Department of Anesthesia Techniques
Title of the lec6: - Intermittent Positive-Pressure Ventilation (IPPV

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Intermittent Positive Pressure Ventilation: (IPPV) is artificial ventilation produced by imposing a positive pressure from a sealed circuit into the airway, followed by passive expiration, usually at atmospheric pressure.

It is also the process of manually or mechanically (via a ventilator) ventilating a patient with the use of an endotracheal or tracheostomy tube, and an anaesthetic breathing system.

Factors affected by IPPV

1- The mechanical properties of the lungs and chest wall during (IPPV): a. Tidal volume; b. Flow rate; c. Airway pressure.
2- The increase in intrathoracic pressures associated with IPPV has consequences for: a. Distribution of ventilation and perfusion (gas exchange); b. Cardiac output; c. Regional blood flows.

Influence of Lung and Chest wall Properties on Mechanical Ventilation

. The compliance and resistance of the lungs and chest wall determine:

1- the flow rate;

2- airway pressure produced by ventilator.

- Inspiratory time is decreased by increasing the pressure & flow rate of the ventilator.
- The tidal volume by a ventilator depends on 1- Lungs compliance & resistance; 2- Magnitude & duration of the applied pressure.

Gas Exchange • Abnormalities of gas exchange are attributed to mismatching of ventilation and perfusion within the lung. • IPPV decreases the efficiency of gas exchange by altering the ϖ Distribution of ventilation ϖ Affect alveolar perfusion. • IPPV may lead to ¬ Alveolar hypoperfusion ¬ An increase in alveolar dead space

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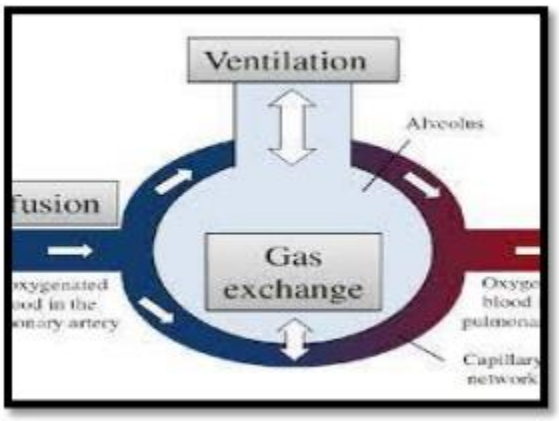

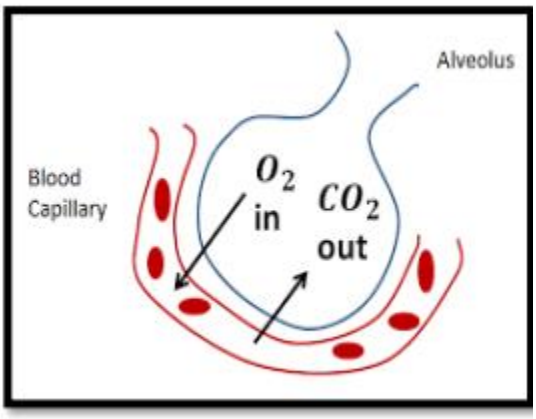

Cardio-Vascular Function

1- Cardiac output decreases with the application of IPPV due to decreased venous return.

2-Haemodynamic effect of IPPV is the decrease in right and left ventricular performance.

3- Increase in left ventricular stroke volume during early inspiration due to ventricular compression by the rise in intra-thoracic pressure.

4- Decreased left ventricular after load due to an increase in pressure gradient.

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