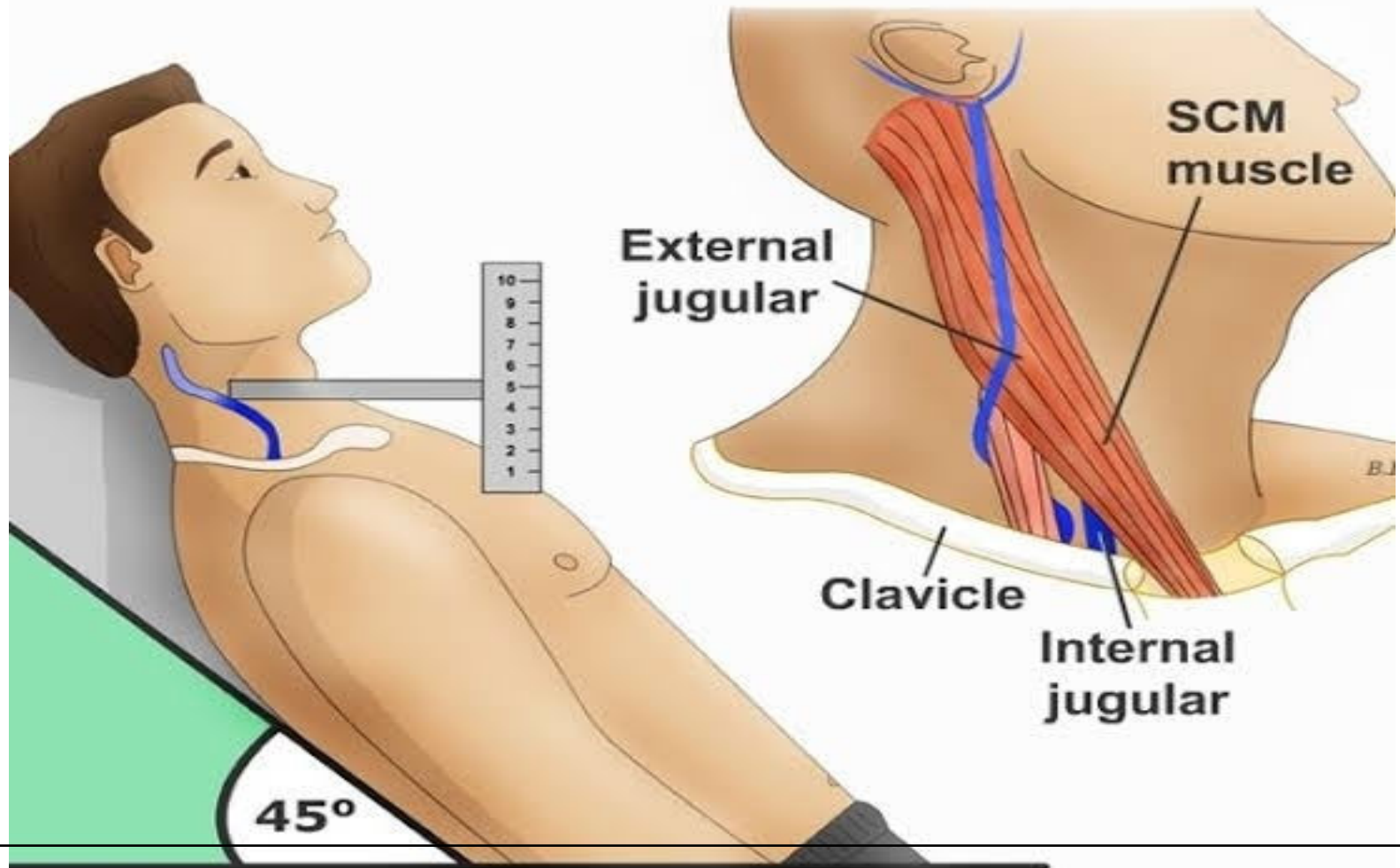


HOW TO EXAMINE

- Done in good light
- Patient is reclining at 45 degree
- Head is supported and turned to left
- JVP is visible along line of sternocleidomastoid muscle
- JVP is the height of vertical column of blood in the internal jugular vein above the angle of Lewis measured in cm.

Jugular venous pressure



STEPS

- Scale is placed vertically from angle of Lewis
- Second scale is placed horizontally at upper level of vertical oscillating column of blood.
- Distance from angle of Lewis to horizontal scale is measured in cm.
- Normal JVP is 4 cm.
- Reading more than 4cm indicates raised right arterial pressure unless superior vena cava is obstructed.

Identifying waves

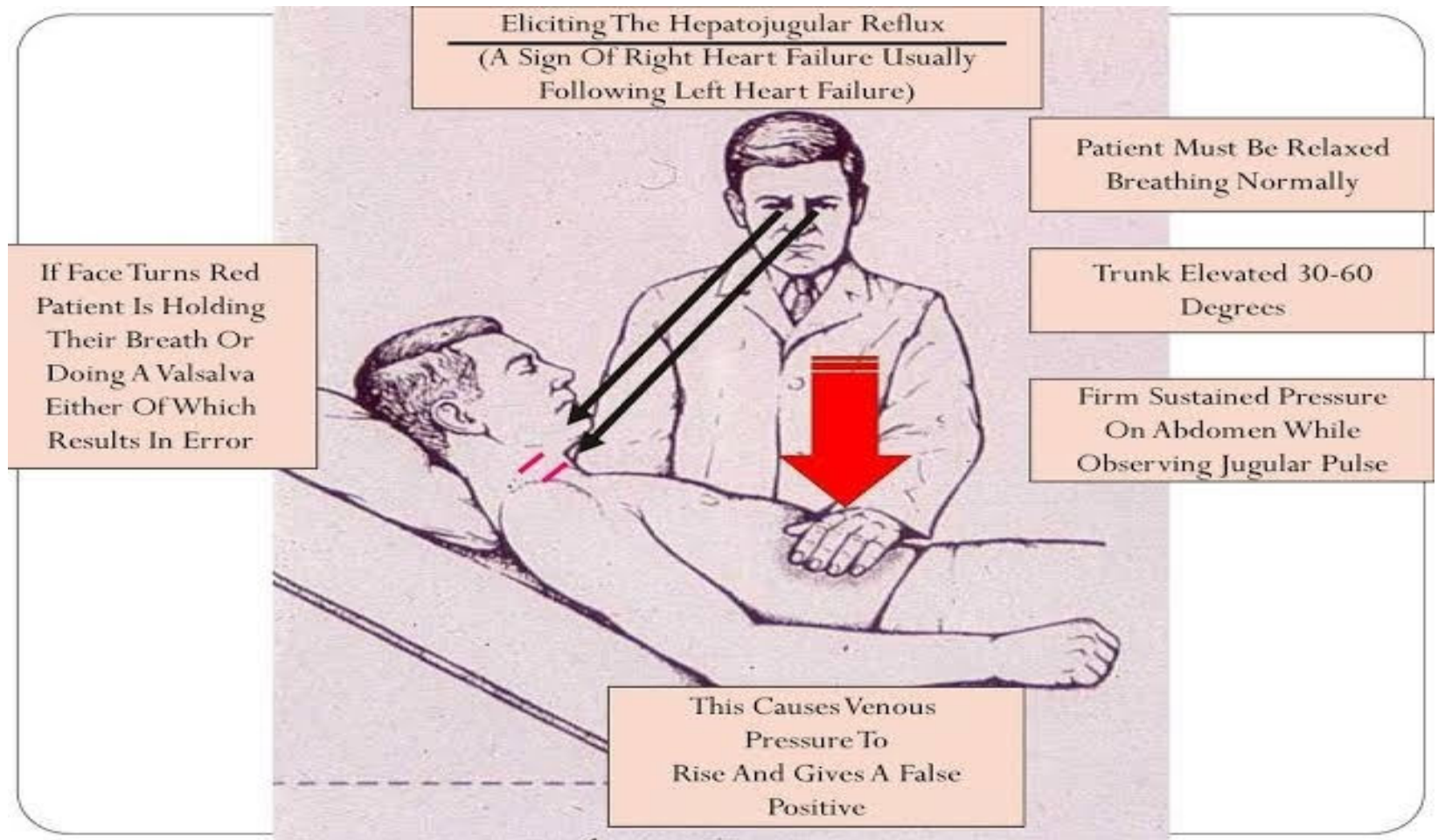
- Examiner should stand on right side of patient who is inclined at an angle of 45 degree.
- First identify pulsations and time the wave with carotid pulse by simultaneously palpating left carotid artery with left hand, which is passed behind patient's neck.
- a wave-comes before carotid pulse
- sharp flicker
- V wave-comes with carotid pulse or following carotid pulse,
- undulating character

CHARACTERISTICS OF JVP

- Double waveform
- Varies with respiration
- Varies with posture
- Impalpable
- Obliterated by pressure at base of waveform
- Transient increase in volume and height with hepatojugular reflex

HEPATOJUGLAR REFLEX

- Patient lie at 45 degree inclination
- Examiner should stand on right side of patient and apply firm pressure over upper right side of abdomen for 10 seconds.
- Patient is asked to breathe normally and not to strain
- There is transient increase in venous return which will elevate JVP.



- Normal individuals –rise is less than 4cm returning to normal in less than 4 cardiac cycles.
- Right heart failure-sustained elevation of more than 4 cm.
- False elevation can occur in COPD due to altered intrathoracic pressure conditions associated with generalised vasoconstriction.

Kusmauls sign

- During inspiration pressure within chest decreases and there is fall in JVP.
- In constrictive pericarditis and less commonly in tamponade ,inspiration produces a paradoxical rise in JVP.
- Because increased venous return cannot be accomodated within constrained right side of heart.

ELEVATED JVP

- Congestive heart failure
- Cor pulmonale
- Pulmonary embolism
- Right ventricular infarction
- Tricuspid valve disease
- Tamponade
- Constrictive pericarditis
- Hypertrophic/restrictive cardiomyopathy
- Superior vena cava obstruction
- Iatrogenic fluid overload-as in renal patients

ALTERED WAVEFORM

- Atrial fibrillation-there is no atrial contraction
- No 'a' wave
- JVP loses its double waveform