

PRINCIPLES OF CRITICAL CARE MEDICINE , MAJOR MANIFESTATIONS OF SHOCK \ SEPSIS.

- Acute medicine is part of general medicine that is concerned with the immediate & early management of medical patients who require urgent care
- There are many systems developed to deal with critically ill patients & its aim is to rapid determination of physiological deterioration in the patient & rapid response
- One example of rapid response system is medical emergency team (MET) . The team operates on the basis that when the patient meets certain criteria, the team is alerted. & expected to make a rapid assessment & institute immediate management .
- They either escalate to critical care , or following contact with patient initial clinical team , ongoing ward – based care.
- The trigger for MET may be single parameter such as shock (low Bl. Pressure or tachycardia , or a score based composite warning . Such as abnormalities in respiratory rate , SpO₂, temperature Bl.pressure , heart rate , neurological response & urine output. Each given a score between 0-3 . The value summed & the composite score gives an indication of the severity of the physiological derangement . Early warning system can be automated into electronic format that calculate the score & even alerts the responsible clinician .

1-PRINCIPLES OF CRITICAL CARE MEDICINE

- For immediate assessment of deteriorating patient the following approach is used & can be summarized by the mnemonic (C-A-B-C-D-E).
- C : control of obvious problem e.g. VT , significant blood loss.
- A & B : airway & breathing . e.g. if the patient can talk a full sentence , then the airway is clear & breathing is adequate. A rapid Hx. Is obtained while the initial assessment is carried out . Breathing should be assessed with focus on respiratory examination. SpO₂ , ABGs , should be checked early.
- C : circulation , cardiovascular exam. Should include the H.R. , RHYTHM , JVP . Any evidence of recent bleeding , signs of shock , & abnormal heart sounds. Carotid pulse should be palpated in shocked collapsed unconscious patient . The peripheral pulses (radial , brachial, femoral) pulses may disappear as condition progress.

2-PRINCIPLES OF CRITICAL CARE MEDICINE

- D : disability , conscious level should be assessed using GCS (Glasgow coma scale) , (Eye opening , Best motor response , Verbal response), EMC (electronic medical compendium). A brief neurological examination looking for focal sign should be performed . Capillary blood glucose should always be measured to exclude hypoglycemia or sever hyperglycemia.
- E : exposure & evidence , exposure indicates the need for targeted clinical examination of the remaining body system , particularly the abdomen & lower limbs. Evidence may be collected from collateral history from other health –care professional or family members , recent investigations , prescriptions or monitoring charts.

1 - MAJOR MANIFESTATIONS

- 1- Chest pain : it is common symptom in patients presenting to hospital . It has wide list of differential diagnosis , so the detailed Hx. & thorough clinical examination is of paramount importance to guide the direction of investigations. The major causes of chest pain are :
 - A- Central chest pain :
 - 1- Cardiac , (IHD , Myocarditis , pericarditis, MV.prolapse).
 - 2- Aortic , dissection & aneurysm.
 - 3:Oesophageal , (esophagitis, spasm, Mallory-Weiss syndrome , perforation).
 - 4-Pulmonary embolism .
 - 5- Mediastinal , malignancy ,
 - 6- Anxiety \ emotion.
 - B- Peripheral chest pain : 1- lung & pleura .(pulmonary infarction , pleurisy , pneumothorax). 2-musculoskeletal (trauma, osteochondritis). 3- neurological. (herpes zoster, intervertebral disc herniation).

2- MAJOR MANIFESTATIONS

Acute breathlessness : a history with rapid & careful examination will usually suggest the diagnosis , which is then confirmed by routine investigations such as CXR , 12-lead ECG, ABG sampling . The rapidity with which acute breathlessness occur may give important clue for the underlying etiology. The most important causes of acute breathlessness are :

- 1- Acute pulmonary oedema.
- 2-Massive pulmonary embolism.
- 3-Acute sever asthma.
- 4-Acute exacerbation of COPD.
- 5-Pneumonia.
- 6-Metabolic acidosis.
- 7- Psychogenic.
- 8- Foreign body inhalation , is important cause in children.

3-MAJOR MANIFESTATIONS.

- Syncope \ presyncope : the term syncope refers to sudden loss of consciousness due to reduce cerebral perfusion. Presyncope , refers to lightheadedness in which the individual thinks he\she may black out . Dizziness & presyncope is particularly common in old age. The main 3 principal mechanism s for syncope\presyncope are :
 - 1- Cardiac syncope. (mechanical dysfunction or arrhythmias).
 - 2-Neurocardiogenic syncope , also known as vasovagal or reflex syncope.
 - 3- Postural hypotension , in which peripheral vasoconstriction on standing is impaired leading to hypotension. It is important to differentiate the cardiac from non-cardiac causes of syncope, by premonitory symptoms, unconscious period & recovery process.

SHOCK & SEPSIS

- Septic shock : is a condition in which bacterial infection causes hypotension (systolic Bl. Pressure equal or below 90 mmHg, & \or diastolic Bl. Pressure drops below 60 mmHg), vasodilation & organ failure. MAP is sometimes used for assessment of patient status & follow up .These manifestations occur due to sever systemic inflammatory response to bacterial & other organism infection. The infection can start any where in the body (bl. Stream, bone , lung , kidney , brain , skin, liver , gall bladder & bowel).
- The major symptoms & signs of sepsis & septic shock are:
- 1- Hypotension. 2- Tachycardia . 3- Tachypnoea. 4- Hypoxemia. 5-lightheadedness ,disturbed consciousness & coma. 5- Fever or hypothermia . 6- Chills . 7- skin changes (warm or cold skin , skin rash , petechiae).
- The mean arterial Bl.pressure (MAP) utilize both systolic & diastolic Bl. Pressure in single reference value . A MAP of more than 65 mmHg will maintain renal perfusion in majority of patients., although a MAP of up to 80 mmHg may be required in patients with chronic hypertension.
- $MAP = \text{Diastolic blood pressure} + (\text{systolic} - \text{diastolic}) / 3.$

INVESTIGATIONS IN SEPTIC SHOCK

- After full medical Hx. & though physical examination , the infection is often confirmed by blood culture. Although it may be negative in people receiving prior antibiotics , & some infection can not be diagnosed by blood culture.
- Other test that may be done include :
 - Blood gases.
 - Renal function tests.
 - Complete blood film for platelet count , fibrin degradation products (D-dimer) , coagulation tests (PT , APTT) to check for DIC & bleeding risk. WBC count & differential also carried out .
 - Other tests according to site if suspected focus of infection such as CSF , in cases of meningitis , bone imaging studies , ultrasound for liver & gall bladder diseases.