Clinical Policy Bulletin:  
Chronic Vertigo

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Policy

I. Maneuvers for Benign Paroxysmal Positioning Vertigo

Aetna considers the Hallpike maneuver medically necessary for the diagnosis of benign paroxysmal positioning vertigo (BPPV).

The use of the Epley maneuver (also known as canalith repositioning procedure) or the Semont maneuver for the treatment of BPPV is considered medically necessary when both of the following selection criteria are satisfied:

A. Diagnosis of BPPV has been confirmed by a positive Hallpike test, and
B. Member had symptoms of BPPV for at least 4 months.

The Epley maneuver and the Semont maneuver have not been demonstrated to be effective in persons with disorders of the central nervous system such as temporal lobe epilepsy, multiple sclerosis, cerebrovascular disease, vertiginous migraine, cerebellopontine angle tumors, and primary or metastatic cerebellar lesions, based on neurological examination, magnetic resonance imaging, or history. For individuals with these diagnoses and all other indications, use of the Epley maneuver or the Semont maneuver is considered experimental and investigational.

Aetna considers mastoid oscillation (mastoid vibration) experimental and investigational for persons treated with canalith repositioning procedure because of insufficient evidence of this approach.

Aetna considers the DizzyFix device for the treatment of BPPV experimental and investigational because its clinical value has not been established.

II. Vestibular Rehabilitation
Aetna considers vestibular rehabilitation for chronic vertigo medically necessary when all of the following criteria are met:

A. Symptoms (e.g., vertigo and imbalance) have existed for more than 6 months; and
B. The member has confirmed diagnosis of a vestibular disorder or has undergone ablative vestibular surgery; and
C. The member has failed medical management (e.g., use of vestibular suppressant medications to reduce symptoms).

Aetna considers vestibular rehabilitation experimental and investigational for all other indications because its effectiveness for indications other than the one listed above has not been established.

Note: Up to 12 visits (generally given 2 times a week for 6 weeks) are considered medically necessary initially. Up to 12 additional visits are considered medically necessary if, upon medical review, there is evidence of clinically significant improvement. If there is no evidence of improvement after 12 visits, additional visits are not considered medically necessary.

III. Dynamic Posturography

Aetna considers dynamic posturography (also known as balance board testing, computerized dynamic posturography [CDP], equilibrium platform testing [EPT], and moving platform posturography) experimental and investigational for the diagnosis and staging of patients with Meniere's disease and other balance disorders, for the differential diagnosis of multiple sclerosis and disequilibrium, and all other indications because its clinical value has not been established.

Sensory organization test (SOT), also known as the gans sensory organization performance test (SOP); modified clinical test of sensory interaction on balance (mCTSIB); and movement coordination test (MCT) are components of dynamic posturography, and are considered experimental and investigational.

IV. Meniett Low-Pressure Pulse Generator

Aetna considers the Meniett low-pressure pulse generator for the treatment of Meniere's disease, nausea/vomiting, and tinnitus experimental and investigational because its effectiveness has not been established.

V. Electronystagmography and Videonystagmography

Aetna considers electronystagmography (ENG) medically necessary for evaluation of persons with symptoms of vestibular disorders (dizziness, vertigo, disequilibrium or imbalance).

Aetna considers videonystagmography (VNG) a medically necessary alternative to ENG for assessment of vestibular disorders.
Aetna considers ENG and VNG experimental and investigational for all other indications because their effectiveness for indications other than the ones listed above has not been established.

VI. Cochlear Hydrops Analysis Masking Procedure (CHAMP) Testing for Meniere's Disease

Aetna considers cochlear hydrops analysis masking procedure (CHAMP) testing experimental and investigational in the evaluation of Meniere's disease.

See also CPB 0299 - Tilt Table Testing; CPB 0406 - Tinnitus Treatments; and CPB 0467 - Vestibular Autorotation Test (VAT).

Background

Benign Paroxysmal Positioning Vertigo:

Benign paroxysmal positioning vertigo (BPPV, also known as cupulolithiasis or benign paroxysmal positioning nystagmus) is believed to be a mechanical disorder of the inner ear as a consequence of degenerated material lodging in the posterior canal of the ear. The Hallpike maneuver is a specific clinical balance test that when positive, is diagnostic of BPPV. The classical nystagmus (an involuntary, rapid, rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory, or mixed) occurs when the patient's head is rapidly reclined and turned to the affected side. The Semont maneuver and the Epley maneuver (also known as canalith repositioning procedure) are a series of head manipulations performed by trained physicians in an attempt to move the degenerated material along the posterior canal and out its opening, thus eliminating the symptoms.

There is sufficient evidence that the Hallpike maneuver is effective in diagnosing patients with BPPV. There is also enough scientific data to support the safety and effectiveness of the Semont maneuver and the Epley maneuver for the treatment of patients with this condition. Treatment usually requires a single session. Additional 1 to 2 sessions over a 2-week period may be necessary if the patient's condition does not improve or if the condition recurs after the initial session. Mastoid vibration should not be used in conjunction with the Epley maneuver in patients with perilymphatic fistula or a history of retinal detachment.

The American Academy of Neurology (AAN)'s guideline on therapies for BPPV (Fife et al, 2008) reported strong evidence supporting the canalith repositioning procedure (CRP) as a safe and effective treatment that should be offered to patients of all ages with posterior semicircular canal BPPV. Semont's maneuver is possibly effective. There was insufficient evidence to establish the relative efficacy of the Semont maneuver to CRP, nor was there enough evidence to recommend a specific maneuver for horizontal or anterior canal BPPV. The AAN guideline also noted that mastoid oscillation (i.e., the use of an oscillator placed on the mastoid process to enhance the effectiveness of CRP) is probably of no added benefit to patients treated with CRP.
The DizzyFix is a device designed to train patients to perform the particle repositioning maneuver (PRM), which helps to treat the most common cause of vertigo known as BPPV.

Bromwich et al (2008) developed and tested a completely new dynamic visual device for the home treatment of BPPV. These researchers designed and manufactured a new device (the DizzyFix) to assist in the performance of the PRM. A total of 50 healthy volunteers were taught the PRM, 50% using the new device. At 1 week, these investigators compared the PRM performance between the device and non-device user groups. Main outcome measure was performance of the PRM as graded on an 11-point scale. DizzyFix users in phase I scored significantly higher on their PRM performance compared with controls (p = 0.0001). The authors concluded that the use of DizzyFix enables volunteers to conduct a correct PRM on their own. This is a significant improvement from written instructions or in-office training. This report appears to be a feasibility study in which healthy subjects were used. It did not provide clinical data regarding the effectiveness of the DizzyFix in treating patients BPPV.

Bromwich et al (2010) tested the effectiveness of the DizzyFix for the home treatment of BPPV. A total of 40 patients with active BPPV were included in this cohort study. Main outcome measure was the Dix-Hallpike maneuver at 1 week after treatment. Patients using the home treatment device had no evidence of nystagmus in post-treatment Dix-Hallpike maneuvers at 1 week in 88% of cases. This rate was comparable to standard treatment. There were no significant complications. The authors concluded that the use of this device enables patients with an established diagnosis of posterior canal BPPV to safely conduct an effective PRM and achieve success rates similar to those found with the standard Epley maneuver. This was a small study with a short follow-up period; its findings need to be validated by other investigators through well-designed studies.

Silva et al (2011) discussed the current options available to manage BPPV. These investigators reviewed 2 recent guidelines regarding the evaluation and treatment of BPPV. The 1st one was published by the AAO-HNS and the other by the AAN. Only the AAO-HNS guidelines recommend the Dix-Hallpike test for the diagnosis of BPPV. Only canalith repositioning maneuver, Semont maneuver and vestibular rehabilitation had showed some benefit and were recommended as good treatment options.

Vestibular Rehabilitation:

Vestibular rehabilitation (VR) entails the use of specific exercises designed to modify patients’ responses to head movement and vestibular stimulation. Vestibular rehabilitation cannot prevent the recurrence of active disease, or relieve symptoms without a vestibular origin, or symptoms that are unaffected by position or movement. Patients may be asked to alter head position as well as gaze direction repeatedly, stand for a specified period of time, and perform a specific number of steps with eyes open and shut. Other rehabilitative exercises emphasize balance retraining. Additionally, patients are asked to identify specific positional changes that cause vertigo; the therapy is then designed to have patients execute that position with varying repetitions. After the initial sessions of instruction, patients can usually carry out vestibular rehabilitation exercises at
home. For individuals who are uncomfortable to perform the exercises at home, they can do them in an appropriate facility as outpatients.

Vestibular rehabilitation has been used in the treatment of patients with chronic vertigo as a consequence of vestibular dysfunction. It has been reported that patients with chronic peripheral vestibular disorders improved balance and reduced vertigo after 6 weeks of vestibular rehabilitation. Vestibular rehabilitation has also been demonstrated to be beneficial for patients who have undergone ablative vestibular surgery. Vestibular rehabilitation should be performed by a licensed occupational or physical therapist.

The literature indicates that the following groups of patients are generally not good candidates for vestibular rehabilitation:

- Patients with an unstable lesion, usually indicative of a progressive degenerative process (e.g., autoimmune inner ear disease);
- Patients with endolymphatic hydrops, Meniere’s disease, or perilymphatic fistula;
- Patients with vertiginous symptoms from a demyelinating disease, epilepsy, or migraine.

In a review on VR for unilateral peripheral vestibular dysfunction, Burton et al (2008) concluded that there is moderate to strong evidence from high-quality randomized trials supporting the safety and effectiveness of this intervention. There is moderate evidence that VR provides a resolution of symptoms in the medium-term. However, there is evidence that for the specific diagnostic group of BPPV, physical (repositioning) maneuvers are more effective in the short-term than exercise-based VR. There is insufficient evidence to discriminate between differing forms of VR.

**Dynamic Posturography:**

Dynamic posturography has been used for evaluation of suspected vestibular disorders. This diagnostic test employs a force platform and visual stimuli to measure the contributions to balance of vision, somatosensation, and vestibular sensation. The test measures postural stability (body sway), which is a functional indicator of balance.

Dynamic posturography is usually divided into 2 parts; (i) sensory organization test (SOT); also known as the gans sensory organization performance test (SOP), and (ii) movement coordination test (MCT). The former test alters proprioceptive and visual inputs, and determines the effects on equilibrium and on-feet anterior/posterior sway. The latter test assesses muscular reaction to various surface alterations induced by the equipment.

The protocol of the SOT is made up of 6 situations: Condition 1 allows the subject to stand on a flat, firm surface with eyes open, therefore, all sensory modalities are available for maintenance of balance. Condition 2 is identical to that of Condition 1 except that the subject's eyes are closed (No Visual Input). The first 2 conditions provide a baseline measure of the subject's stability. In Condition 3, the support surface is fixed and the visual surround is sway-referenced (Inaccurate Visual Input). This situation creates a visual conflict by moving the visual surround which
the patient is watching as he/she moves. Thus, if one sways posteriorly by 3 degrees, the visual surround moves by the same magnitude in the same direction. This condition requires the subject to disregard the visual stimulus and utilize the proprioceptive and vestibular systems to control balance. Differences in stability observed during the first 3 conditions will reveal if the subject needs normal vision to maintain balance and suppress the influence of inaccurate visual cues. In Conditions 4, 5, and 6, the support surface is fixed (sway-referenced) while the visual condition is varied as in Conditions 1, 2, and 3. Thus, the visual surround is fixed and the patient receives accurate visual and vestibular inputs in Condition 4 (inaccurate proprioceptive input). Under Condition 5 (no visual input and inaccurate proprioceptive input), the subject's eyes are closed, thus the only information available is through the vestibular input. Under Condition 6 (inaccurate visual and proprioceptive inputs), the patient is left essentially with the vestibular system to achieve postural control. The key difference between Conditions 5 and 6 is that the subject has no visual cues in the former, whereas he/she has inaccurate visual cues in the latter. Because proprioceptive information is distorted in both situations, these 2 tests are designed to isolate the contributions from the vestibular system. In most patients with peripheral or central vestibular disorders, results from both Conditions 5 and 6 are abnormal, although not always of the same magnitude.

The patient is usually subjected to each of these 6 tests in separate 20-second trials, and each condition is repeated 3 times to ensure reliable outcomes and to determine adaptation with repeated testing. A separate equilibrium score is computed for each 20-second trial, with a score of 100 indicating no sway, and a score of 0 indicating the patient loses balance, namely, sway that exceeds the limits of stability (8.5 degrees anteriorly and 4 degrees posteriorly). In addition to equilibrium scores, COG alignment and the extent of hip versus ankle movement strategy are also recorded for each trial. Center of gravity alignment is represented in degrees of offset from the centered position. A low strategy score of near 0 represents a predominance of movement about the hip, while a high score of near 100 represents a predominance of movement about the ankle. Results of each condition are judged normal or abnormal by comparing the patient's average score with those obtained from age-matched normal subjects. Normal limits for a given age group are those attained or exceeded by 95% of individuals.

The modified clinical test of sensory interaction on balance (mCTSIB) is a simplified derivative of the SOT. Although the mCTSIB data set can document the presence of sensory dysfunction, it cannot provide impairment information specific to an individual sensory system. The information provided is designed to (i) aid clinicians evaluate the need for further testing in patients with complaints related to balance dysfunction, and (ii) establish objective baselines for treatment planning and outcome measurement. A modification of the original CTSIB or "Foam and Dome", the mCTSIB eliminates the "dome" and adds computerized analysis of the patient's functional balance control to quantify postural sway velocity during the 4 sensory conditions: (i) eyes open firm surface, (ii) eyes closed firm surface, (iii) eyes open unstable surface (foam), and (iv) eyes closed unstable surface (foam).

The second part of the DP evaluation is the MCT, which examines coordination of lower limbs under various perturbations that create anterior or posterior sway.
thus, necessitating a recovery response from the subject. It consists of a series of
sudden forward and backward jerks of the platform. The perturbations are
presented at 3 intensities in sets of 3 trials. Amplitudes of these sudden
movements of the platform are height normalized to provide small perturbation
(0.7 degree sway), medium perturbation (1.8 degrees sway), and large
perturbation (3.2 degrees sway). In general, the duration of these 3 perturbations
are 250, 300, and 400 msec, respectively. Results are analyzed in terms of
latency, amplitude, and symmetry of motor responses. Latency (in msec) is a
measure of the time interval from the commencement of perturbation to the
moment when the subject begins to actively resist the induced sway -- forward
sway for backward jerk and backward sway for forward jerk. It is attained by
averaging the performance of the left and right feet. Amplitude measures the
muscle strength of responses to the induced forward or backward sway.
Symmetry compares the strength of active forces generated by each leg against
the force-plate. In normal individuals, response strength varies within 25 % of
being identical in both perturbation directions and for all perturbation intensities.

Dynamic posturography is an evolving technology and there is insufficient peer-
reviewed medical literature that addresses its clinical usefulness. CMS’s
Technology Advisory Committee recently concluded that there is insufficient
evidence supporting computerized dynamic posturography’s effectiveness for
diagnosing balance disorders, or for predicting or influencing the prognosis.
Prospective studies are needed to establish the role of dynamic posturography in
the diagnosis and treatment of vestibular disorders.

A Health Technology Assessment Report (1998) from the Alberta Heritage
Foundation for Medical Research concluded that computerized dynamic
posturography is not an established technology in the rehabilitation of vestibular
and/or balance deficits associated with stroke, brain injury, and amputation.
Dynamic posturography has also been reported to improve the sensitivity of the
glycerol test and thus may be useful in the diagnosis and staging of Meniere’s
disease (Di Girolamo et al, 2001). However, the clinical value of DP for this
indication needs to be validated by randomized controlled trials.

Meniett Low-Pressure Pulse Generator:

The Meniett device (Medtronic Xomed, Jacksonville, FL) is a local pulsated
pressure treatment used for the management of patients with Meniere’s disease.
It is a portable pressure-pulse generator designed to restore the balance in the
hydrodynamics of the inner ear. After a standard ventilation tube is inserted into
the tympanum, pressure pulses generated by the Meniett technology are
transmitted into the middle ear. The clinical effect occurs as the pulses reach the
inner ear. The typical treatment cycle is completed in 5-min sessions, performed 3
times a day. After prescription and training by a physician, patients can treat
themselves with the device at home. There is some preliminary evidence that the
Meniett device may be effective in treating Ménière’s disease.

Odkvist et al (2000) reported that 2-week Meniett treatment resulted in significant
improvement concerning frequency and intensity of vertigo, dizziness, aural
pressure and tinnitus as indicated on the visual analogue scales questionnaire.
Although the findings of this study appear to be promising, its sample size was
small (31 in the treatment group and 25 in the control group). Furthermore, there are no long-term follow-up data regarding the effectiveness of this new technology.

Barbara et al (2001) compared the use of ventilation tube (VT) in the middle ear with the combined use of VT and the Meniett device. After a 40-day treatment period, the use of VT alone had a positive effect in 90% of patients, with either absence \((n = 10; 50\%)\) or marked reduction \((n = 8; 40\%)\) in episodes of vertigo. When Meniett was also applied, stabilization of the positive effect on vertigo was registered, with a concomitant improvement in hearing threshold in 2 patients \((10\%)\). The authors concluded that a longer and more reliable long-term follow-up of this therapeutic approach \((VT\) plus Meniett\) is needed.

Gates and Green (2002) also suggested that the Meniett device may be an effective and safe option for people with intractable vertigo from Ménière's disease \((n = 10)\). The findings of these short-term, preliminary descriptive reports of treatment with the Meniett device need to be validated by prospective randomized controlled studies with larger sample size and adequate follow-up. Furthermore, recent reviews on Ménière's disease \((Thai-Van et al, 2001; da Costa et al, 2002)\) did not mention local pressure treatment as one of the options in treating this condition.

In a small randomized study \((n = 62),\) Gates et al (2004) reported that the Meniett device is safe and effective therapy for treating refractory vertigo in patients with unilateral Meniere's disease. However, this was a short-term clinical study. The investigators agreed that a longer term clinical study was warranted, in part because the difference between treatment and control groups diminished over time. "The significant treatment effect in the treated participants relative to controls over the 4-month trial period diminished over time principally because of apparent spontaneous improvement in the control group. Further assessment over longer periods is needed to better understand the long-term effects of transtympanic micropressure treatment in Ménière's disease." The study by Gates et al has been criticized for failing to use standardized vertigo assessment, for not providing sufficient information on the severity of vertigo in the study population, and for not providing sufficient objective testing data \((Reddy and Newlands, UTMB, 2005)\).

In a small randomized, multi-center, double-blind, placebo-controlled study \((n = 40),\) Thomsen et al (2005) reported that local over-pressure treatment by means of the Meniett device improved statistically significantly the functionality level in patients with Ménière's disease. There was a trend towards a reduction of the frequency of vertiginous attacks that was not significant. However, there were no significant differences between the active and placebo groups in perception of tinnitus, aural pressure, and hearing, before and after the treatment period.

A study by Rajan et al (2005) of the long-term effects of the Meniett device is described as a cross-sectional case study. Well-designed controlled studies are necessary because of the unpredictable natural course of the disease and because of the susceptibility of symptoms to placebo effects.

In a small study \((n = 12),\) Boudewyns et al (2005) reported the effects of the Meniett device in patients with drug-resistant Meniere's disease. With a mean follow-up of 39 months; there was some initial decrease in the frequency of vertigo
episodes, but no improvement in functional level, self-perceived dizziness handicap, hearing status or tinnitus. After 1 year, only 2 patients preferred to continue with the therapy. The authors concluded that the Meniett device is unlikely to be helpful in the long-term treatment of severe, drug-resistant Meniere's disease. In addition, the authors pointed out the contrasting findings and recommendations in earlier studies in regard to the patient population with Ménière's disease (e.g., age, stage of disease and severity of vertigo) who are likely to benefit from the treatment.

Gates et al (2006) reported the long-term effectiveness of the Meniett device in patients (n = 58) with classic, unilateral, Ménière's disease unresponsive to traditional medical treatment. The authors concluded that the use of the Meniett device was associated with a significant reduction in vertigo frequency in approximately 2/3 of the subjects, and this improvement was maintained for 2 years. They noted that treatment with the Meniett device is a safe and effective option for people with substantial vertigo uncontrolled by medical therapy. This study was based on an unblinded protocol. Thus, its findings may reflect the effects of treatment, placebo, and/or the natural course of the disease. It should be noted that no objective measurement of hearing was obtained, and most patients indicated that their hearing did not improve with either short-term or long-term use of the Meniett device.

More recently published evidence for the Meniett device consists of small, retrospective case series (Mattox and Reichert, 2008; Dornhoffer and King, 2008; Huang et al, 2009), which are low quality evidence.

Although the Equilibrium Committee of the American Academy of Otolaryngology - Head and Neck Surgery (AAO-HNS, 2008) recommended the use of micropressure therapy (e.g., the Meniett device) as a second level therapy in certain cases of Meniere's disease when medical treatment has failed, the specific criteria for treatment were not listed. Furthermore, this AAO-HNS position does not appear to be supported by a traditional technology assessment of the device/therapy.

In summary, available evidence contain few patients enrolled in randomized, placebo controlled studies, which are critical in differentiating treatment effect to spontaneous improvement that may reflect the natural course of the disorder, including its remissions and recurrences. Furthermore, there are conflicting data regarding which Ménière's disease patient subsets may benefit from the therapy. Well-designed studies (i.e., larger sample size, randomized, placebo-controlled trials with long follow-up) are needed to establish the safety and effectiveness of the Meniett device for Ménière's disease.

Syed et al (2014) evaluated the effectiveness of the Meniett device in reducing the frequency and severity of vertigo in Meniere's syndrome/disease. The Cochrane Ear, Nose and Throat Disorders Group Trials Register; the Cochrane Central Register of Controlled Trials (CENTRAL); PubMed; EMBASE; CINAHL; Web of Science; BIOSIS Previews; Cambridge Scientific abstracts; ICTR and additional sources for published and unpublished trials were searched. The date of the last search was May 13, 2014. A total of 4 randomized controlled trials (RCTs) were identified that compared the effectiveness of the Meniett device versus a placebo device in patients with Meniere's 'disease' as defined by the AAOO criterion. Two
review authors independently assessed study eligibility and risk of bias, and extracted data. The outcome data were dichotomous for all the included trials. The 4 RCTs compared 123 patients with the Meniett device against 114 patients with the placebo device from 4 RCT's over a follow-up period of 2 weeks to 4 months. There was a significant overall 61 % reduction in the frequency of vertigo in both groups [mean no vertigo days per month of 8 to 3]. However, this reduction was not significantly different between the 2 groups in any study or on meta-analysis [mean difference in vertigo free days between Meniett and placebo device of 0.77 days over a 1-month period (95 % confidence intervals [CI]: -0.82 to 1.83) p = 0.45]. There was also no substantive data to support a greater reduction in the severity of the vertigo or any other outcome with the Meniett device compared with the placebo device. The authors concluded that no evidence was found to justify the use of the Meniett device in Meniere's syndrome/disease.

Electronystagmography and Videonystagmography:

Electronystagmography (ENG) is used to assess patients with vestibular disorders (e.g., dizziness, vertigo, or balance dysfunction). It provides objective testing of the oculomotor and vestibular systems. In general, the traditional ENG consists of the following 3 components:

- Caloric stimulation of the vestibular system;
- Oculomotor evaluation (pursuit and saccades);
- Positioning/positional testing.

Although ENG cannot be used to ascertain the specific site of lesion, the information gathered can be integrated with clinical history, symptoms, and other test results to help in diagnosis. Comparing results obtained from various subtests of an ENG evaluation aids in determining if a disorder is central or peripheral. In peripheral vestibular disorders, the side of lesion can be inferred from the results of caloric stimulation and, to some degree, from positional findings. An ENG evaluation can also be useful in ruling out potential causes of dizziness.

While ENG is the most commonly used clinical test to evaluate vestibular function, normal ENG test results do not necessarily mean that a patient has typical vestibular function. Moreover, ENG abnormalities can be useful in the diagnosis and localization of site of lesion. However, many abnormalities are non-localizing; thus, the clinical history and otological examination of the patient are very important in formulating a diagnosis and treatment plan for a patient who presents with dizziness or vertigo.

Conventional ENG entails the use of electro-oculography to objectively record eye movements. This recording relies on the dipole of the eye (the corneal-retinal potential difference; the cornea is electro-positive relative to the retina). With a fixed recording site, voltage differences can be recorded for eye movements. Small electrodes are placed around the patient's eyes to record the corneal-retinal potential differences. By placing electrodes on both a horizontal and vertical axis around the eyes, tracings are produced for eye movements on both axes (Markley, 2007; Worden and Blevins, 2007; Shoup and Townsley, 2008).

Videonystagmography (VNG) is a technology for evaluating inner ear and central motor functions. Ganança and colleagues (2010) compared literature information
on the similarities, differences, advantages and disadvantages between VNG and ENG. These investigators noted that VNG and ENG are very helpful methods for evaluating balance disorders, due to their capacity to recognize signs of peripheral or central vestibular dysfunction and to pinpoint the side of the lesion. Major advantages of VNG are related to calibration, temporospatial resolution, and recording of horizontal, vertical and torsional eye movements. The authors concluded that VNG is a new technology that presents advantages in the evaluation of eye movements; however, despite its disadvantages, ENG is still considered a valuable test in the clinical setting.

Cochlear Hydrops Analysis Masking Procedure (CHAMP) Testing for Meniere's Disease

Hong et al (2013) stated that even though it is currently not possible to prove a pathological diagnosis for inner ear disease, acute low-frequency hearing loss (ALFHL) without vertigo could be caused by inner ear hydrops because progression into the clinical spectrum of endolymphatic hydrops (EH) frequently occur among patients with the initial clinical presentation. Therefore, audiological measures representative of inner ear hydrops, such as the cochlear hydrops analysis masking procedure (CHAMP) test, may be used to predict the prognosis of ALFHL without vertigo. To test this hypothesis, these researchers prospectively investigated patients with ALFHL unaccompanied by vertigo and examined whether the CHAMP test generated more useful information for prediction of progression into clinical spectrum of EH compared with other neurotologic parameters. A prospective clinical study of 28 patients who initially presented with ALFHL without vertigo was conducted. Detailed neurotologic findings from pure-tone audiometry, electrocochleography, CHAMP, spontaneous nystagmus, head-shaking nystagmus, vibration-induced nystagmus, the bi-thermal caloric test, and the rotatory chair test were recorded at the time of initial presentation. A regular audiological and clinical examination was conducted until either the last follow-up at the authors' clinic or on the day on which secondary audio-vestibular symptoms occurred. The rates of progression to Meniere's disease (MD) or clinical presentation compatible with isolated cochlear hydrops during the study period were calculated by the log-rank test and relative risk. A receiver operating characteristics curve was plotted to determine the prognostic value of CHAMP. Of 28 patients, 15 (53 %) showed improvement in hearing on pure-tone audiometry. Seven patients (25 %) showed hearing fluctuation and 9 (32 %) developed a vertigo attack during the observation period. Of these, 3 patients experienced both vertigo and a hearing fluctuation. Abnormal results of electrocochleography and neurotologic tests reflecting vestibular ocular reflex on yaw plane were common at the time of diagnosis of ALFHL in many patients, but these parameters were not associated with an increased risk of progression of clinical spectrum of EH. In contrast, patients with an abnormal complex amplitude ratio (CAR) on CHAMP had a 2.6-fold increased risk of progression to a clinical spectrum of EH (either hearing fluctuation or MD). The hazard ratio of developing MD for patients with normal CAR as compared with those with an abnormal CAR was 0.137 (95 % confidence interval [CI]: 0.03 to 0.57; p < 0.001), which indicates an 84.3 % reduced risk of developing MD in those with normal CAR. A CAR value of 0.975 or less indicated the possibility of developing either a hearing fluctuation or vertiginous episode with a sensitivity of 82 % and a specificity of 73 % by receiver operating characteristics curve analysis. The authors concluded that the results of
the study suggested that CHAMP measurement may be useful for determining the prognosis of patients with ALFHL without vertigo. A CAR value of 0.975 or less indicated the possibility of developing fluctuating hearing loss or vertigo in patients with ALFHL unaccompanied by vertigo. These findings need to be validated by well-designed studies.

An UpToDate review on “Meniere disease” (Dinces, 2014) states that “The presumed diagnosis of endolymphatic hydrops is based upon clinical symptoms. There is no specific diagnostic test for Meniere disease and a definitive diagnosis can only be made postmortem. The clinical diagnosis in most patients is based upon the history, neurotologic evaluation, and clinical response to medical management. Patients usually have some variable auditory and/or vestibular symptoms for three to five years before they meet the diagnostic criteria for Meniere disease”. It does not mention cochlear hydrops analysis masking procedure (CHAMP) testing for evaluating patients with MD.

**CPT Codes / HCPCS Codes / ICD-9 Codes**

**Maneuvers for Benign Paroxysmal Positioning Vertigo:**

**CPT codes covered if selection criteria are met:**

- 92532  Positional nystagmus test [Hallpike maneuver]
- 95992  Canalith repositioning procedure(s) (eg, Epley maneuver, Semont maneuver), per day

**ICD-9 codes covered if selection criteria are met:**

- 386.11  Benign paroxysmal positional vertigo [BPPV]

**ICD-9 codes not covered for indications listed in the CPB (not all-inclusive):**

- 191.6  Malignant neoplasm of cerebellum
- 198.3  Secondary malignant neoplasm of brain and spinal cord [cerebellopontine angle tumor]
- 215.0  Other benign neoplasm of connective tissue of head, face, and neck [cerebellopontine angle tumor]
- 225.1  Benign neoplasm of cranial nerve [cerebellopontine angle tumor]
- 225.2  Benign neoplasm of cerebral meninges [cerebellopontine angle tumor]
- 237.5  Neoplasm of uncertain behavior of brain and spinal cord [cerebellopontine angle tumor]
- 340  Multiple sclerosis
345.4 Localization-related (focal) (partial) epilepsy and epileptic syndromes with complex partial seizures [temporal lobe epilepsy]

346.00 - 346.93 Migraine [vertiginous]

430 - 438.9 Cerebrovascular disease

**Vestibular Rehabilitation:**

**CPT codes covered if selection criteria are met:**

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

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

92543 Caloric vestibular test, each irrigation (binaural, bithermal stimulation constitutes four tests), 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)

**Other CPT codes related to the CPB:**

97112 Therapeutic procedure, one or more areas, each 15 minutes; neuromuscular re-education of movement, balance, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities

**HCPCS codes covered if selection criteria are met:**

S9476 Vestibular rehabilitation program, non-physician provider, per diem

**ICD-9 codes covered if selection criteria are met:**

386.00 - 386.8 Vertiginous syndromes and other disorders of vestibular system [confirmed diagnosis/symptoms x 6 months/ failed medical management]

**Dynamic Posturography:**

**CPT codes not covered for indications listed in the CPB:**

92548 Computerized dynamic posturography
ICD-9 codes not covered for indications listed in the CPB (not all-inclusive):

386.00 - Vertiginous syndromes and other disorders of vestibular system
386.8
340 - Multiple sclerosis
781.2 - Abnormality of gait
781.3 - Lack of coordination

Sensory Organization Test (SOT):

There is no specific code for Sensory Organization Test (SOT):

Meniett Low-Pressure Pulse Generator:

HCPCS codes not covered for indications listed in the CPB:

A4638 - Replacement battery for patient-owned ear pulse generator, each
E2120 - Pulse generator system for tympanic treatment of inner ear endolymphatic fluid

ICD-9 codes not covered for indications listed in the CPB (not all-inclusive):

386.00 - Meniere's disease, other and unspecified peripheral vertigo, and vertigo of central origin
386.2

Videonystagmography and Electronystagmography:

There is no specific code for videonystagmography

CPT codes covered if selection criteria are met:

92541 - Vestibular function tests, with recording (eg, ENG)
92546
+ 92547 - Use of vertical electrodes (List separately in addition to code for primary procedure)

ICD-9 codes covered if selection criteria are met:

386.00 - Vertiginous syndromes and other disorders of vestibular system
386.8
780.4 - Dizziness and giddiness

Cochlear Hydrops analysis masking procedure (CHAMP) no specific codes:
ICD-9 codes not covered for indications listed in the CPB (not all-inclusive):

386.00 - Meniere's disease
386.04

The above policy is based on the following references:

Benign Paroxysmal Positioning Vertigo


**Vestibular Rehabilitation**


**Dynamic Posturography**

posturography for the study of equilibrium in patients with Meniere's
disease: Correlation with clinical and audiological data. Hear Res. 2004;196
17. Bergson E, Sataloff RT. Preoperative computerized dynamic posturography
as a prognostic indicator of balance function in patients with acoustic
18. Piirtola M, Era P. Force platform measurements as predictors of falls
with the balance rehabilitation unit: Measurement consistency, accuracy,
validity, and comparison with dynamic posturography. Arch Phys Med

**Meniett Device**

changes on clinical symptoms in patients with Meniere's disease -- a clinical
multicentre placebo-controlled study. Acta Otolaryngol Suppl. 2000;543:99-
101.
2. Barbara M, Consagra C, Monini S, et al. Local pressure protocol, including
Meniett, in the treatment of Meniere's disease: Short-term results during the
4. Gates GA, Green JD Jr. Intermittent pressure therapy of intractable
Meniere's disease using the Meniett device: A preliminary
5. da Costa SS, de Sousa LC, Piza MR. Meniere's disease: Overview,
(3):455-495.
micropressure treatment in people with unilateral Meniere's disease. Arch
7. Thomsen J, Sass, K, Odkvist, L, Arlinger S. Local overpressure treatment
reduces vestibular symptoms in patients with Meniere's disease: A clinical,
randomized, multicenter, double-blind, placebo-controlled study. Otol
8. National Horizon Scanning Centre (NHSC). Meniett low-pressure pulse
generator for Meniere's disease - horizon scanning review. Birmingham,
UK: NHSC; 2003.
9. Reddy SS, Newlands SD. Treatment controversies in Meniere's
disease. UTMB Otolaryngology Grand Rounds. Galveston, TX: University
of Texas Medical Branch at Galveston; May 18, 2005. Available at:
http://www.utmb.edu/otoref/grnds/Menieres-050518/Menieres-slides-

**Electronystagmography and Videonystagmography**


Cochlear Hydrops Analysis Masking Procedure (CHAMP) Testing for Meniere’s disease