Medical Coverage Policy | Vestibular Function Tests

EFFECTIVE DATE:01|01|2017
POLICY LAST UPDATED: 12|18|2018

OVERVIEW

Dizziness, vertigo, and balance impairments can arise from a loss of vestibular function. A number of established laboratory-based tests are used to evaluate whether the symptoms are due to dysfunction of the semicircular canals. These tests are based on the vestibulo-ocular reflex, which is an involuntary movement of the eyes (nystagmus) in response to vestibular stimulation. Established laboratory tests include electronystagmography (ENG) and videonystagmography (VNG) test batteries, caloric stimulation, and rotational chair testing. Vestibular evoked myogenic potentials (VEMPs), triggered by sound and vibration, are also being evaluated for the diagnosis of otolith dysfunction

MEDICAL CRITERIA

Not applicable.

PRIOR AUTHORIZATION

Not applicable.

POLICY STATEMENT

BlueCHiP for Medicare

Vestibular function testing using an electronystagmography and videonystagmography testing batteries, caloric testing, or rotational chair testing may be considered medically necessary in patients with symptoms of a vestibular disorder (eg, dizziness, vertigo, imbalance) and a clinical evaluation, including maneuvers such as the Dix-Hallpike test if indicated, has failed to identify the cause of the symptoms.

Vestibular function testing for the assessment of typical benign paroxysmal positional vertigo that can be diagnosed clinically, repeat vestibular function testing when treatment resolves symptoms laboratory based vestibular function tests not described above are not covered as the evidence is insufficient to determine that the technology is likely to improve the net health outcome:

Vestibular evoked myogenic potential tests are considered not covered as the evidence is insufficient to determine that the technology is likely to improve the net health outcome:

Commercial

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COVERAGE

Benefits may vary between groups and contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage or Subscriber Agreement for applicable diagnostic and not medically necessary benefits/coverage.

BACKGROUND

The vestibular system controls balance. It includes 5 end organs, 3 semicircular canals sensitive to head rotations, and 2 otolith organs (saccule, utricle) that sense gravity and straight-line (forward, backward, left, right, downward or upward) accelerations. Vertigo is the primary symptom of vestibular dysfunction. It can be experienced as illusory movement such as spinning, swaying, or tilting. Vertigo may be associated with a feeling of being pushed or pulled to the ground, blurred vision, nausea and vomiting, or postural and gait instability. Vertigo may arise from damage or dysfunction of the vestibular labyrinth, vestibular nerve, or central vestibular structures in the brainstem.

Vertigo may be caused by loose particles (otoconia) from the otolith organs that pass into one of the semicircular canals, most frequently the posterior canal. Specific head movements cause the particle to stimulate the canal, causing brief benign paroxysmal positional vertigo (BPPV). BPPV can usually be diagnosed clinically based on history of positional vertigo, response to the Dix-Hallpike maneuver or lateral roll tests, and resolution of symptoms with canal repositioning maneuvers.

Testing

If vertigo cannot be attributed to BPPV based on history, symptoms, or response to the standard maneuvers, a number of laboratory-based tests can be used to determine whether the vertigo is due to loss of vestibular function.1,2 These tests are based on the vestibulo-ocular reflex, which is an involuntary beating movement of the eyes (nystagmus) in response to vestibular stimulation. Nystagmus induced by these tests can help to distinguish between central and peripheral etiologies, in addition to determining whether the deficit is unilateral or bilateral. The typical tests include the electronystagmography (ENG) or videonystagmography (VNG) test batteries, caloric testing, and rotational chair testing.

ENG/VNG Test Batteries

The ENG/VNG test batteries include oculomotor evaluation and positional testing. ENG uses electrodes at the canthus of the eyes to detect nystagmus while VNG uses infrared video monitoring with goggles to measure nystagmus.

Caloric Testing

Caloric testing evaluates unilateral vestibular function. In the caloric test, warm or cold water or warm or cold air, is introduced into each of the external ear canals. In some descriptions, caloric testing is conducted as part of ENG/VNG test batteries.

Rotational Chair Testing

The rotational chair test evaluates bilateral vestibular function. Rotational chair devices include a lightproof booth, computer-driven chair with a head restraint that rotates around a vertical axis, ENG recording, an infrared camera, and a 2-way communication system. Typically, the chair is rotated in 4 different patterns, constant acceleration followed by deceleration, rotating followed by a rapid stop, rotating at progressively increasing velocities, and alternating directions.

Passive rotational testing without a rotational chair may be performed when the rotational chair is not available. For the head impulse test, the patient is instructed to keep his or her eyes on a target. The examiner then turns the head rapidly by about 15°. With passive whole body testing the examiner rotates the whole body to the rhythm of a metronome.

Vestibular Evoked Myogenic Potential Testing
Vestibular evoked myogenic potential (VEMP) tests are newer techniques that use loud sound (eg, click, tone burst) or bone vibration (eg, tendon hammer tap to the forehead or mastoid) to assess otolith function.3 Both the saccule and utricle are sensitive to sound as well as vibration and movement.

Cervical VEMPs (cVEMPS) are measured by surface electrodes on the ipsilateral sternocleidomastoid (SCM) muscle in the neck and are thought to originate primarily in the saccule. The cVEMP response was first described more than 20 years ago. Abnormality in any part of the auditory cVEMP pathway (saccule, inferior vestibular nerve, vestibular nucleus, medial vestibulospinal tract, the accessory nucleus, the eleventh nerve, SCM) can affect the response.
Ocular VEMPs (oVEMPs) detect subtle activity of an extraocular muscle using surface electrodes under the contralateral eye during an upward gaze, and are thought to be due primarily to stimulation of the utricle. The vestibulo-ocular reflex stimulated by sound or vibration is very small, but synchronous bursts of activity of the extraocular muscles can be detected by electromyography. Lesions that affect the oVEMP may occur in the utricle, superior vestibular nerve, vestibular nucleus, and the crossed vestibulo-ocular reflex pathways.

Treatment
The central vestibular system is able to compensate for loss of peripheral vestibular function. Thus, the primary therapy for peripheral vestibular dysfunction is exercise-based and includes exercises to promote gaze stability, habituate symptoms, and improve balance and gait.4 Medications such as vestibular suppressants or antiemetics may be used in the acute stage but are not recommended for chronic use. For patients who have recurrent symptoms uncontrolled by other methods, a surgical or ablative approach may be used. The objective of the ablative approach is to stabilize the deficit to allow central compensation.

For individuals who have a suspected vestibular disorder not clinically diagnosed as benign paroxysmal positional vertigo who receive ENG/VNG test batteries, caloric testing, or rotational chair testing, the evidence includes technology assessments of a large body of literature. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. Based on review of controlled studies, caloric testing was given a level A recommendation that this test was predictive of loss of vestibular function. Based on a prospective study assessing a narrow spectrum of patients with the suspected vestibular dysfunction, or well-designed retrospective study compared with the criterion standard test, rotational chair testing was also given a level A recommendation. These tests are both considered criterion standard tests of vestibular function. ENG/VNG test batteries, which may include caloric testing, are also established methods of assessing loss of vestibular function. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have a suspected vestibular disorder not clinically diagnosed as benign paroxysmal positional vertigo who receive a VEMP testing, the evidence includes mainly association studies. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. There is a large and rapidly growing literature on VEMP tests for the assessment of otolith function, although most studies have assessed how the cervical VEMP and ocular VEMP change with various disease states. Studies on diagnostic accuracy and clinical utility of this technique for evaluating otolith organs and central pathways are needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have clinically diagnosed benign paroxysmal positional vertigo (BPPV) with typical presentation who receive laboratory-based vestibular function tests, the evidence includes technology assessments and practice guidelines. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. BPPV with a typical presentation can be diagnosed clinically based on history, the Dix-Hallpike maneuver, lateral roll test, and canalith repositioning procedures; thus, laboratory-based vestibular function tests do not add diagnostic information in such routine cases. The evidence is sufficient to determine that the technology is unlikely to improve the net health outcome

CODING

The following cpt codes for vestibular function tests with recording code range are covered

92537 Caloric vestibular test with recording, bilateral; bithermal (ie, one warm and one cool irrigation in each ear for a total of four irrigations)

92538 Caloric vestibular test with recording, bilateral; monothermal (ie, one irrigation in each ear for a total of two irrigations)

92540 Basic vestibular evaluation, includes spontaneous nystagmus test with eccentric gaze fixation nystagmus, with recording, positional nystagmus test, minimum of 4 positions, with recording, optokinetic nystagmus test, bidirectional foveal and peripheral stimulation, with recording, and oscillating tracking test, with recording

92541 Spontaneous nystagmus test, including gaze and fixation nystagmus, with recording

92542 Positional nystagmus test, minimum of 4 positions, with recording

92544 Optokinetic nystagmus test, bidirectional, foveal or peripheral stimulation, with recording

92545 Oscillating tracking test, with recording

92546 Sinusoidal vertical axis rotational testing

92547 Use of vertical electrodes (List separately in addition to code for primary procedure)

There is not a specific code for Vestibular Evoked Myogenic Potential Testing which is not medically necessary; claims should be filed with the following unlisted code

92700 - Unlisted otorhinolaryngologic service or procedure

RELATED POLICIES

None

PUBLISHED

Provider Update, February 2019
Provider Update, June 2017

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