Physiology II summer lab

Final term paper(50 marks)

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Q1.write a detailed note on trigeminal nerve?

Answer No 1#

Defination # The trigeminal nerve is the largest of the 12 cranial nerves. Its main function is transmitting sensory information to the skin, sinuses, and mucous membranes in the face. It also stimulates movement in the jaw muscles. The trigeminal nerve has three different divisions. The trigeminal nerve travels from the posterior cranial fossa, through the porus trigeminus, to Meckel's cave in the middle cranial fossa, where it forms the GG and divides into three main branches: the ophthalmic division (V1), the maxillary division (V2), and the mandibullary division (V3). The trigeminal nerve is the largest and the most complex of the cranial nerves, containing sensory and motor fibers. Somatic afferent impulses carried by the trigeminal nerve transmit pain, light touch, and temperature sensation.It is located in the pons, near the entrance for the fifth nerve. Fibers carrying touch-position information from the face and mouth via cranial nerves V, VII, IX, and X are sent to this nucleus when they enter the brainstem.Trigeminal motor function is tested by palpating the masseter muscles while the patient clenches the teeth and by asking the patient to open the mouth against resistance. If a pterygoid muscle is weak, the jaw deviates to that side when the mouth is opened.While many people find that a light touch — often as light as a gentle breeze wafting over their skin — can trigger trigeminal neuralgia symptoms, they also find that applying pressure to the area can help relieve symptoms. Use your entire hand to press on the affected area.The semilunar (gasserian or trigeminal) ganglion is the great sensory ganglion of CN V. It contains the sensory cell bodies of the 3 branches of the trigeminal nerve (the ophthalmic, mandibular, and maxillary divisions). The ophthalmic and maxillary nerves are purely sensory.The pain associated with trigeminal neuralgia represents an irritation of the nerve. The cause of the pain usually is due to contact between a healthy artery or vein and the trigeminal nerve at the base of the brain. This places pressure on the nerve as it enters the brain and causes the nerve to misfire.Sensation on the face is innervated by the trigeminal nerves (V) as are the muscles of mastication, but the muscles of facial expression are innervated mainly by the facial nerve (VII) as is the sensation of taste.Trigeminal nerve injuries not only causes significant neurosensory deficits and facial pain, but can cause significant comorbidities due to changes in eating habits from muscular denervation of masticator muscles or altered sensation of the oral mucosa.Trigeminal neuralgia is a nerve disorder of the face. It causes abrupt, searing facial pain, especially in the lower face and jaw and around the nose, ears, eyes, or lips.The trigeminal nerve as the name indicates is composed of three large branches. They are the ophthalmic (V1, sensory), maxillary (V2, sensory) and mandibular (V3, motor and sensory) branches. The large sensory root and smaller motor root leave the brainstem at the midlateral surface of pons.The disorder is sometimes broken down into type 1 and type 2. TN type 1 (TN1) is characterized by attacks of intense, stabbing pain affecting the mouth, cheek, nose, and/or other areas on one side of the face. TN type 2 (TN2) is characterized by less intense pain, but a constant dull aching or burning pain.The anti-convulsant drug most commonly prescribed for trigeminal neuralgia is carbamazepine (Tegretol), which can provide at least partial pain relief for up to 80 to 90 percent of patients. Other anti-convulsants prescribed frequently for trigeminal neuralgia include: Phenytoin (Dilantin) Gabapentin (Neurontin).

Q2. What do you know about cranial nerve 3 and its injury?

Answer No 2 #

Cranial nerve injury occurred in 5.3%, paralytic disease in 3.8%, and 8.5% had severe disabilities requiring adjustment of daily activities.Cranial nerve 3, also called the oculomotor nerve, has the biggest job of the nerves that control eye movement. It controls 4 of the 6 eye muscles in each eye: Medial rectus muscle (moves the eye inward toward the nose .

Symptoms #

1# Intermittent attacks of excruciating facial pain.2# Vertigo (dizziness)Hearing loss.3# Weakness.4# Paralvysis.5# Facial twitch.

Treatment #

Fortunately, nearly all patients undergo spontaneous remission of the palsy, usually within 6-8 weeks. Treatment during the symptomatic interval is directed at alleviating symptoms, mainly pain and diplopia. Nonsteroidal anti-inflammatory drugs (NSAIDs) are the first-line treatment of choice for the pain.

Q3.write about vestibular and hypoglossal nerve in detail?

Answer No 3 #

Vestibular Nerve # The vestibulocochlear nerve (auditory vestibular nerve), known as the eighth cranial nerve, transmits sound and equilibrium (balance) information from the inner ear to the brain.Most cases of vestibular neuritis are caused by a viral infection, either in your inner ear or other part of your body. Common viral infections that could cause vestibular neuritis include: measles. flu.The vestibulocochlear nerve is the eighth paired cranial nerve. It is comprised of two parts – vestibular fibres and cochlear fibres. Both have a purely sensory function.Tests to make an accurate diagnosis may include hearing tests and a CT or MRI scan. Your doctor will also check your eyes, which may be flickering uncontrollably. When a patient with vestibular neuritis or labyrinthitis is seen early these eye movement may be observed.

Treatment #

1# Treating any underlying causes. Depending on the cause, you may need antibiotics or antifungal treatments. ...

2# Changes in lifestyle. You may be able to ease some symptoms with changes in diet and activity. ...

3# Epley maneuver (Canalith repositioning maneuvers). ...

4# Surgery. ...

5# Rehabilitation.

Hypoglossal Nerve #

The hypoglossal nerve is the twelfth cranial nerve (XII) and innervates all extrinsic and intrinsic muscles of the tongue, except for the palatoglossus. The hypoglossal nerve emerges from the medulla oblongata in the preolivary sulcus where it separates the olive (olivary body) and the pyramid (medullary pyramid).The hypoglossal nerve innervates all the intrinsic muscles and all but one of the extrinsic muscles (genioglossus, styloglossus, and hyoglossus) of the tongue. The function of each muscle/muscle group is as follows: Genioglossus- Draw the tongue forward from the root.The hypoglossal nerve is tested by examining the tongue and its movements. At rest, if the nerve is injured a tongue may appear to have the appearance of a "bag of worms" (fasciculations) or wasting (atrophy). The nerve is then tested by sticking the tongue out.Hypoglossal nerve disorders may be caused by tumors, strokes, infections, injuries, or amyotrophic lateral sclerosis. People with hypoglossal nerve disorder have difficulty speaking, chewing, and swallowing.Damage to the glossopharyngeal nerve can result in loss of taste sensation to the posterior one third of the tongue, and impaired swallowing.Similar to facial nerve repairs, the ideal management involves establishment of a tension-free anastomosis (Avitia & Osborne, 2008). Although this is preferably performed with end-to-end anastomosis if possible, the use of interposition grafts can be used.

Q4.if a patient had a head injury in which his optic nerve get damage what will happen to him?

Answer 4 #

Definition A person with optic nerve damage will partially suffer from loss of color vision. Loss of visual perception will also occur if the damage to the optic nerve becomes severe, as the eyes are no longer able to perceive the surroundings.Ethambutol optic neuropathy, in our follow-up study, is not always reversible, especially in the older population. It may cause permanent visual disability. There is no so-called "safe-dosage".The retinal ganglion cell (RGC) protective mechanisms of human periodontal ligament-derived stem cells (PDLSCs). Human adult stem cells for RGC regeneration: The basis of cell replacement therapy is that new RGCs could be regenerated from stem cells to substitute the damaged RGCs in glaucoma or optic neuropathies.This is why most people with MS have glasses or contact lenses because at this point they are usually needed to give you your vision back. Of course glasses do not help with color blindness or any of the other things optic neuritis can cause but instead just the blurry vision.

Treatment For people diagnose with glaucoma, treatment may involve use of eye drops, Oral medications or getting Eye Surgeries like laser therapy or drainage tubes.

For people suffering from Optic Nerve drusen, may benefit from medication that lowers intraocular pressure.During an MRI to check for optic neuritis, you might receive an injection of a contrast solution to make the optic nerve and other parts of your brain more visible on the images. An MRI is important to determine whether there are damaged areas (lesions) in your brain.

Q5.if trochlear nerve get injured which function is lost?

Answer No 5#

Trochlea (Latin for pulley) is a term in anatomy. It refers to a grooved structure reminiscent of a pulley's wheel.Injury to the trochlear nerve cause weakness of downward eye movement with consequent vertical diplopia (double vision). The affected eye drifts upward relative to the normal eye, due to the unopposed actions of the remaining extraocular muscles.The trochlear nerve is purely a motor nerve and is the only cranial nerve to exit the brain dorsally. The trochlear nerve supplies one muscle: the superior oblique. The cell bodies that originate the fourth cranial nerve are located in ventral part of the brainstem in the trochlear nucleus.

Function It serves the superior oblique eye muscle and connects to the annular tendon. As a result, it processes brain signals to move the eyes up and down, and also outwards. Whether due to a head injury or a complication of surgery, damage to this nerve will compromise some ability to use the superior oblique eye muscle.