Care of the patient with Neuro injury

Open traumatic brain injury:

- When skull is broken, fractured, or penetrated. When a forign object (e.g. bullet) goes through skull, enters brain + causes damage.

Closed TBI:

- Blunt or closed injury (closed injury to brain)
    - Can be classified as
        - Acceleration – when head is struck by moving object
        - Deceleration – when head hits stationary object
        - Acceleration-deceleration – when head hits object and brain rebounds within skull causing injury to 2+ areas of brain

Severity:

Either mild, moderate or severe. Injury severity is based on loss of consciousness and/or coma rating, post traumatic amnesia (PTA), brain imaging results.

Mild:

- Brief loss of consciousness
- PTA for less than 1hr
- Normal brain imaging

- Moderate:
    - Loss of consciousness for 1-24hrs
    - PTA for 1-24 hours
    - Abnormal brain imaging results
- Severe:
    - Loss of consciousness/coma for 24hrs+
    - PTA for 24hrs+
    - Abnormal brain imaging

Nursing assessment of pt with open or closed TBI:

Neurological assessment:

- Level of consciousness
- Spontaneous movement + muscle tone
- Reflexes
- Resp patterns
- Response to pain
- Pain assessment

Monro-Kellie hypothesis:

Cranial vault – rigid + closed – skull

- Contains
    - Brain
    - Blood
    - CSF
- There is a fixed volume – munro-kelly hypothesis

- If there is a decrease in volume of one component, this should lead to an increase in the volume of another
- If an increase in volume of one component – decreased volume of another otherwise intracranial pressure (ICP) will increase
    - E.g. increased blood = decreased CSF

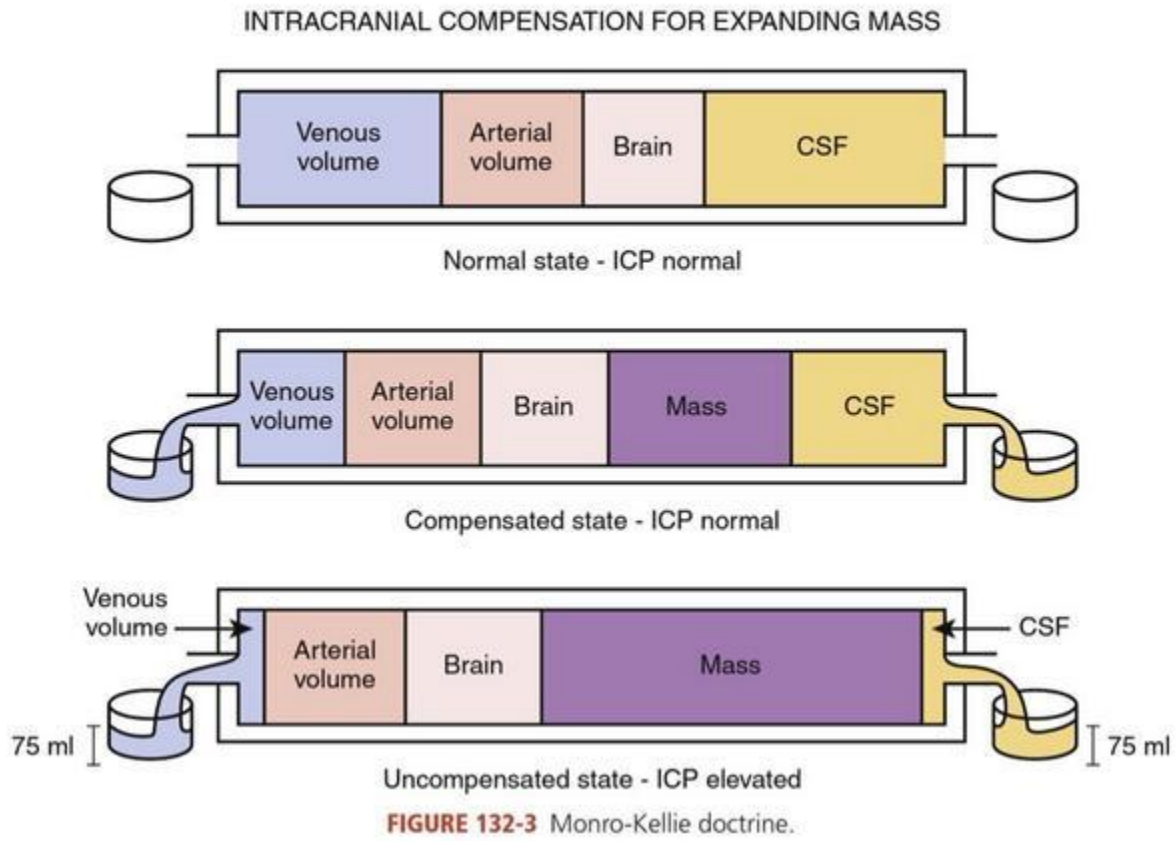

FIGURE 132-3 Monro-Kellie doctrine.

Pathophysiology of increased ICP:

Rise in pressure inside skull that can result from or cause brain injury

Causes:

- Cerebral oedema
- Neuro trauma
- Tumor
- Stroke
- Inflammation
- Haemorrhage
- Epilepsy/seizures

Symptoms:

- Headache
- N + V
- Increased BP
- Decreased mental abilities, confusion
- Double vision, pupils that don't respond to light
- Loss of consciousness, coma

Normally: (monro-kellie) brain, cerebrospinal fluid + blood. When the volume of any of these increases, so does the pressure it exerts on the other 2 components.