Anterior Inferior Cerebellar Artery Stroke Assessment

Anterior inferior cerebellar artery stroke can be a devastating medical condition. Primary territories that are supplied by the anterior inferior cerebellar artery (AICA) include the lateral pons and anteroinferior cerebellum. If the lateral pons is significantly affected, lateral pontine syndrome can develop. Ipsilateral clinical findings include decreased facial pain and temperature sensation, facial muscle weakness, decreased taste from the anterior 2/3 of the tongue, decreased salivation and lacrimation, nystagmus, hearing loss, Horner syndrome, and cerebellar ataxia. Contralateral findings include decreased body pain and temperature sensation.

PLAY PICMONIC

Characteristics

Anterior Inferior Cerebellar Artery

Anteater In-fur Silver-bell Archer

The anterior inferior cerebellar artery (AICA) branches off the basilar artery at the level of the pons just after the confluence of the vertebral arteries. Along with the pontine branches, the AICAs supply blood to most of the pons.

Lateral Pontine Syndrome

Ladder Pawn

A stroke in AICA will decreased blood supply to the territory supplied by this artery, especially the lateral pons. For this reason, AICA strokes are sometimes referred to as lateral pontine syndrome (or Marie-Foix syndrome).

Ipsilateral Clinical Findings

Decreased Facial Pain and Temperature Sensation

Down-arrow Face-man Pain-bolt Thermometer

Patients with AICA strokes may demonstrate ipsilateral loss of facial pain and temperature sensations. This is due to injury to the spinal trigeminal nucleus.

Facial Muscle Weakness

Weak and Drooping Facial Muscles

AICA strokes can affect several nuclei in the brainstem. If the facial nerve (CN VII) nuclei are affected, then the patient may present with ipsilateral facial muscle weakness. Contrast this with an MCA stroke which may cause contralateral facial muscle weakness (but spared eyebrow raising because the upper face receives dual innervation from the brainstem).

Decreased Taste from Anterior 2/3 of Tongue

Down-arrow Anterior 2/3 of tongue

Decreased taste sensation from the ipsilateral anterior 2/3 of the tongue is due to injury to the superior salivatory nucleus. Special sensory fibers (in this case for gustation) travel from the anterior 2/3 of the tongue to the superior salivatory nucleus via the chorda tympani nerve, which itself is intimate with the facial nerve.

Deceased Salivation and Lacrimation

Down-arrow Drooling and Tears

The sublingual and submandibular glands are innervated by postganglionic parasympathetic fibers from the preganglionic chorda tympani nerve. These glands are under brainstem control from the nucleus tractus solitarius, which can be injured in lateral pontine syndrome.

Nystagmus and Hearing Loss

Nostradamus with Nystagmus and Deaf-guy

Nystagmus, vertigo, nausea, vomiting, and hearing loss may all occur from injury to the vestibulocochlear nuclei. The labyrinthine artery is a branch of AICA, and helps supply blood to the inner ear. If the stroke is serious enough, it can affect perfusion of the inner ear structures.

Horner Syndrome

Horny Pam

Ipsilateral Horner syndrome can be a manifestation of anterior inferior cerebellar artery stroke due to the involvement of descending sympathetic fibers. This syndrome is characterized by ipsilateral miosis, anhidrosis, and ptosis.

Ataxia

A-taxi

If cerebellar peduncles (inferior, middle) are injured from the stroke, patients may display ataxia, or difficulty with gait.

Contralateral Clinical Findings

Decreased Body Pain and Temperature Sensation

Down-arrow Body-brace Pain-bolts and Thermometer

Involvement of the lateral spinothalamic tract will cause contralateral loss of pain and temperature sensations from the body (since the spinothalamic tract fibers decussate at the level of the spinal cord entry zone).
