

Signs and symptoms of increased ICP

The earliest indication of elevated ICP is a decrease in the level of consciousness which is best described as a slowing of speech and a delay in response to verbal suggestions.

Early signs of increased ICP

Any sudden change in condition such as shifting from quietness to restlessness or from orientation to confusion.

Visual abnormalities like diplopia (double vision).

Pupillary changes like dilation with slowed constriction.

Impaired ocular movements.

Reduction in frequency and eventual loss of spontaneous blinking.

Projectile vomiting.

Weakness in extremity as can be determined by asking the patient to extend his arms out in front of him and observe for downward drift and pronation of the hands.

Headache that is constant, increasing in intensity and aggravated by movement or straining.

Late signs of increased ICP

Change in pulse, and blood pressure. (tachycardia, hypotension)

Elevated temperature.

Alteration in respiratory pattern: First, Cheyne-Stokes is observed.

It is the rhythmic waxing and waning of respiration's rate and depth alternating with brief periods of respiratory arrest (apnea).

Then the pattern will change to one of the following:

Central Neurologic Hyperventilation: Regular and rapid respirations.

Apneustic breathing: Prolonged inspiration followed by inspiratory or expiratory pause.

Cluster breathing: Clusters of irregular, gasping respirations separated by long periods of apnea.

Ataxic breathing: Irregular pattern of deep and shallow respirations with irregular apneic periods.

Loss of brain stem reflexes:

Pupillary: Pupil no longer responds to light by contracting.

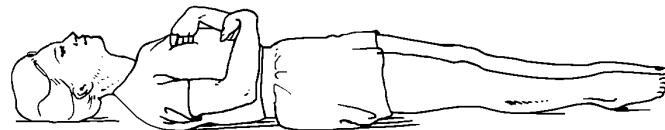
Corneal: Eyelid does not close when cornea is touched.

Gag: Stimulation of the posterior pharynx does not elicit coughing.

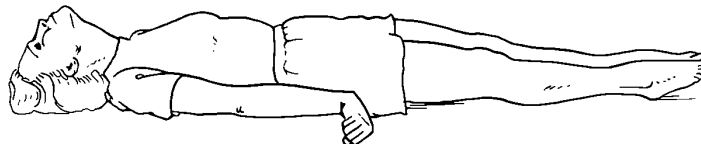
Pathologic superficial reflexes:

Babinski's: Dorsiflexion of the big toe with extension and fanning of the other toes when firm pressure from a blunt object is moved along the lateral margin of the sole of the foot.

Grasp: Stimulation of the palm of the hand will cause the Patient to close his hand.



Decorticate posturing: Abduction and flexion of upper extremities, internal rotation of lower extremities, and plantar flexion of the feet.



Decerebrate posturing: Extension and outward rotation of the upper extremities and plantar flexion of the feet.

Signs of brain herniation

The pulse fluctuates rapidly, varying from bradycardia to tachycardia.

Cushing's Triad: systolic hypertension (>140), bradycardia (<60 beats per min.), and bradapnea (<12 breaths per min.).

Uncal herniation: Ipsilateral (same side of the body) pupil dilated and fixed, Contralateral (opposite side of the body) motor posturing.

Central herniation: Bilateral pupils dilated and fixed, Bilateral motor posturing.