

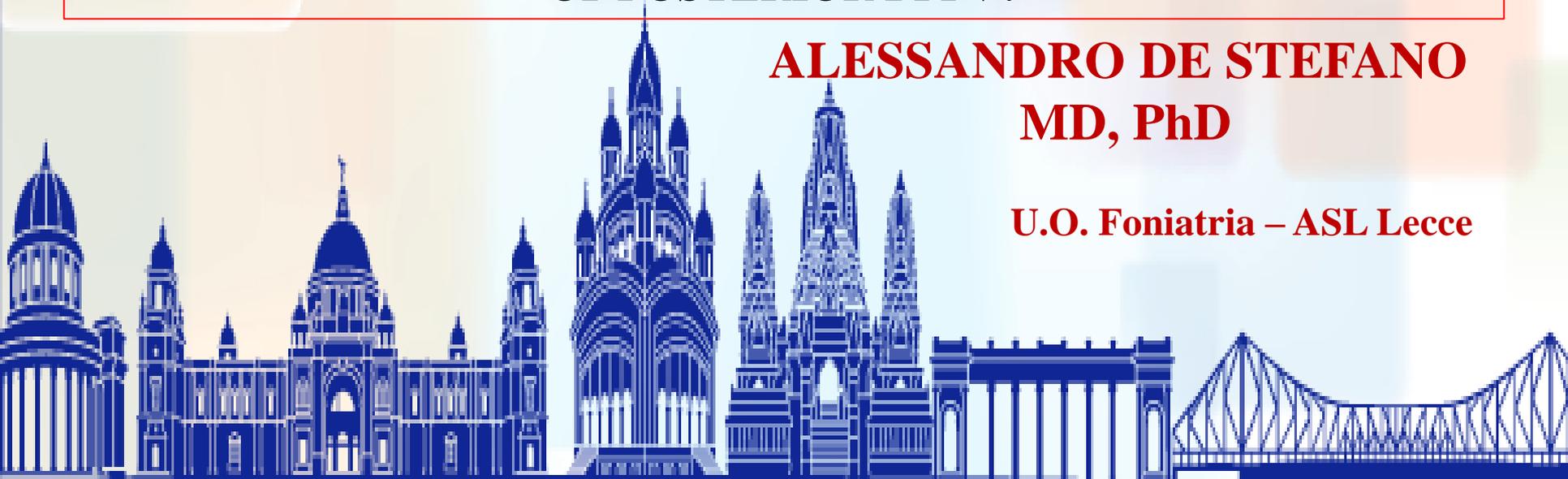
18th WORKSHOP ON NEUROTOLOGY and MEDICAL AUDIOLOGY in KOLKATA

29th Nov to 1st Dec 2019

**ARE POSTURAL RESTRICTIONS NECESSARY FOR MANAGEMENT
OF POSTERIOR BPPV?**

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U.O. Foniatria – ASL Lecce





INTRODUCTION

BPPV is the commonest cause of peripheral vestibular disorders and is present in approximately 24% of patients with peripheral dizziness

In BPPV one or more semicircular canals are inappropriately stimulated by loose otoconia in certain head positions, resulting in brief episodes of vertigo





INTRODUCTION

BPPV is thought to be secondary to inner ear trauma or disorders such as vestibular neuronitis, circulatory failure of the anterior vestibular artery, and labyrinthitis (Secondary-BPPV).

Benign paroxysmal positional vertigo in patients after mild traumatic brain injury

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation;
D – writing the article; E – critical revision of the article; F – final approval of the article

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Adv Clin Exp Med. 2018;27(10):1355-1359

Benign Paroxysmal Positional Vertigo: Comparison of Idiopathic BPPV and BPPV Secondary to Vestibular Neuritis

Ear, Nose & Throat Journal

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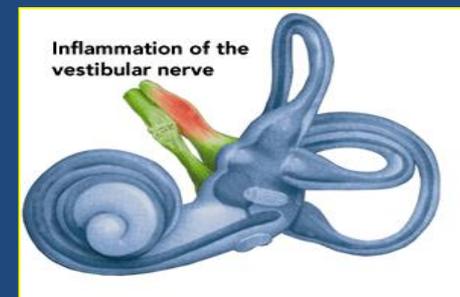
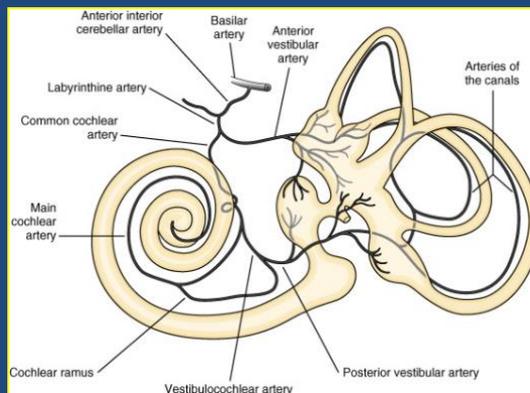
journals.sagepub.com/home/ear



Bilge Türk, MD, ENT¹, Meltem Akpınar, MD¹, Kerem Sami Kaya, MD, ENT¹,
Arzu Yasemin Korkut, MD¹, and Suat Turgut, MD¹



Range: 15% to 78%



The patients with S-BPPV
caused by Vestibular neuronitis
require more treatment sessions
compared to idiopathic BPPV.

[Acta Otorrinolaringol Esp.](#) 1998 Nov-Dec;49(8):599-602.

[Ischemia of the anterior vestibular artery (Lindsay-Hemenway syndrome).
comments].

[Article in Spanish]

Pardal Refoyo JL¹, Pérez Plasencia D, Beltrán Mateos LD.



INTRODUCTION

In other hands other hypotheses have been formulated on the genesis of the BPPV. Some of these are very fashionable today but unclear (Level of Vitamin D, Barometric pressure like in Migraine Vertigo, Sleep Position)

[Am J Otolaryngol](#). 2019 Sep - Oct;40(5):641-644. doi: 10.1016/j.amjoto.2019.05.016. Epub 2019 May 15.

Barometric pressure and the incidence of benign paroxysmal positional vertigo.

[Korpon JR](#)¹, [Sabo RT](#)², [Coelho DH](#)³.

ORIGINAL ARTICLES

IMAJ • VOL 21 • NOVEMBER 2019

Correlation Between the Sleep-Position Habits and the Affected Posterior Semicircular Canal in Patients with Benign Paroxysmal Positional Vertigo

Ruth Yousovich MD*, Shay I. Duvdevani MD*, Noga Lipschitz MD, Michael Wolf MD, Lela Migirov MD, and Arkadi Yakirevitch MD

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Bioscience Reports (2019) 39 BSR20190142
<https://doi.org/10.1042/BSR20190142>



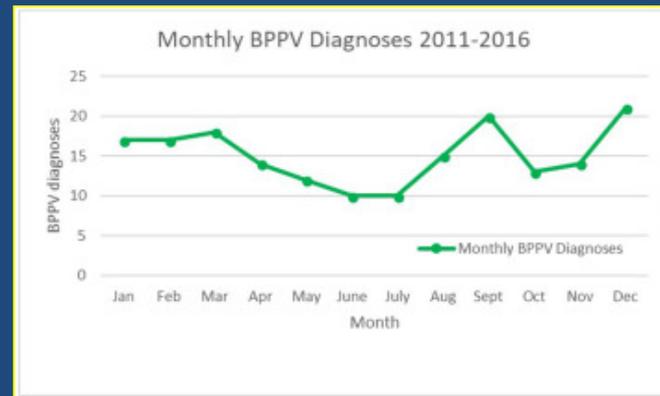
Research Article

Serum levels of 25-hydroxy vitamin D correlate with idiopathic benign paroxysmal positional vertigo

Jing Ding^{1,4}, Lei Liu^{2,4}, Wei-Kuan Kong³, Xiao-Bing Chen⁴ and Xudong Liu⁵

¹Department of Neurology, Hanting District People's Hospital, Weifang, China; ²Department of Pain, Qian Foshan Attached Hospital of Shandong University, Jinan, China; ³Department of Pain, Liaocheng Second People's Hospital, Liaocheng, China; ⁴Department of Orthopedics, Zhangqiu City Hospital of Traditional Chinese Medicine, Jinan, China; ⁵Department of Pain, Qilu Hospital of Shandong University, Jinan, China

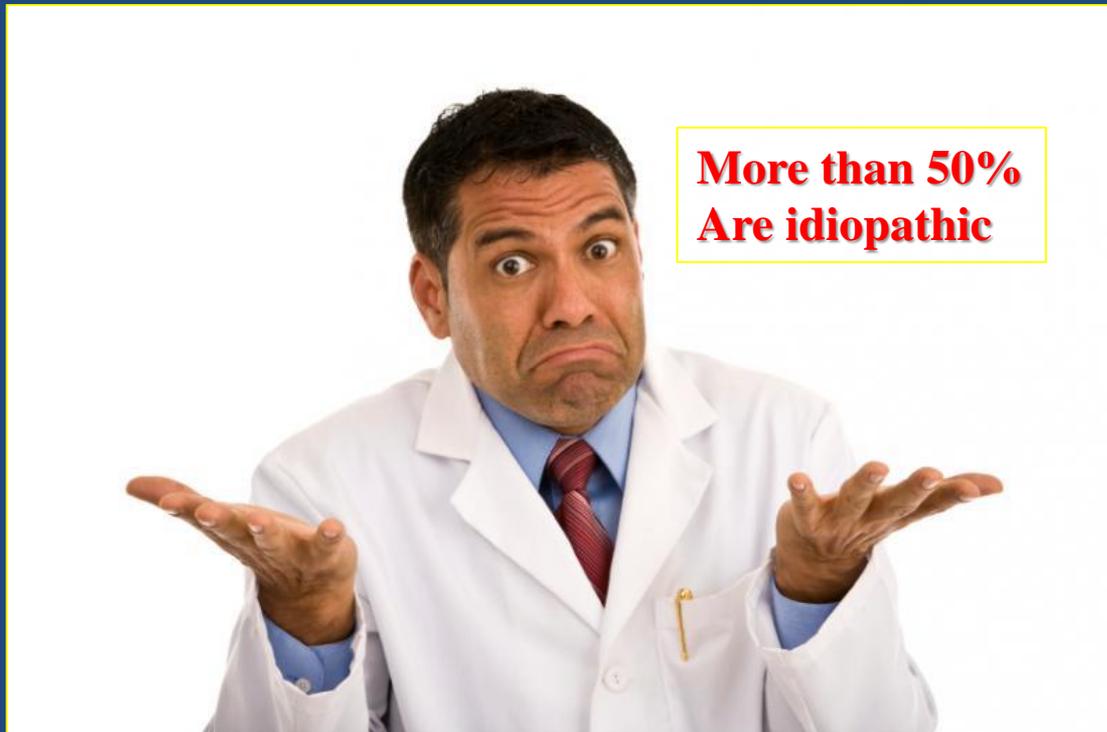
Correspondence: Xudong Liu (winderbig@163.com)





INTRODUCTION

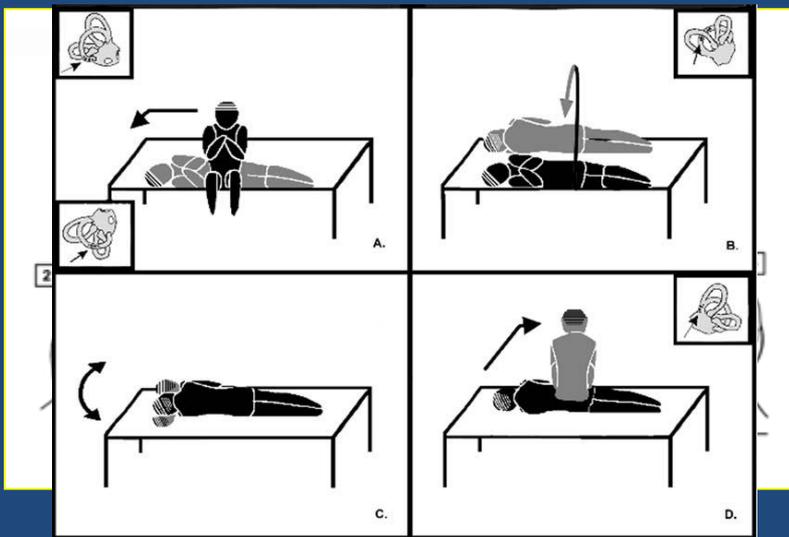
For many episodes of BPPV it is difficult to find a cause and therefore we consider more than 50% of all reported cases are identified to be idiopathic in nature.



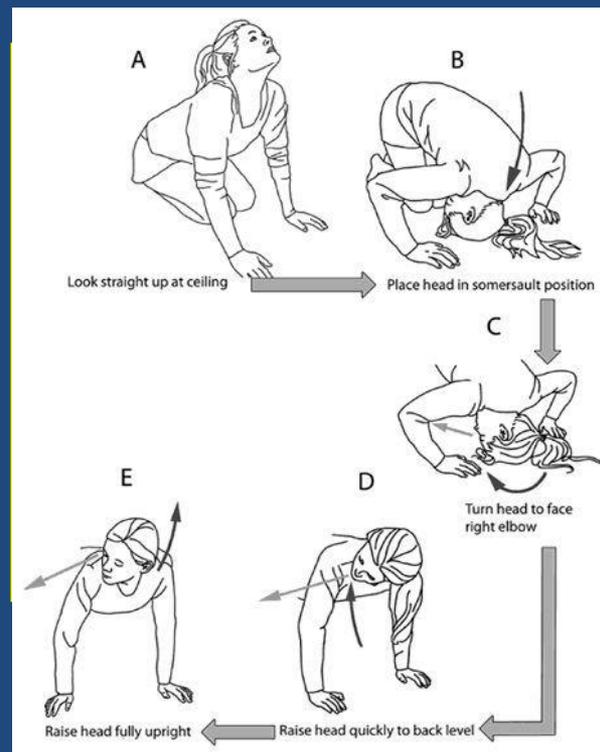


INTRODUCTION

The Posterior Semicircular Canal is the semicircular canal most frequently affected, and the treatment of choice in these cases is one of several canalith repositioning manoeuvres (CRM)



SEMONT
GANS



FOSTER



INTRODUCTION

Although the cause of BPPV is unclear, we have three truths



Mechanism: Detach of otoliths debris

Treatment: canalith repositioning manoeuvres

After CRM: Postural Restrictions



INTRODUCTION

An important component of the management of BPPV has been the application of postural restrictions after a CRM to prevent the return of otolithic debris into the PSC.

Patients are instructed to adhere to postural restrictions for some days.

We ask them to:

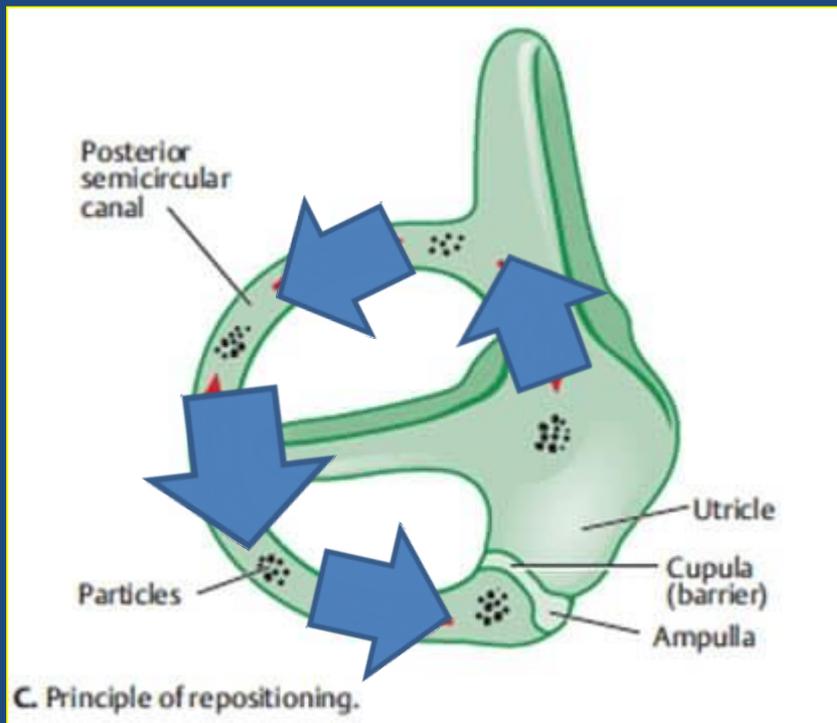
- avoid violent head and trunk movements
- sleep in a semi-seated position with the head inclined 45° from the horizontal plane.
- avoid sleeping on the affected ear .
- use a cervical collar .
- avoid lifting heavy object
- Others...



POSTURAL RESTRICTIONS

The Rationale for postural restrictions is :

Prevent dumping of canaliths into the canal just released through the CRM





POSTURAL RESTRICTIONS

SINCE 1988

- **Semont A, Freyss G, Vitte E. Curing the BPPV with a liberatory maneuver. Adv Otorhinolaryngol 1988;42:290-3.**
- **Epley JM. The canalith repositioning procedure: for treatment of benign paroxysmal positional vertigo. Otolaryngol Head Neck Surg 1992;107:399-404.**
- **Herdman SJ, Tusa RJ, Zee DS, Proctor LR, Mattox DE. Single treatment approaches to benign paroxysmal positional vertigo. Arch Otolaryngol Head Neck Surg 1993;119:450-4.**
- **Harvey SA, Hain TC, Adamiec LC. Modified liberatory maneuver: effective treatment for benign paroxysmal positional vertigo. Laryngoscope 1994;104:1206-12.**
- **Other Authors**





POSTURAL RESTRICTIONS

From the analysis of the studies showed by PubMed we can observe that several authors described some variations in the application of postural restrictions after CRM:

Herdman (1993) encouraged his patients to avoid vigorous head movements for only 24 hours.

Harvey and Hain (1994): patients sleep with their head elevated 45 degree angle for 24h , avoid Gym or other dental procedures that cause backwards head movement, vibration, and head turning

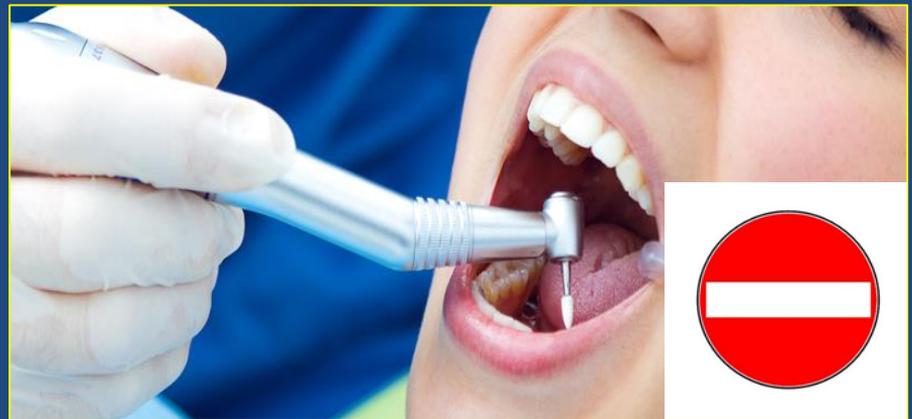
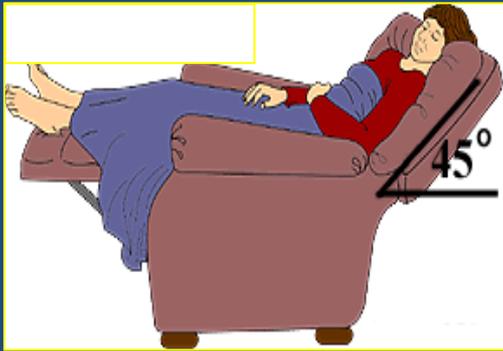
Haberkamp (2001) and Motamed (2002):Patients to refrain from lying on the affected ear for more than 1 week ,

Cakir (2006): wear a cervical collar and to maintain an upright head position for 2 days



POSTURAL RESTRICTIONS

Common Postural Restrictions are various suggestions and prohibitions





POSTURAL RESTRICTIONS

What timing for postural restrictions?

From the analysis of the some representative studies showed by PubMed:

Hain : from 12 -24 Hours to 1 week

Herdman , Gans and Harvey: only 24 hours

Cakir: 48 hours

Haberkamp and Motamed: 1 week

Balikci: 10 days

Papacharalampous: from 48 hours to 5 days

Simoceli: from 24 hours to 72 hours





POSTURAL RESTRICTIONS

Unfortunately there is no standard protocol present
for Postural Restrictions after BPPV treatment





POSTURAL RESTRICTIONS

- Absence of a standard protocol that joined the councils and the prohibitions,
 - Absence of a duration time to practice postural restrictions
 - Poor application at home of the restrictions (Li S. PlosOne 2010)
- has raised doubts on their usefulness

J Otolaryngol. 1996 Apr;25(2):121-5.

Post-treatment instructions in the nonsurgical management of benign paroxysmal positional vertigo.

Massoud EA¹, Ireland DJ.

post-treatment instructions were not necessary.

Otolaryngol Head Neck Surg. 2000 Mar;122(3):440-4.

Treatment of benign paroxysmal positional vertigo: no need for postmaneuver restrictions.

Nuti D¹, Nati C, Passali D.

ek. The patients were told that they could sleep or move as they pleased, without any particular precautions. We found that liberatory nystagmus had a high prognostic value and that it was not necessary for patients to avoid certain positions or movements after treatment.



POSTURAL RESTRICTIONS

Eur Arch Otorhinolaryngol. 2002 May;259(5):262-5. Epub 2002 Mar 19.

Postural restrictions in labyrintholithiasis.

Marciano E¹, Marcelli V.

Postural Restrictions seem to have no effect upon symptom recurrence

Eur Arch Otorhinolaryngol. 2005 May;262(5):408-11. Epub 2004 Sep 15.

The effect of postural restrictions in the treatment of benign paroxysmal positional vertigo.

Moon SJ¹, Bae SH, Kim HD, Kim JH, Cho YB.

Postural restriction therapy, did not have a significant effect on the final outcomes of BPPV.

Auris Nasus Larynx. 2009 Dec;36(6):637-43. doi: 10.1016/j.anl.2009.04.004. Epub 2009 May 1.

Are postural restrictions after an Epley maneuver unnecessary? First results of a controlled study and review of the literature.

Fyrmpas G¹, Rachovitsas D, Haidich AB, Constantinidis J, Triaridis S, Vital V, Tsaliqhopoulos M.

The use of postural restrictions after the canal-repositioning maneuver is unjustified.



POSTURAL RESTRICTIONS

Our Experience

Annals of Otology, Rhinology & Laryngology 120(7):460-464.
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Are Postural Restrictions Necessary For Management of Posterior Canal Benign Paroxysmal Positional Vertigo?

Alessandro De Stefano, MD, PhD, FAINOT; Francesco Dispenza, MD, PhD, FAINOT;
Leonardo Citraro, MD; Anna Grazia Petrucci, MD; Pamela Di Giovanni, MD;
Gautham Kulamarva, MS, DOHNS, MRCS; Navneet Mathur, MS, DNB, FAINOT;
Adelchi Croce, MD

146 patients suffering from vertigo were consecutive enrolled in a month

Exclusion criteria were: more than 1 canal involved, HC-BPPV, AC-BPPV, other forms of peripheral vertigo, cervical spine diseases, CPA tumors, Neurologic or psychiatric diseases.

74 adults patients with diagnosis of PC-BPPV were enrolled

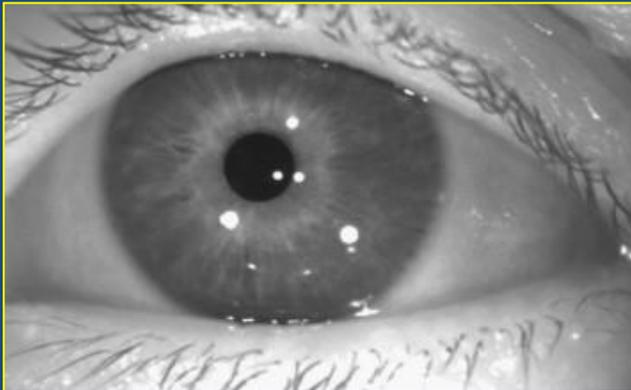


POSTURAL RESTRICTIONS

Our Experience

Patients from primary or secondary care centers who were managed with vestibular suppressants and/or benzodiazepines were enrolled in the trial after more than 48 hours had passed from the last dose of medicine

All patients underwent a neurotologic examination (clinical history, otoscopy, pure tone audiometry, tympanometry) and a nystagmus examination (infrared videonystagmoscopy)





POSTURAL RESTRICTIONS

Our Experience

In order to investigate positioning nystagmus, we studied the patients in a sitting position, in a sitting position with the head tilted 30° forward (to exclude horizontal canal BPPV), during the head-shaking test, and during the Dix-Hallpike, the Rose Test and the Mc-Clure test. The quality of life was evaluated with the Dizziness Handicap Inventory before and after treatment.

After the diagnosis, all patients were managed with a CRM; we used the modified Epley maneuver or the Semont maneuver.

The CRMs were performed immediately after the diagnosis, and no medical treatment was given before or after the diagnostic test or the CRM.



POSTURAL RESTRICTIONS

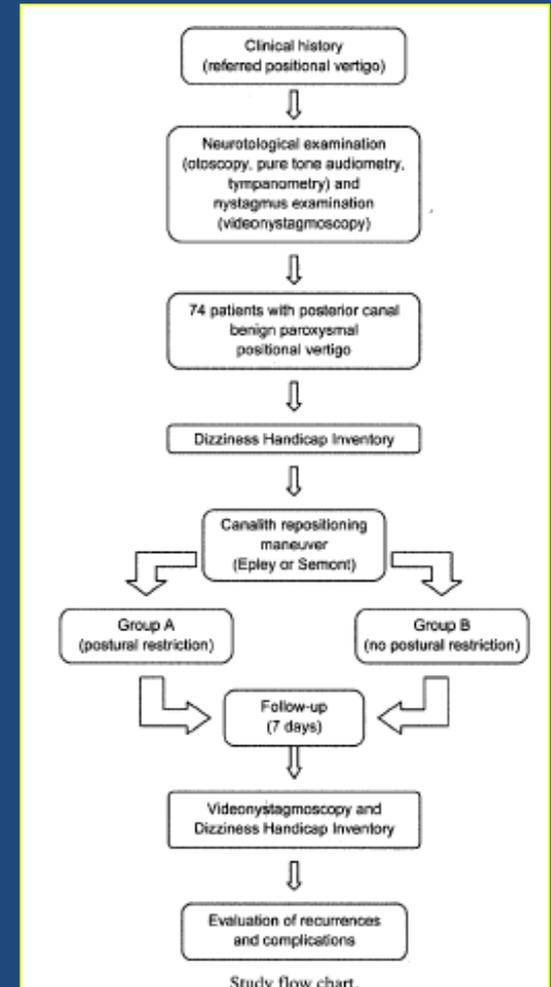
Our Experience

After the CRM, the patients were randomized into two groups by generated random numbers by Microsoft Excel software with use of the RAND function.

The patients of group A were instructed to avoid sports activities and head and trunk movements, to sleep in a semi-seated position (with the head inclined 45° from the horizontal plane), and to avoid sleeping on the affected ear for 2 days.

The patients of group B did not follow any postural restrictions, and they were asked to live as normally as possible.

Follow up: 7 days





POSTURAL RESTRICTIONS

Our Experience: Results

CHARACTERISTICS OF PATIENTS WHO
ENTERED STUDY

	Group A	Group B	Total
Sex			
Male	19 (51.4%)	17 (45.9%)	36 (48.6%)
Female	18 (48.6%)	20 (54.1%)	38 (51.4%)
Mean age (years) ± SD	56.1 ± 19.5	55.5 ± 19.6	55.8 ± 19.5
Affected ear			
Right	23 (62.2%)	24 (64.9%)	47 (63.6%)
Left	14 (37.8%)	13 (35.1%)	27 (36.4%)
Type of maneuver			
Epley	18 (48.6%)	20 (54.1%)	38 (51.4%)
Semont	19 (51.4%)	17 (45.9%)	36 (48.6%)
Recurrence			
Yes	6 (16.2%)	3 (8.1%)	9 (12.1%)
No	31 (83.8%)	34 (91.9%)	65 (87.9%)
Complications			
Neck stiffness*	12 (32.4%)	0	12 (16.2%)
No	25 (67.6%)	37 (100.0%)	62 (83.8%)

*Significant difference between groups ($p < 0.01$).

We analyzed 74 subjects, 36 (48.6%) of whom were male and 38 (51.4%) of whom were female.

The patients were between 18 and 89 years of age, with a mean age of 55.8 years (± 19.5).

The right ear was noted to be affected more frequently than the left at a ratio of 2:1.

There was no significant difference between groups A and B in sex ($p = 0.64$), age ($p = 0.91$), affected side ($p = 0.81$), or type of CRM ($p = 0.64$).

Furthermore, no difference between groups was found in the recurrence rate, defined as a reappearance of vertigo after the CRM ($p = 0.29$).

In contrast, there was a significant difference between the two groups in the appearance of complications (neck stiffness; $p < 0.01$).



POSTURAL RESTRICTIONS

Our Experience: Results

The follow-up vestibular tests under infrared VNS **showed normal results in both groups.** All patients stated that their equilibrium had improved after treatment at the end of follow-up.

All 74 patients declared themselves to have greatly improved their balance, and only 9 (6 in group A, 3 in group B) reported recurrence of vertigo.

Twelve patients in group A reported chronic neck stiffness after postural restrictions.



POSTURAL RESTRICTIONS

Our Experience: Conclusions

Our experience agrees with the studies of Casqueiro (2008) Fyrmpas (2009) and Devaiah and Andreoli,(2010), Bhattacharyya (2017). The analysis of our results helps us to understand that **postural restrictions are not necessary in the management of PC BPPV.**

In 2018 A recent meta-analysis by Cromwell confirmed our results

Otol Neurotol. 2018 Jul;39(6):671-679. doi: 10.1097/MAO.0000000000001798.

The Necessity for Post-Maneuver Restrictions in the Treatment of Benign Paroxysmal Positional Vertigo: An Updated Meta-Analysis of the Literature.

Cromwell C¹, Tyler J, Nobbs R, Hockaday A, Donnelly S, Clendaniel R.

There was no statistically significant difference found in treatment efficacy between subjects who received post-maneuver postural restrictions and those who did not



POSTURAL RESTRICTIONS

Conclusions

**Why postural restrictions in BPPV management has failed in many scientific studies?
Have we a biological reason?**

J Vestib Res. 1998 Jul-Aug;8(4):325-9.

Why do benign paroxysmal positional vertigo episodes recover spontaneously?

Zucca G¹, Valli S, Valli P, Perin P, Mira E.

Since 1998

“The results demonstrated that normal endolymph can dissolve dislodged otoconia very rapidly (in about 20 hours). It is mainly due to the fact that endolymph, owing to its low calcium content (20 microM) is able to dissolve otoconia”

**For this reason manage patients with
Postural restrictions for more than 20 hours
is unjustified**





POSTURAL RESTRICTIONS

Conclusions

**Why postural restrictions in BPPV management has failed in many scientific studies?
Have we a biological reason?**

Acta Otolaryngol. 2010 Jul;130(7):804-9. doi: 10.3109/00016480903456318.

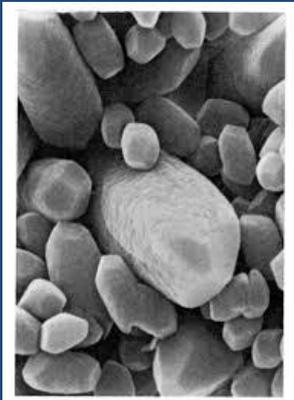
Model experiments of otoconia stability after canalith repositioning procedure of BPPV.

Otsuka K¹, Suzuki M, Shimizu S, Konomi U, Inagaki T, Iimura Y, Hayashi M, Ogawa Y.

“The otoconial mass from the sacculus was placed

on the utricular macular otoconia, mimicking a condition after CRM.

The stability of the otoconial mass was observed by tilting the preparation, immediately, 3 min, and 5 min after it was placed on the macular otoconia”.



**Stability from 3 min. to 5 min.
after the CRM**

THANK YOU FOR YOUR ATTENTION



The Aragonese Castle of Taranto