A SYSTMATIC PHYSIOLOGICAL REVIEW OF ARTIFICIAL RESPIRATION

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ABSTRACT

Body tissues utilize oxygen and produce CARBON DIOXIDE. As a result of metabolism. The main function of the respiratory system to deliver OXYGEN from atmosphere to tissue. And take out CARBON DIOXIDE from tissue & discharged into atmosphere. Purpose of Artificial respiration is to ventilate the alveoli and to stimulate the respiratory centre.

KEYWORDS: Oxygen, ventilation, CPR, Breath.

INTRODUCTION

➢ Respiration is the process by which oxygen is taken in and carbon dioxide is given out.
➢ First breath takes place after the birth.
➢ Fetal lungs are non functional. So during intrauterine life the exchange of gases between fetal blood and mother blood occurs through placenta.

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HISTORY

The Greek Physician “GALEN” may have been the first to describe artificial respiration. “If u take a dead animal and blow air through its larynx through a reed, you will fill its bronchi and watch its lungs attain the greatest distention.”

Vesalius too describe ventilation by inserting a reed or cane into a trachea of a animal. In English physician “WILLIAM HAWES”(1736-1808).
Began publicizing the power of artificial respiration to resuscitate people who superficially to have drowned.

**RESPIRATORY EVENTS**

![Diagram of Respiratory Events]

**Normal respiratory rate at different age**

- New born 30 to 60 / minute
- Early childhood 20 to 40 / minute
- Late childhood 15 to 25 / minute
- Adult 12 to 16 / minute

**Types of respiration**

1. External respiration
2. Transport of gases
3. Internal respiration
The Artificial Respiration Is Known As The Artificial Ventilation.

Artificial respiration is required whenever there is an arrest of breathing, without cardiac failure. Arrest of breathing occurs in the following condition-

1. Accidents
2. Drowning
3. Gas poisoning
4. Electric shock

The simple automatic act of breathing is essential to life, but may be interrupted in a variety of ways. A metabolic process referring to overall exchange of gases in body by pulmonary ventilation, external respiration and internal respiration.

- It may take the form of manually providing air for a person who is not making sufficient respiratory effort on his/her own or it may be mechanical ventilation involving the use of a mechanical ventilator to move air in and out of the lungs.
- when an individual is unable to breath on their own, for example during surgery with general Anesthesia or when individual in coma.
- Stoppage of the oxygen supply for 5 min causes irreversible change in tissues of brain, particular the tissue of cerebral cortex.
METHODS OF ARIFICIAL RESPIRATION

- Manual methods
- Mouth-to-mouth methods
- Holger nielsen method
- Mechanical methods
- Drinker method
- Ventilation

MANUAL METHOD

Manual methods of resuscitation can be applied quickly without waiting for the availability of any mechanical aids.

Affected person must be provide clear air. Clothes around neck and chest regions must be loosened. Mouth face and throat should be cleared of mucus, saliva, foreign, particles, etc.

Mouth-to-mouth

The victim kept on the supine position.

- Take a deep breath & seal your mouth around the victim mouth.
- By keeping the thumb on victims mouth, lower jaw is pulled downwards.
- Nostrils of the victim are closed with thumb and index finger of the other hand.
- Blow slowly into the victims mouth for 1½ to 2 sec.
- Resuscitator (person who give resuscitation)the air volume exhaled air must be twice the normal tidal volume. This expand the victim lungs.
- Move your mouth away & release the nostrils to allow the air to escape. Look for the chest to fall, listen for air sounds & feel for air being exhaled against your cheek.
- This procedure is repeated at the rate of 12 to 14 times a minute, till normal respiration is restored.
- It method is the most effective manual method because, carbon dioxide in expired of the resuscitator can directly stimulate the respiratory centers.
Holger nieslen method/Back pressure arm lift method

- Victim is placed in prone position with head turned to one side.
- Hands are placed under the cheeks with flexion at elbow joints and abduction of arms at the back of the victim, the resuscitator bends forward with straight arms (without flexion at elbow) and applies pressure on the back of the victim.

- Weight of the resuscitator and pressure on back of the victim compresses his chest and expels air from the lungs. Later, the resuscitator leans back. At holding it just above elbow.
- This procedure causes expansion of thoracic cage and flow of air into the lungs. The movements are repeated at the rate of 12 per minute, till the normal respiration is restored.
MECHANICAL METHODS

- Mechanical ventilation is a method to mechanical assist or replace spontaneous breathing. This may involve a machine called a ventilator or the breathing may be assisted by a resistered.
- Mechanical methods of artificial respiration become necessary when the victim need artificial respiration for long period.
- It is essential during the respiratory failure due to paralysis of respiratory muscles or any other case.
- Tracheal intubation is often used for short term mechanical ventilation. A tube is inserted through the nose(nasotracheal intubation)or mouth (orotracheal intubation)and advance into the trachea.
- Mechanical ventilation are two type :-
  - Drinker method
  - Ventilation

DRINKER METHODS

The machine used in this methods is called iron lungs chamber or tank respirator. This equipment has an airtight chamber, made of iron or steel. Victim is placed onside the chamber.
- By means of some pumps, the pressure inside the chamber.
- Inside the negative pressure: Inspiration occurs.
- Inside the positive pressure: Expiration occurs.
Ventilation methods

- A rubber tube is introduced into the trachea of the patient through the mouth. By using a pump, air or oxygen is pumped into the lungs with pressure intermittently. When it is stopped, expiration occurs and the cycle is repeated.
- Ventilator is two type:
  - Volume ventilator
  - Pressure ventilator

- **Volume ventilator**: Air pumped into the lungs at constant volume & minimum pressure.
- **Pressure ventilator**: Air pumped into the lungs at constant high pressure.

**CONCLUSION**

Each day we breath about 20,000 times. All of this breathing could not happen without help from the respiratory system, which includes nose, trachea, diaphragm, and lungs. Human can survive for weeks or even months without food and days without water but only few minutes without breathing. It is important for everyone to know at least the basics of the respiratory system.

**LIFE STYLE SUGGESTIONS**

Avoid Smoking
Sing and Laugh
Walk Out Side Daily
Practice Deep Breathing
REFERENCES