

Optokinetic Flag Instructions

Optokinetic nystagmus (OKN) is a physiologic jerk nystagmus induced by the patient's attempt to fixate objects rapidly and repetitively through his (her) visual field. This is the mechanism by which we follow objects as we stare out of a train or car window. The nystagmus has a slow-following pursuit phase, and a fast-refixation saccadic component. It can be elicited with alternate contrasting squares on a tape cloth. The patient is asked to count the red squares as the flag is pulled into the patient's field of view. The observer examines the patient's eyes as he (she) counts the squares. The slow phase of the nystagmus is in the direction of the movement of the flag. The fast phase is in the opposite direction of the flag movement. The nystagmus can be induced both horizontally, left to right, and vertically, up and down.

Functional versus organic blindness.

The OKN response is very difficult to inhibit. It can be elicited in malingering or hysterically blind patients, suggesting that the vision is at least 20/400.

Complete Homonymous Hemianopia

If the flag is pulled out of the patient's complete hemianopic visual field defect, and the OKN response is absent or diminished (compared to OKN response seen when the flag is pulled from the patient's intact hemianopic visual field), then the patient most likely has a parietal lobe lesion causing the homonymous defect. If the OKN response is normal, then there can be no localization.

Congenital Nystagmus

OKN can be induced shortly after birth. Children with congenital nystagmus will often exhibit a "perverse" OKN response. OKN will not be present or the fast and slow phases will appear abnormal. If OKN can be superimposed upon the baby's nystagmus, then it is likely that visual acuity will be better than 20/200.

Dorsal Midbrain syndrome

The dorsal midbrain syndrome produces tectal pupils, difficulty in upgaze, eyelid retraction in attempted upgaze and convergence retraction nystagmus (CRN). CRN can best be produced by pulling the OKN tape downward in primary position. Instead of the expected jerking of the eyes upward, the eyes will converge and retract.

Abduction and Adduction deficits

In detecting the adduction deficit of an internuclear ophthalmoplegia (INO) and the abduction deficit of a CNVI nerve palsy, the OKN tape is pulled back and forth in horizontal gaze. In an INO, the intensity of the adducting saccade will be diminished as the OKN flag is pulled in the opposite direction of the action of the medial rectus muscle. In a CNVI nerve palsy, the abducting saccade will be attenuated as the OKN tape is pulled in the opposite direction.

Neurodegenerative diseases

In patients with neurodegenerative diseases of the central nervous system, such as progressive supranuclear gaze palsy, loss of vertical saccades occurs early and the deficit can be detected with vertical OKN testing. Similarly, those with degenerative cerebellar disease will exhibit an absent or decreased OKN response.



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