نتمنى لكم عام دراسي جديد
حافل بالنجاح والتوفيق

Principles of intensive care units

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Objectives:

- History of ICU.
- The role of ICU.
- Definitions of ICU and HDU

Introduction:

- Modern intensive care originated during the poliomyelitis epidemics of 1950s when tracheal intubation and positive pressure ventilation were applied to polio victims.
- From this beginning there was a gradual development until the ICU was recognizable ,essential component of each general hospital.
- Critical illness may arise from a variety of disease processes but the pathophysiological changes that result lead to common patterns of organ dysfunction.
- By recognizing these pattern and understanding the interaction between different organ systems , intensive care teams can improve the outcome of critically ill patients.

What is the role of intensive care…?

- Resuscitation and stabilization
- Physiological optimization of patients to prevent organ failure.
- Supporting of failing organ system



Definitions:

Intensive care unit (ICU): an area for patients admitted for the treatment of actual or impending organ failure , especially those requiring assisted ventilation . There is usually at least one nurse per patient and a doctor assigned solely to the intensive care unit throughout the 24-hours period.

High dependency unit (HDU): an area for patients who require more observation and interventions than can be performed on a general ward, but who do not require assisted ventilation. Nursing levels are generally between those of an ICU and general ward.

Types of intensive care units:

- MICU : medical intensive care unit.
- SICU : surgical intensive care unit.
- ICCU :intensive coronary care unit.
- BICU : burn intensive care unit
- NICU : neonatal intensive care unit
- PICU : pediatric intensive care unit.
- OICU : obstetric intensive care unit.

Planning and orginazation of icu :

- Intensive care unit size:

It is estimated that a 10 bed multidisciplinary icu should meet the requriment of up to 300 bed district hospital.

- Location of icu :

The icu should preferably be located on the ground floor near the emergency department and operative theatre.

It must have a close relationship with laboratory , radiology , and physiotherapy department.

- Design of Icu :

There are 4 basic requirement:

1- direct observation of patient by nursing and medical staff.

2- allow physiological monitoring.

3- efficient use of routine and emergency diagnostic procedure and therapeutic intervention.

4- recording and maintenance of patient information.

- Patient bed area :

Beds should fully observable with adequate space for positioning of equipment (ventilator ,cardiac monitor , pulse oximeter , suction machine , mobile x ray machine).

Minimum distance of 8 feet between beds

Each bed must have an oxygen outlet ;central suction outlet and number of power outlet

Common equipments in icu:

Monitoring:

The patient will be connected to the bedside monitor that may display some or all of the following:

- Heart rate (and rhythm).
- Blood pressure.
- Respiratory rate.
- Oxygen saturation and end tidal co2 To give information for you about how well the patient is breath
- Also monitor screen able to display central venous pressure (cvp)

Patient monitoring device:



Intavenous catheters

Intravenous catheter inserted into veins for giving fluids ,drugs and blood component.

- Peripheral line is small catheter inserted into one of the blood vessels in the hand or forearm or foot
- If patient require an increasing amount of fluid or medication to be give or patient had poor peripherial veins that difficult to cannulate so central venous cathether (CVC) inserted in larger veins that found in neck or chest or groin


PROMED

Ventilation:

If the patient is having trouble with their breathing a ventilator may be used to support their beathing.

Ventilation can be provided by either a tight fitting face mask or more commonly a tube called an endotracheal tube (ET) TUBE.

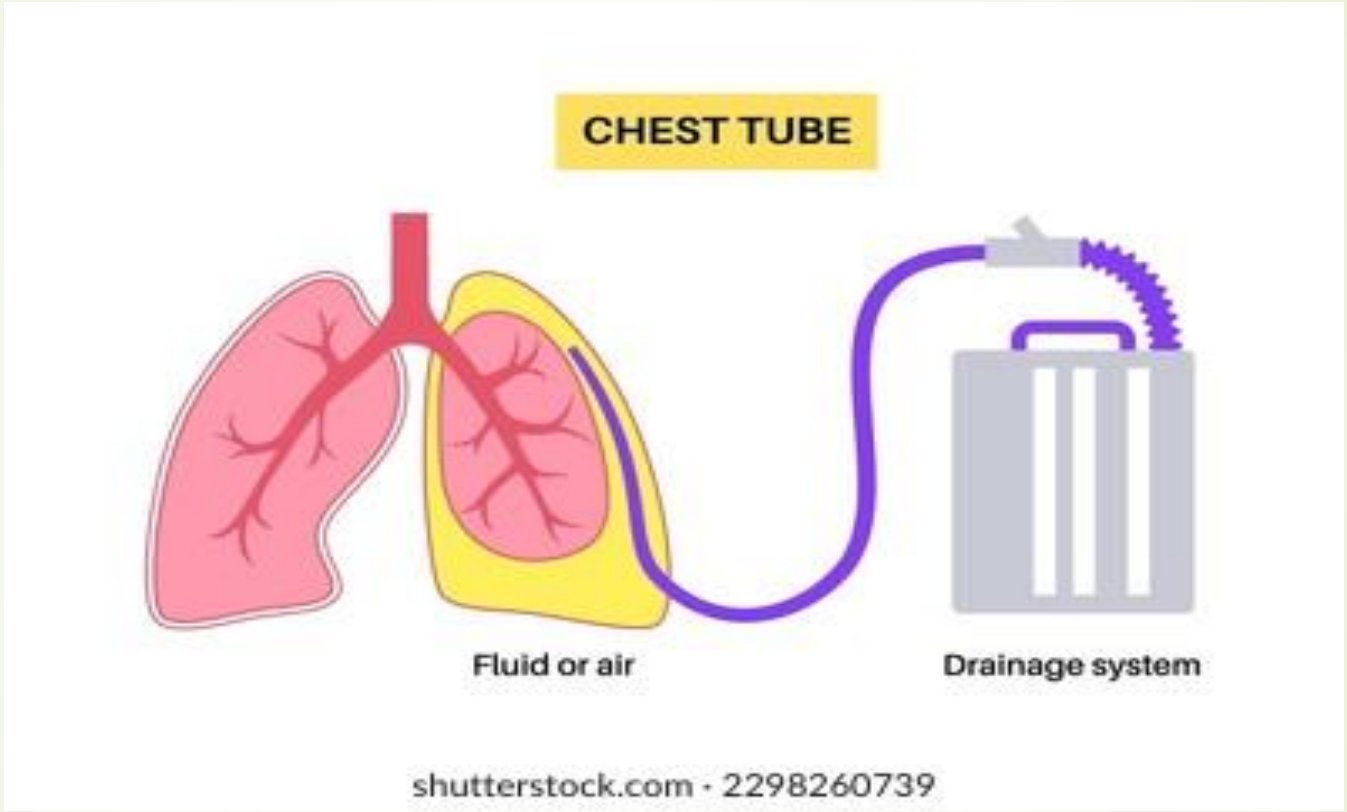
Is inserted through the mouth into trachea.

If the respiratory support is required for longer duration (more than 2 weeks) a tracheostomy done that replace endotracheal tube .where the breathing tube is inserted through the neck into trachea and this considered more comfortable for patient for long term use.


LOWENSTEIN medical
16:42
WOBOV (IV)
Home
Status
Trends
MV spontaneous
RR
16
VTe
330
MVe
5.3
Peak
23
Pplateau
19
PEEP
5
Leakage
0
O2
21
etCO2
-
RC exp.
0.2
C stat.
22
ml/cmH2O
R exp.
4
cmH2O/(l/s)
ΔP
14
VT/IBW
6.1
Pplateau
19
RR spont.
P0.1
RSBI
etCO2
ΔTPP (es)
Patient
Alarms
Ventilation
Manoeuvres
Weaning
Functions
System
elisa 600
LOWENSTEIN medical

Chest tube:

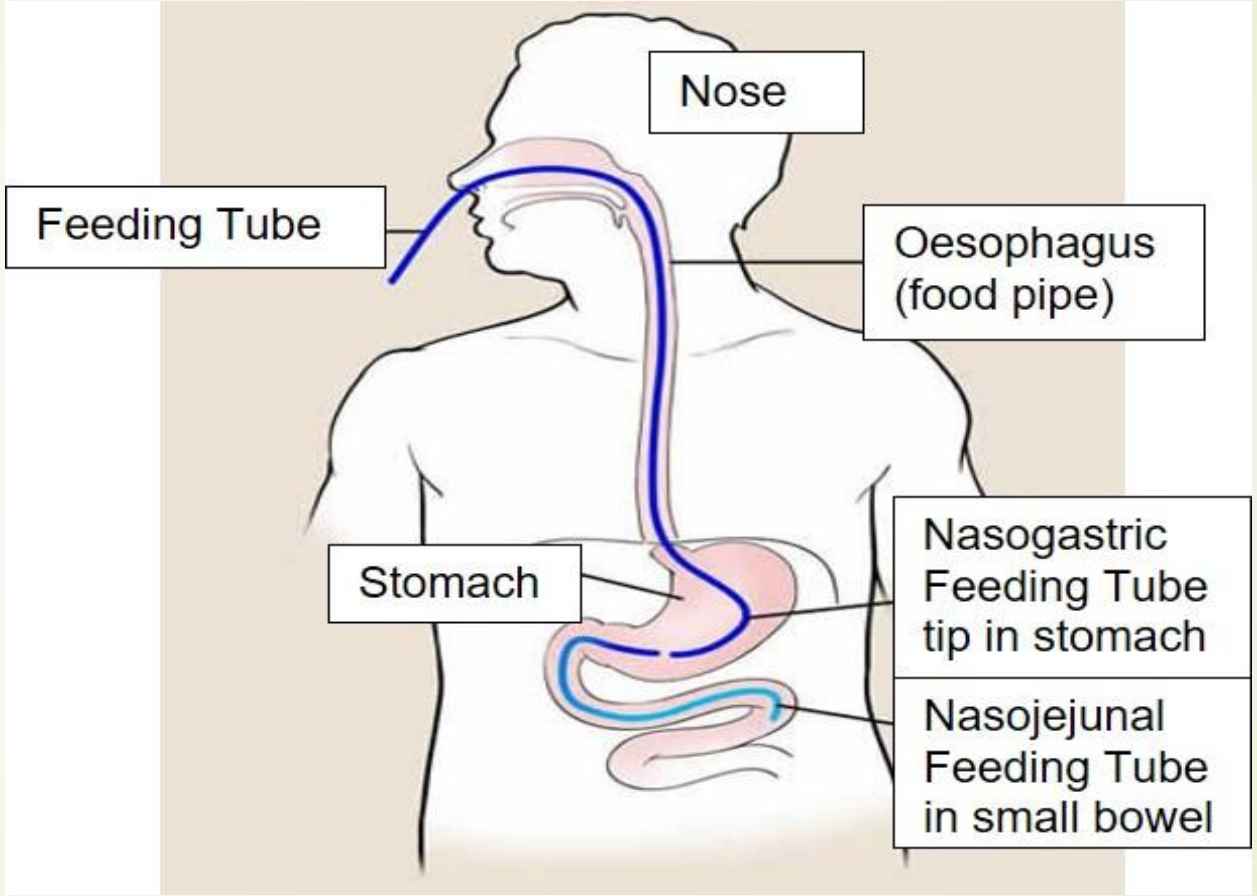
If air or fluids get into the chest wall ,the lung may not fully expand and the patient may have trouble breathing. If this occur , a chest tube may then be inserted through the chest wall to help remove the air and/or fluid and allow for full expand of the lung.


CHEST TUBE
Fluid or air
Drainage system
shutterstock.com · 2298260739

Tube feeding:

When patients are very sick ,they may not consume enough calories to allow them to heal.

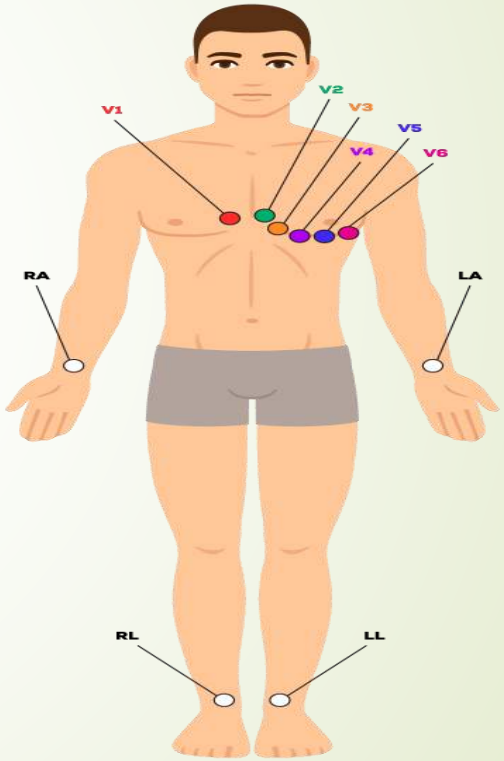
If they are on a ventilator ,they will also unable to swallow anything because of the breathing tube. To provide the needed nutrition a tube is inserted through either the mouth to stomach called (orogastric tube) , or from nose to stomach called (naso gastric tube).


Nose
Feeding Tube
Oesophagus
(food pipe)
Stomach
Nasogastric
Feeding Tube
tip in stomach
Nasojejunal
Feeding Tube
in small bowel

ECG leads :

Hard wires attached to chest of patient and by a cable to monitor that show all area of heart so used to diagnose ischemia and myocardial infraction (MI).

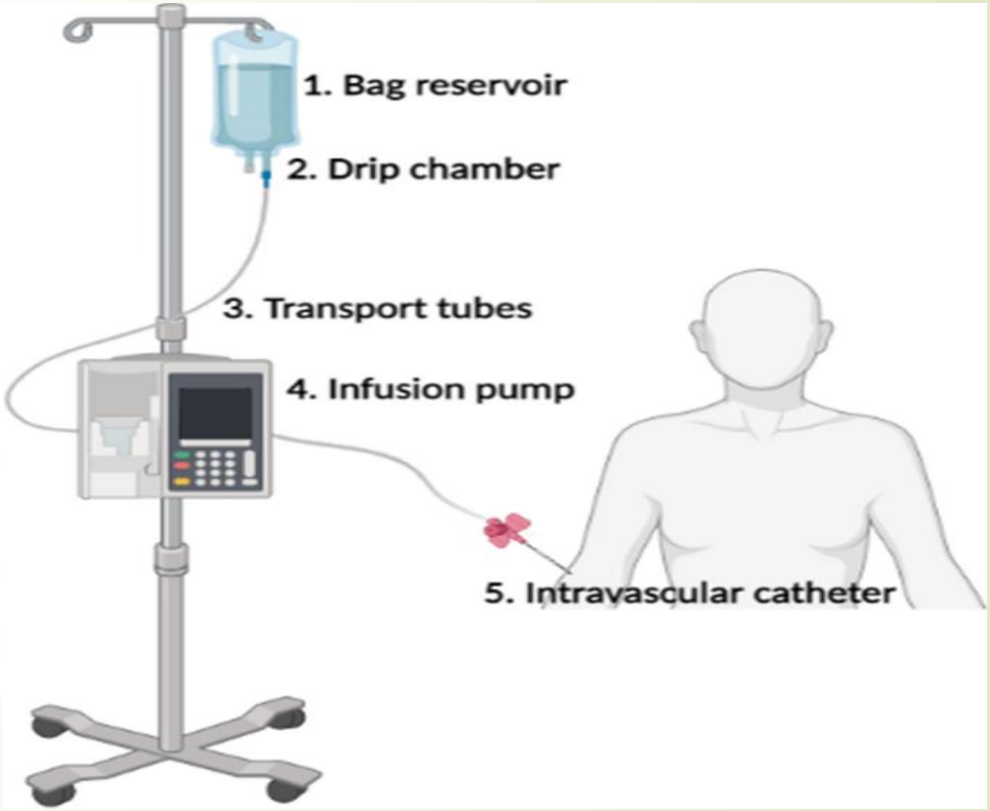



V1
V2
V3
V4
V5
V6
RA
LA
RL
LL

Infusion pumps and syringe pump :

Used for accurate and precise dosage of drugs delivered to patient


36.00


1. Bag reservoir
2. Drip chamber
3. Transport tubes
4. Infusion pump
5. Intravascular catheter

Foly catheter:

One of the important equipment used in icu that enable us to monitor urine out put of patient.

Calculation of urine out put:

- reflect renal function either normal or decrease.
- Enable us to correct calculation of intravenous fluid.


Rusch

Thank you

any question??