gases
5. Head injury

6. Drug overdose

7. Electric shock.

Cardiopulmonary resuscitation (CPR) can be life-saving first aid and increases the person's chances of survival if started soon after the heart has stopped beating. If no CPR is performed, it only takes 3–4 minutes for the person to become brain dead, due to lack of oxygen. By performing CPR, you provide the needed oxygen and circulate the blood, so that the brain and other organs can stay alive while you wait for the ambulance. CPR does not guarantee that the person will survive but it does give that person a chance when otherwise there would have been none.

Types of CPR

a) **ADULT CPR**

b) **CHILD CPR**

c) **INFANT CPR**

Procedure

CPR is most successful when administered as quickly as possible. It should only be performed when a person shows no signs of life; that is, when they are:

- Unconscious
- Unresponsive
- Not breathing normally
- Not moving.

The basic steps for performing CPR can be used for adults, children and infants. They are based on guidelines updated in 2010 to be easier to follow and remember. However, they are only a guide and not a substitute for attending a CPR course.

Step 1 Chest compressions

If the person is not breathing normally, make sure they are lying on their back on a firm surface and neck management.

- Place the heel of one hand on the lower half of the person's breastbone.
- Place the other hand on top of the first hand and interlock your fingers.
- Press down firmly and smoothly (compressing to 1/3 of chest depth) 30 times.

Step 2 Airway Management

- Tilt the head backwards and lift the chin so as to elongate the airway.
- Look inside for any obstruction present if present remove it.

STEP 3 Mouth-to-mouth breathing

- Open the airway by tilting the head back and lifting their chin.

- Close their nostrils with your finger and thumb. Put your mouth over the person's and blow into their mouth.
- Give 2 full breaths to the person (this is called 'rescue breathing').
- Make sure there is no air leak and the chest is rising and falling.
- If their chest does not rise and fall, check that you're pinching their nostrils tightly and sealing your mouth to theirs.
- If still no luck, check their airway again for any obstruction.

Repeat the cycle of 30 compressions then 2 breaths, until professional help arrives. This can be tiring – ask if anyone else knows CPR and can help you.

CHILD CPR

CPR steps for children aged eight years or younger are the same as for adults and older children, but the technique is slightly different.

Child aged 1–8 years

- Use the heel of **one** hand only for compressions, compressing to 1/3 of chest depth.
- Follow the basic steps for performing CPR described above.

INFANT CPR

Infants (up to 12 months of age)

1. Place infant on their back. Do not tilt their head back or lift their chin (this is not necessary, as their heads are still large in comparison to their bodies).
2. Perform mouth-to-mouth by covering the infant's nose and mouth with your mouth – remember to use only a small breath.
3. Do chest compressions, using two fingers of one hand, to about 1/3 of chest depth.
4. Follow the basic steps for performing CPR described above.

CPR may revive the person before the ambulance arrives.

1. Review the person's condition if signs of life return i.e. coughing, movement or normal breathing. If the person is breathing on their own, stop CPR and place those on their side with their head tilted back.

2. If the person is not breathing, continue full CPR until the ambulance arrives.
3. Be ready to recommence CPR if the person stops breathing or becomes unresponsive or unconscious again. Stay by their side until medical help arrives. Talk reassuringly to them if they are conscious.
4. It is important not to interrupt chest compressions or stop CPR prematurely to check for signs of life – if in doubt, continue full CPR until help arrives.
5. It is unlikely you will do harm if you give chest compressions to someone with a beating heart.
6. Regular recovery (pulse) checks are not recommended as they may interrupt chest compressions and delay resuscitation.

Generally, CPR is stopped when

- The person revives and starts breathing again on his own.
- Medical help, such as ambulance paramedics, arrive to take over.
- The person performing the CPR is forced to stop from physical exhaustion.

Things to remember

- Always call 102 for an ambulance in an emergency.
- Cardiopulmonary resuscitation (CPR) combines mouth-to-mouth resuscitation and cardiac compressions to deliver oxygen and artificial circulation to an unresponsive person until medical help arrives.
- CPR is a life-saving skill that everyone should learn.