Randomized trial of the canalith repositioning procedure

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Thirty-six subjects with confirmed, unilateral benign paroxysmal positioning vertigo of at least 2 months' duration were randomly assigned to one of two treatment groups. After complete informational counseling and explanation of the posttreatment instructions, subjects were randomly assigned to receive either Epley's canalith repositioning procedure or a placebo maneuver. All subjects completed a daily diary for 1 month to document any dizzy spells and their adherence to the posttreatment instructions. Follow-up Dix-Hallpike testing was performed after 1 month by an audiologist who was blinded to the patient's treatment group status. Analysis of Dix-Hallpike results confirmed that those who received the canalith repositioning procedure had significantly more negative responses (88.9%) than did those in the placebo group (26.7%). (OTOLARYNGOL HEAD NECK SURG 1995;113:712-20.)

Considerable interest has arisen in the use of maneuvers designed to alleviate benign paroxysmal positioning vertigo (BPPV). Recent publications describing clinical experience with these maneuvers have shown significant variability in subject selection, methodology, and time and type of follow-up assessment. Not surprisingly, results have been uncertain and contradictory as to the effectiveness of these techniques. Prospective, randomized clinical trials are necessary to provide evidence of the effectiveness of these maneuvers to health care providers. This article describes one such prospective investigation.

BPPV is one of the most common forms of dizziness[1] and one of the easiest to identify. The condition is usually described as a sudden onset of dizziness or vertigo that is precipitated by specific movements. The most commonly described provoking movements are rolling over in bed, bending over, and looking upward. Each episode lasts only 3 to 45 seconds, but the course of the condition may run several weeks or even years, with remissions and recurrences occurring unpredictably. BPPV was first reported by Barany in 1921[2] and further described and named by Dix and Hallpike in 1952.[3] Although the patient's case history is important, the diagnosis of BPPV is confirmed by observing a "classic" response during Dix-Hallpike maneuvers. A classic response as defined by Dix and Hallpike is one that has the following four components: (1) a latency period of a few seconds; (2) rotatory nystagmus toward the undermost ear (right ear, counterclockwise and left ear, clockwise); (3) fatigue after repeated maneuvers; and (4) duplication of the patient's report of vertigo. BPPV can occur in the presence of other types of vestibular system dysfunction, thus complicating the clinical picture. However, electronystagmography (ENG) results are otherwise often normal, as are the results of posturography and other clinical tests.

It is hypothesized that a condition called "canalithiasis"[4] is responsible for the manifestation of BPPV. This theory, first proposed by Hall et al.,[5] presupposes that free-moving particles within the long arm of the posterior semicircular canal (PSC) cause abnormal perception of movement. Hall et al. speculated that in idiopathic cases these particles might consist of degenerated or dislodged otoconia. In cases of BPPV after viral labyrinthitis, head trauma, or stapedectomy, the particles might be blood cells, phagocytes, and endothelial debris. Hall

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et al. hypothesized that ampullary stimulation by these loose particles causes vertigo and nystagmus when the head is moved in the same plane as the PSC.

Parnes and McClure[6] have provided evidence of the existence of loose clumps of particles and of the influence of gravity on them. In two patients undergoing surgical occlusion of the PSC for the purpose of resolving BPPV, they noted clumps of whitish particles in the most dependent portion of the PSC. These clumps were observed to break up and to drift through the canal during manipulation of the membranous labyrinth.

Brandt and Steddin[7] also lend support for the theory of canalithiasis, arguing against the older theory of cupulolithiasis.[8] They suggest that the particles tend to clump together forming a "clot." The density of the clot is such that when moving through the canal it produces a plunger effect, causing an ampullofugal flow of endolymph pulling on the cupula and bending the hair cells. Ampullofugal stimulation is consistent with the rotatory nystagmus beating toward the undermost ear. Brandt and Steddin assert that cupulolithiasis, on the other hand, would not be consistent with the duration and direction of the nystagmus typically seen with BPPV.

Medical treatments for BPPV have ranged from no intervention to surgical treatment. Because BPPV is thought to be self-limiting in many cases,[4] many physicians consider "watchful expectancy" to be a reasonable treatment. Antivertiginous medications are often prescribed for patients with BPPV. However, a double-blinded study comparing diazepam, lorazepam, and a placebo suggested that antivertiginous medications may be of little help in eliminating the vertigo.[9] Surgical treatment of BPPV includes occlusion of the PSC through a transmastoid approach or section of the PSC ampullary nerve.[6] Disadvantages of surgical treatment may include risk of hearing loss, loss of vestibular function, expense, discomfort, recovery time, and the risks concomitant with anesthesia.

A noninvasive treatment approach was suggested by Brandt and Daroff[10] in 1980. They described an exercise program based on repeating the provoking movements to allow the central nervous system to adapt to the incorrect neural stimulation of the PSC. There are indications that the exercises are successful in reducing or eliminating the vertigo. However, as suggested by Herdman et al.,[11] patient compliance with these exercises may be poor because of the discomfort they provoke (i.e., vertigo and nausea).

Recently, single-treatment positioning maneuvers have gained recognition in the treatment of BPPV. The liberatory maneuver, described by Semont et al.[12] and Epley's canalith repositioning procedure (CRP)[13] are simple techniques designed to resolve BPPV. Rather than fatiguing the response as with vestibular habituation exercises, the liberatory maneuver and the CRP are intended to alleviate the actual physical cause. The intent of these maneuvers is to induce the migration of the particles out of the posterior semicircular canal through the common crus and into the utricle through timed and specific head and body movements.

Norre and Beckers,[14] et al.,[11] Parnes and Price-Jones,[15] and Weider et al.[16] have reported varying success with the liberatory maneuver and the CRP. Within these previous studies, there is considerable procedural variability. In most reports specific positions, timing and repetitions of the maneuver, and posttreatment instructions are different from those recommended by the individuals who originally described the maneuvers. Criteria for establishing the diagnosis of BPPV and modes of assessment of benefit are not consistent in many of the studies. These deviations from standardized protocol make assessment of the treatments' effectiveness difficult.[17] Table 1 lists the rates of improvement in BPPV, signs and symptoms reported by these investigators, and descriptions of the modifications of the maneuvers. Preliminary results from use of the CRP at the Mayo Clinic, in which no vibrator or medications were used, indicated that 87% of 44 (Pool et al.[18]) and 89% of 140 subjects (Cevette et al.[19]) reported total or "significant" improvement in dizziness on follow-up written communication.

Randomized trials comparing the outcomes of patients who receive no maneuver with those who receive the maneuver are important to demonstrate that these high resolution rates are caused by the intervention. One such study was performed by Hausler and Pampurik.[20] Thirty-seven subjects with BPPV were treated with the liberatory maneuver, and 40 subjects had no treatment. Only 17 (43%) in the no treatment group showed spontaneous recovery, whereas 35 (95%) of the treated group showed complete or partial resolution of their symptoms. Subject selection was based on a history of BPPV, but the diagnosis was apparently not confirmed by the presence of a positive Dix-Hallpike response before inclusion in the study.

Blakley[21] published results of a randomized control study using a modified CRP that indicated no significant difference in the outcome of a treated and an untreated group after 1 month on the basis

Table 1. Protocol and success rates of previous investigators

Study	BPPV diagnosis established by	Procedure	No. of patients	Posttreatment instructions	Vibration
Observational studies					
Norre 1987[14]	History and VHT test battery (19 maneuvers)	Semont	23	Yes (avoid precipitating positions)	–
Semont 1988[12]	Dix-Hallpike	Semont	711	Yes	–
Epley 1992[4]	History and Dix-Hallpike	Epley	30	Yes	Yes
Herdman 1993[11]	Dix-Hallpike	Semont	30	Yes	–
		Epley	30	Yes	No
Parnes 1993[15]	History and Dix-Hallpike	Epley	38	Yes	No
Weider 1994[16]	History	Epley	44	Yes	Yes
Control studies					
Hausler 1989[20]	History	Semont	77	No	–
Blakley 1994[21]	History and Dix-Hallpike	Epley	38	No	No

VHT, Vestibular habituation training.

of patients' self-reports of symptom improvement. Blakley reported that all patients who remained symptomatic at the end of the trial were given habituation exercises. Apparently, neither Hausler's nor Blakley's study followed the treatment protocol of those who proposed the treatments, which include posttreatment instructions. The studies were not blinded and relied on patients' self-reports of symptoms to determine the outcome.

METHODS

This study was designed to assess the relative therapeutic efficacy of the CRP and a placebo maneuver by use of both objective and subjective outcome measures. No vibration or premedication was used because they are contraindicated in certain types of patients.[17] Otherwise, the timing, positions, and repetitions were the same as those described by Epley.[4]

Subjects

Subjects were recruited from those within our regular case load seen for vestibular testing. Only those with classic positive responses to the Dix-Hallpike maneuver on *one* side were eligible to participate. A classic positive response was defined as a burst of rotatory nystagmus beating toward the undermost ear, duplicating the patient's reported symptom, subsiding within at least 60 seconds, and fatiguing on repeat trials. Inclusion in the study also necessitated a typical history for the disorder (i.e., brief, position-related dizziness), with symptom duration of at least 2 months before the experimental trial. Most subjects lived within a reasonable driving distance (approximately 100 miles) from the clinic. No exclusion was made on the basis of presumed cause, concurrent peripheral vestibular dysfunction, gender, or race. The purposes of the study and the requirements for follow-up appointments were discussed with each prospective subject. If they indicated an understanding of the study requirements and a willingness to follow instructions, complete the diary, and return for reassessment, they were asked to participate. Oral consent was given and was noted in the patients' charts.

Individuals younger than 18 years, those with restricted mobility such that they would not be able to perform the maneuver or follow the posttreatment instructions, and those who could not complete the diary independently were excluded from the study. Medications for dizziness were noted, but patients taking such medications were not excluded from the study.

Procedures

Before inclusion in the study, all subjects had a complete otologic evaluation. The standard clinical assessment protocol, including audiologic assessment, case history, cranial nerve assessment, and otoscopy, was used in the initial evaluation of the

Timing	Positions	Cycles	"Cured" or significantly improved	Assessment of outcome
Not specified	3	1	52%	VHT test battery
Duration of response + 2-5 min	3	1	92.68%	Not specified
Latency + duration of response	5	Until negative in all positions	100%	Report of symptoms and Dix-Hallpike
4 min	Semont 3	1	90%	Phone report of symptoms and Dix-Hallpike (38/60)
4 min	Epley 1, 3, 4	1	90%	
Duration of response + 2-3 min	Epley 1, 3, 4	1	78.9%	Report of symptoms and Dix-Hallpike
15 sec	4 (not as described by Epley)	Until patient cannot evoke dizziness	87.7%	Report of symptoms
3-20 sec	3	1	43% control, 95% treatment	Not specified, weekly then monthly follow-up for 6 mo
1 min in position 1, 10-30 sec in position 3	4 (not as described by Epley)	1	86% control, 94% treatment	Report of symptoms

subjects. Most subjects received an ENG, including visual saccade, pursuit, gaze, positional, positioning, and caloric testing. Dix-Hallpike testing confirmed the presence of a positive response in all cases. Posturography and harmonic acceleration testing were performed if indicated.

Information presented by the participating audiologists during the counseling session was standardized, on the basis of discussion and consensus before the initiation of the study. A checklist was used to document that each item was discussed (see Appendix). The estimated total time spent counseling each patient was recorded. A block randomization scheme was used to assign subjects to treatment groups. Numbered, sealed envelopes containing the treatment group assignment were prepared before the start of the study. After counseling was completed and consent obtained, the next numbered envelope was opened by the audiologist. In this way, counseling, encouragement, attention, and post-treatment instructions were similar for both treatment groups before the maneuvers. For those in the CRP group, the maneuver was performed as described by Epley[4] (Fig. 1) without vibration or premedication. Individuals in the placebo group were placed in the lateral position with the affected side down (first part of the Semont maneuver), kept there for 5 minutes, and slowly returned to a sitting position. Follow-up assessments were performed by a different audiologist from the one who performed the initial evaluation so that the assessor was blinded to which maneuver the patient had received. To ensure this, the department secretary scheduled follow-up appointments with a different audiologist, and initial and final data sheets were kept separate.

The patients were informed that at the end of 1 month, during their follow-up visit, the procedure would be administered/repeated if the BPPV persisted. A Velcro neck collar was provided to all subjects to use after the maneuver. Both groups were given the same instructions to follow. The instructions stressed the following: (1) keep the head vertical for 48 hours, (2) do not extend or flex the neck, and (3) avoid sleeping with the affected side down for 1 week. Subjects in both groups kept a daily diary of symptoms for 1 month after the maneuver. In addition to noting the presence of dizzy spells, the diary also assessed the subjects' compliance with the instructions and use of the neck collar.

Subjects in both groups were contacted by telephone 2 weeks after the maneuver. They were reminded to complete their diaries on a daily basis, and the time and date of their follow-up visit was confirmed. The dates and content of all telephone conversations with subjects were documented.

Measurements

At 4 to 5 weeks after the initial maneuver, a repeat Dix-Hallpike test was performed to document the

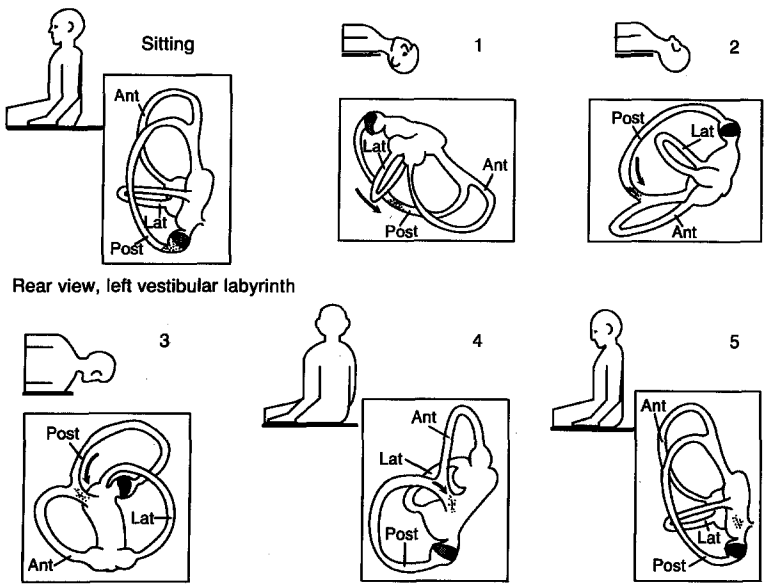

Fig. 1. The CRP: Beginning with patient in seated position, head and body are moved into Dix-Hallpike position with affected ear downward; head is rotated to opposite Dix-Hallpike position; keeping head downward, head and body are turned onto the side opposite affected ear; keeping head in same orientation in relation to the body, patient is raised to a sitting position; head is tilted forward 20 degrees. Positions 1 through 5 are held for the time of the latency plus the duration of the response. Cycles are repeated until there is no nystagmus in any position. (Adapted from Epley J. Otolaryngol Head Neck Surg 1992;107:399-404.)

presence or absence of BPPV with the criteria previously described. Reported dizzy spells within the last 7 days before the 1-month check were tallied from subjects' diaries. Although the study was formally ended at this point, the CRP was performed on all subjects whose Dix-Hallpike results remained positive at the time of the 1-month check. For these individuals, a second 1-month follow-up visit was scheduled to assess the efectiveness of the second maneuver.

Statistical Analysis

Descriptive statistics were used to summarize the baseline characteristics of the two treatment groups. The Wilcoxon rank sum test was used to assess whether the treatment groups differed with respect to age, duration of symptoms before treatment, self-report of BPPV severity before treatment, and counseling time. Fisher's exact test was used to assess whether the treatment groups differed with respect to sex, ENG abnormalities, and response to treatment.

RESULTS

Thirty-six subjects were randomly assigned to one of two treatment groups. Three subjects dropped out of the study after they had agreed to participate. One of them was unable to secure transportation for the return visit. Another, assigned to the placebo group, called to say he could not tolerate the dizziness and wanted the maneuver repeated. When he returned 2 days after receiving the placebo maneuver, the Dix-Hallpike test result was again positive. Another subject returned later to indicate that she had changed her mind because of other health problems and did not want to participate. Among the remaining 33 subjects, there were 9 men and 24 women, ranging from 23 to 90 years of age. Subject characteristics are given in Table 2, and specific descriptions of their dizziness are given in Table 3. Eighteen subjects received the Epley maneuver, and 15 received the placebo treatment. There is no evidence to suggest that the age of the subjects ($p = 0.1241$), the amount of time they were counseled ($p = 0.2412$), the self-reported level of dizziness severity at initial evaluation ($p = 0.3393$), symptom duration ($p = 0.1094$), or ENG results ($p = 0.2852$) differed with respect to treatment group.

The initial Dix-Hallpike test results are given in Table 4. Among the 33 subjects, the median delay of response was 5 seconds (with a range of less than 1 to 20 seconds), and the median duration was 12.5 seconds (with a range of 4 to 30 seconds). The initial direction was clockwise in 14 subjects and counterclockwise in 19 subjects. Among the 18 subjects who

Table 2. Subject characteristics

Characteristics	Epley maneuver (*n* = 18)	Placebo maneuver (*n* = 15)	*p* Value
Sex (M/F)	3/15	6/9	0.2395†
Age (yr) (median, range)	65.5 (23-76)	71.0 (37-90)	0.1241*
Duration of symptoms (mo) (median, range)	17 (2-240)	4 (2-276)	0.1094*
Self-report of dizziness severity			
Moderate, able to continue normal activities	0	3 (20.0%)	0.3393*
Moderate, avoids certain activities	11 (61.1%)	7 (46.7%)	
Severe, modifies certain activities	4 (22.2%)	3 (20.0%)	
Severe, significantly limits activities of life	3 (16.7%)	2 (13.3%)	
Amount of time counseled (min) (median, range)	15 (5-20)	20 (5-30)	0.2412*
ENG results			
Normal	7	10	0.2852†
Abnormal	9	5	

*Wilcoxon rank sum test.
†Fisher's exact test.

received the Epley maneuver, there were no positive responses in positions 2 and 5. The response (vertigo and nystagmus) in position 1 was cleared after at most four cycles, and the response in position 3 was cleared after at most three cycles.

Subjects submitted their diaries after the 5-week follow-up period. The number and description of subjects' reports of dizzy spells were assessed. During the 7 days before the repeat Dix-Hallpike test, 19 subjects indicated they had at least one attack of dizziness. and 14 subjects indicated they did not have any attacks of dizziness. All 14 subjects who indicated they did not have any dizziness had a negative response on the repeat Dix-Hallpike test. Of the 19 who had at least one attack of dizziness, 6 had a negative Dix-Hallpike test result. The difference in the proportion of patients who reported dizziness in the week before the repeat Dix-Hallpike was significant between the treatment groups ($p = 0.0329$, Table 5). The compliance in following the posttreatment instructions was also assessed and is summarized in Table 6. Compliance was similar for both groups, but in general, the treatment group's compliance as a whole diminished after the first 2 days.

At the 5-week check, the Dix-Hallpike test was repeated. Eleven (73.3%) of those in the placebo group had a positive response, and two (11.1%) in the CRP group had a positive response. There was a significant difference in the proportion of negative responses between the group who received the CRP and the group who received the placebo maneuver ($p < 0.001$; Table 7).

At that time, the 13 subjects who continued to show positive Dix-Hallpike responses were given the CRP. The response in position 1 was cleared after at most five cycles and position 3 after at most three cycles. Of these 13 subjects, a reevaluation was then performed after approximately 1 month. Three were unable to return after the CRP was performed, and

Table 3. History and description of dizziness

Parameters	Epley maneuver (*n* = 18)	Placebo maneuver (*n* = 15)
Description of dizziness		
Room spinning	8 (44.4%)	9 (60%)
Spinning in head	4 (22.2%)	4 (26.7%)
Falling sensation	2 (11.1%)	1 (6.7%)
Imbalance	2 (11.1%)	1 (6.7%)
Other	2 (11.1%)	0
When symptoms occur		
Turning in bed	17 (94.4%)	11 (73.3%)
During neck extension	10 (55.6%)	11 (73.3%)
Bending forward	13 (72.2%)	5 (33.3%)
Getting up	15 (83.3%)	8 (53.3%)
Other times	5 (27.8%)	5 (33.3%)
Other dizziness besides positional	7 (38.9%)	10 (66.7%)
History of medication use	13 (72.2%)	10 (66.7%)
Underwent ear, head, or neck surgery	1 (5.6%)	4 (26.7%)
History of head trauma	4 (22.2%)	4 (26.7%)
History of stiff neck	7 (38.9%)	6 (40.0%)

Table 4. Initial Dix-Hallpike test results

Parameters	Epley maneuver (*n* = 18)	Placebo maneuver (*n* = 15)
Direction:		
Clockwise	5 (27.8%)	9 (60%)
Counterclockwise	13 (72.2%)	6 (40%)
Initial delay (sec)	4 (0-20)	5 (1-15)
Initial duration (sec)	11.5 (4-30)	12 (8-25)

Table 5. Subjective results: Subjects' report of dizziness during the last 7 days of the diary

Protocol	No dizziness (success)	Dizziness (failure)	Success rate
Treatment	11	7	61.1%
Placebo	3	12	20.0% ($p = 0.0329$)

Table 6. Subject compliance

Parameters	Epley maneuver ($n = 18$)	Placebo maneuver ($n = 15$)
Kept head upright at least most of the time		
First 2 days	17 (94.4%)	14 (93.3%)
Days 3-9	11 (61.1%)	13 (86.7%)
Wore neck brace while sleeping at least most of the time		
First 2 days	15 (83.3%)	11 (73.3%)
Days 3-9	11 (61.1%)	11 (73.3%)
Wore neck brace while not sleeping at least most of the time		
First 2 days	16 (88.9%)	11 (73.3%)
Days 3-9	4 (22.2%)	5 (33.3%)

the remaining 10 subjects had negative Dix-Hallpike responses 1 month later.

DISCUSSION

Our results showing that 88.9% of patients demonstrated resolution of BPPV after the CRP compared with the 26.7% resolution for subjects who received a placebo maneuver offer convincing evidence of the effectiveness of the CRP. This study differs from other reports of the effectiveness of the CRP in that the maneuver was performed as Dr. Epley has described it (excluding vibration and premedication), the study was blinded, and objective information and subjective reports were obtained in all cases. No patient was enrolled in the study without a demonstrated positive response on the Dix-Hallpike test. This is particularly important because other vestibular deficits can cause symptoms that mimic those of BPPV.

Analysis of patient diary information illustrated the importance of obtaining Dix-Hallpike test results as a measure of the effectiveness of the CRP. Although subjective information is important, it may

Table 7. Objective results: Dix-Hallpike results at 1-month check

Protocol	Success	Failure	Success rate
Treatment	16	2	88.9%
Placebo	4	11	26.7% ($p < 0.001$)

be much more variable, particularly if concurrent vestibular deficits exist. Patients assessed after a period of time has elapsed may forget about brief dizzy spells that have occurred. The diary used in this study attempted to eliminate that possibility but also demonstrated the difficulty in completely isolating BPPV symptoms from other types of dizziness. For example, many subjects answered affirmatively to the question, "Have you had any brief spells of dizziness after position changes today?" but then went on to describe the dizziness as lasting hours or even as "just a vague light-headedness all day," which is not consistent with BPPV. In view of this evidence of variability in patients' subjective reports, it is necessary to use a negative Dix-Hallpike test result as the "proof" of success of the CRP for study purposes. Subjects should be willing to return for this follow-up if it is explicitly required as part of study participation. Further attempts at using a daily diary format for collecting subjective information might include questions such as, "Is this the same type of dizziness as before the treatment?" and, "Is the dizziness more severe, less severe, or the same as it was before the treatment?"

As Dr. Epley has stated, this maneuver should be used only within the context of medical treatment and follow-up. The success of the CRP might depend somewhat on clinicians' ability to perform it consistently and effectively. Practice in performing this maneuver may improve the effectiveness. Although vibration and premedication were not used in this study, there may be cases for which these are appropriate. One of the two subjects for whom the treatment failed was notably tense. Although she had no cervical mobility problems, she was unable to relax her neck enough to perform the movements with adequate extension. In such cases the use of premedication might have resulted in a successful CRP the first time.

Although only unilateral cases of BPPV were included in this study, there are subjects with positive responses on both sides. Review of a sample population of 141 patients with BPPV revealed that only 6 had BPPV bilaterally. The suggested proce-

dure in the case of bilateral BPPV is to perform the CRP to the "worst" side first if one side is more troublesome to the patient. After patients have followed the instructions, they should return for another maneuver on the contralateral side if they remain symptomatic.

CONCLUSIONS

Many physicians may consider BPPV a minor medical condition, but changes in quality of life can be profound for the patient. How troubled individuals become when afflicted with BPPV may depend on personality factors, lifestyle, and the severity and duration of the condition. The CRP, as an inexpensive, noninvasive, and quick office procedure is a welcome solution to most patients. In view of this randomized, blinded study of the CRP, it appears to be a safe, effective method of eliminating the abnormal nystagmus response and the accompanying subjective sensations of dizziness for most patients who have BPPV.

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APPENDIX: Counseling Checklist and Instructions

Structure and function of the inner ear:

__ Hearing portion—balance portion.
__ Semicircular canals—detect head rotation in all planes.
__ Utricle and saccule—contain calcium carbonate crystals.

Definition—benign positioning vertigo:

__ Benign—this is not a disorder that is life-threatening.
__ Positioning—only occurs in certain positions (turning in bed, looking up/down).
__ Vertigo—sensation of dizziness—often spinning.
__ BPPV always causes a "burst" of dizziness after certain movements.

Cause—canalithiasis theory:

__ Crystals are dislodged and fall into the posterior semicircular canal.
__ Cause is unknown.
__ Course of symptoms is unpredictable.

Purpose of the maneuver:

__ Allows canaliths or particles to slide through the canal back into the utricle.
__ Instructions will help ensure that the crystals readhere.
__ There is a chance the maneuver will not be successful, even when repeated, and that the symptoms may recur at some time in the future.

Instructions

__ Keep head upright, including sleeping sitting up for 48 hours. Use neck collar during this time.
__ Be careful about tilting head down or back. Move head and body as one unit.
__ Do not sleep on __ side for 7 days after the first 2 nights of sitting upright.

__ Call if problems/questions. Give card and instruction sheet.
__ Approximate time spent on counseling ____.
__ Other issues discussed, questions asked by patient, affective counseling or support needed.