LECTURE ONE (1) Intensive care unit (ICU), 3rd stage anaesthesia

Introduction

□ Is a hospital unit in which are concentrated special equipment's and skilled personnel for the care of seriously ill patient requiring immediate and continuous intention.

□ ICU means extensive and continual careful observation and treatment of patient who suffer from insufficient functioning of one or more of the following systems:

1. Resp. System,
2. Circulatory system,
3. Metabolic system

□ The dangerous of failure of any of the above-mentioned systems is clear indication for a pt. to be admitted into ICU.

□ The pt. should however be returned to his respective department as soon as the major threat has passed. ICU types:

There are four ways of organizing an ICU:

1. Traditional ICU by traditional specialties e.g. Medical, surgical
2. By organ system e.g. Cardiac, renal, respiratory.
3. By clinical syndrome e.g. Burn, trauma, stroke.
4. By clientele e.g. neonate, paediatric, gynaecology. Specialized

Common types of ICU include:

□ NICU (NEONATE),

□ PICU (PAEDIATRIC),

□ CCU (CORONARY),

□ CSICU (CARDIAC SURGERY),

□ CVICU (CARDIOVASCULAR),

□ MICU (MEDICAL),

□ MSICU (MEDICAL SURGICAL),

□ RICU (RESP.).

□ GICU (GERIATRIC),

□ TICU (TRAUMA),

□ PACU (Post-Anesthetic Care Unit)

Arrangement models for ICU:

- The open model allows many different members of the medical staff to manage patients in the ICU.
- The closed model is limited to ICU-certified physicians managing the care of all patients; and
- The hybrid model, (transitional) which combines aspects of open and closed models by staffing the ICU with an attending physician and/or team to work in tandem with primary physicians.

High Dependency Unit (HDU):

❖ It's an area that provides a level of care intermediate between that of general ward and an ICU.

General function of HDU:

1. Provides greater monitoring and a higher nurse-to-patient ratio than a general ward; should not provide IPPV.

2. Usually adopts a step-up, step-down function. Recent guidance suggests that HDUs should be for the care of patients with or those likely to develop acute (or acute-on-chronic) single-organ failure.

3. They should not manage patients who have developed multi-organ failure but should provide monitoring and support to patients at risk of doing so.

4. Currently, most admit patients with medical or surgical conditions and are used for postoperative care of high-risk patients, including those undergoing major surgery, monitoring of respiration in patients receiving spinal opioids.

5. Care of patients discharged from ICU but not yet ready for general ward care. Costs and nursing requirements are less than for an ICU; they usually have a nurse-to-patient ratio of 1:2 but no resident doctor.

The ICU Levels:

Level I:

- Recommended for small district hospitals, small private nursing homes, rural centers.

- Ideally, 6 to 8 beds.

Level II:

- Recommended for larger general hospitals.

- Bed strength: 6 to 12.

- Requires a director to be a trained/qualified intensivist.

- Multisystem life support.

Level III:

- Bed strength: 10 to 16.

- Headed by an intensivist.

- Equipped with all recent methods of monitoring, both invasive and non-invasive.

The function of the ICU requires:

1. Trained personnel

2. Special establishment

3. Equipment

1) Trained personnel:

The team usually comprises:

1) Critical care attending physician (also called intensivist).

2) Infectious disease team.

3) Critical care nurses.

4) Critical care respiratory therapist.

5) Pharmacologist.

6) Microbiologist.

7) Physical therapist.

8) Dietitians.

9) Physicians trained in other specialties such as cardiology, radiology, surgery, neurology, pediatrics, and orthopedics may be consulted and called to the ICU to treat patients requiring their expertise.

10) Radiologic technologists who perform mobile X-ray examinations.

11) Clinical laboratory personnel.

Note:

One of the important factors of an ICU is nursing care. Much of the success depends on the cooperation of the nursing staff. The duties of nurses in the ICU are divided among main objectives.

ICU Nursing Responsibilities:

1. To give proper and responsible nursing care.

2. To maintain proper maintenance of the equipment (checking of oxygen, suction, monitors).

3. Besides keeping the unit up to maximum standards. One day every week, all technical equipment must be checked and the necessary repairs done.

4. Organization and management of the daily routine in an average schedule.

5. The staff should be encouraged to do short training courses like BASIC ICU Course.

Working in ICU:

1. Every staff member works 5 days and has 2 off days (5 working days x 8 hours/day = 40 working hours/week).

2. There must be someone present who is responsible for the unit.

3. The total staff should be fairly high. One nurse per patient (1:1 ratio) during the day and one nurse per two patients at night (1:2 ratio).

2) Special Establishment:

1. The bed capacity should be 4% of the total beds in the hospital.

2. The unit should be near the theatre and cut off from the normal route of visitors.

3. The arrangement of beds should provide 9 m^2 per bed, together with bathroom storage rooms, etc.

4. The beds should be arranged to allow observation of each one.

5. There should be strict separation between septic and aseptic patients.

6. Generally, visitors or helpers should not be admitted except with the permission of the officer in charge of the unit. If visitors are admitted, they must wear special gowns provided by the hospital.

3) Special Equipment It includes :

1) patient monitoring equipment, such as:

□ ECG

□ Respiratory Rate.

□ OBLOOD PRESSURE (Invasive &non-invasive). OBODY TEMPERATURE.

□ OCARDIAC OUT PUT.

□ DAMOUNT OF 02 AND CO2 IN BLOOD (ABG).

□ DUOP monitoring.

2). Life support and emergency (resuscitation equipment)Include :

ventilator, infusion pump, crash cart (resuscitation cart). It's portable cart containing emergency resuscitation equipment including defibrillators, air ways, intubation devices, resuscitation bag, mask and medication box, its located ni hte ICU, for immediate availability when pt. experience cardiopulmonary failure.

3).DIAGNOSTIC EQUIPMENTS Which include:

□ Mobile x-ray units, used for bed side radiography particularly

for the chest and;

□ Portable clinical laboratory devices are used for blood analysis at the bedside…