

## 7- Cardiopulmonary resuscitation (CPR)

### 1-Artificial respiration

#### **Introduction:-**

Artificial respiration is a lifesaving method used to restore breathing to a person whose breathing has stopped. If breathing has stopped, the victim will soon become unconscious. There will be no chest movement, and the skin will be pale or slightly bluish colour. When breathing stops there is no oxygenation of the blood and irreversible brain damage or death may occur in as little as three to six minutes.

There are certain conditions in which breathing stop while the heart is still beating like near drowning, CO or other gas poisoning, electrical shock and anaesthetic accident.

The normal expired air still has an adequate amount of oxygen (16 – 17 % instead of air 21%) to sustain life. In addition to that, carbon dioxide in expired air helps to stimulate the respiratory center of the subject. In near drowning 10% die due to asphyxia (laryngospasm) and 90% die due to entry of water in to the lungs. Fresh water is hypotonic, rapidly absorbed, dilute plasma and causing haemolysis. While Ocean water is hypertonic, draw fluid from vascular system into lungs and decrease plasma volume.

#### **Objective:**

To do artificial respiration (mouth to mouth method).

#### **Materials and instruments:**

Subject.

#### **Procedure:**

- 1- The victim is placed in the supine position.
- 2- Clear air way and open any tight clothing like neck tie or veil.
- 3- The one hand of operator is placed under neck of victim to lift it and bring the tongue away from the back of throat.
- 4- The victim's mouth is covered by the operator's mouth while the fingers of the hand occlude the nostrils.
- 5- The lungs of victim are inflated with the operator's expired air in volume

about twice the tidal volume.

6- Watch the victim's chest for passive expiration due to the elastic recoil of the lungs.

7- This method is repeated 12 times per minute. **See figure (7-1).**



**Figure 7-1:** artificial respiration.

## 2-External closed cardiac massage

### Introduction:-

An emergency procedure carried out on someone who has collapsed with cardiac arrest.

When the heart stops completely, the patient loses respiration, the pulse ceases in all the major blood vessels, and the pupils become dilated. In such a situation, mouth-to-mouth artificial respiration should be given along with external cardiac massage.

External cardiac massage is always done in conjunction with artificial respiration and called cardiopulmonary resuscitation (CPR).

Brain damage can occur 2 – 3 minutes after heart stop.

**Objective:** To do external cardiac massage.

**Materials and instruments:** Subject or victim.

### **Procedure:**

1- The heel of one hand is placed on the lower sternum above the xiphoid process and the heel of the other hand on top of first.

- 2- The pressure is applied keeping the arms straight.
- 3- Depressing the sternum about 4 -5 cm toward the spine then relieving.
- 4- The procedure is repeated 80 – 100 times per minute. **See figure (7-2).**



**Figure 7-2:** external cardiac massage.