

# THE CLINICAL CHARACTERISTICS AND TREATMENT OF BENIGN PAROXYSMAL POSITIONAL VERTIGO IN THE ELDERLY

Gabriela Musat

*ENT Department "St. Mary" Hospital, UMF Carol Davila, Bucharest, Romania*

## ABSTRACT

**Background.** Benign paroxysmal positional vertigo (BPPV) is an inner ear disease that affects especially elderly people, being a common cause of dizziness at this age. The condition is diagnosed using the Dix-Hallpike maneuver and treated by the particle repositioning maneuver.

**Objective.** To establish whether there is any difference between BPPV at old ages compared to BPPV in younger people.

**Method.** A comparative study between two groups of patients diagnosed with BPPV; one group with ages 65-85 and another group with ages 35- 65. All patients were assessed by physical examination including the Dix-Hallpike maneuver. We used as a treatment maneuver the particle repositioning maneuver, Epley.

**Results.** No major differences were found between the two age groups concerning the clinical characteristics and the response to treatment.

**Key words:** benign paroxysmal positional vertigo, elderly people, Dix Hallpike test, Epley maneuver

## INTRODUCTION

The benign paroxysmal positional vertigo (BPPV) is defined as a disorder of the inner ear characterized by repeated episodes of positional vertigo. The benign paroxysmal positional vertigo accounts for about 20% of all dizziness. It seems that BPPV is the most common vestibular disorder. The age of onset of BPPV is considered to be somewhere between 50 and 70 years old. Different statistics situate the incidence of BPPV amongst elderly between 40 to 50% in all dizzinesses of older people. As the life expectancy increases all over the world it is expected that the incidence and the prevalence of BPPV will also increase.

It is thought that the pathophysiology of BPPV is explained by the canalolithiasis, that means otolithic debris entering the semicircular canals and causing there inertial changes that account for the nystagmus and the vertigo when the head moves in

the plane of the canal. In the great majority of cases the affected canal is the posterior semicircular canal 85-95%. The incidence of the BPPV of the semicircular lateral canal is much less important, only 5-15% of the cases.

The diagnostic criteria for the posterior canal BPPV are history and the physical examination. The history of the patient with BPPV reveals rotational sensations when the patient moves the head relative to gravity for example when rolling-over in bed, tilting the head to look upward, bending forward. As for the physical examination, the posterior canal BPPV is evidenced by the Dix-Hallpike maneuver. The patient is positioned in clinostatism with the head turned 45 degrees to one side and 20 degrees tilted backwards. In BPPV, after a latency period of about 50-20 seconds, this maneuver triggers a nystagmus and a vertigo that increase and resolve in maximum 60 seconds. The nystagmus is a mixt torsional and vertical eye movement beating

Author for correspondence:

Gabriela Musat, "St. Mary" Clinical Hospital, Ion Mihalache Bvd., No. 37, Bucharest, Romania

to the dependent ear and the forehead. In the upright head position this nystagmus is reversed. The nystagmus fatigues when the maneuver is repeated. The diagnostic maneuver for the lateral canal BPPV is the supine roll-test.

The treatment of posterior canal BPPV consists in physical maneuvers that aim to replace the displaced otoliths taking them off the canals and bringing them into the utricular cavity. There are two important maneuvers used for the treatment of BPPV: the canalith repositioning maneuver (Epley maneuver) and the liberatory maneuver (Semont maneuver). Medical therapy such as vestibular suppressant medications that include benzodiazepines and antihistamines are not administered routinely.

BPPV occurs commonly in the second half of life, that means it's incidence is increased in the elderly. There are studies that show that 9% of elderly patients undergo comprehensive geriatric assesment for non balance related complaints have an unrecognized BPPV. Older people show a greater incidence of: stroke diabetes, anxiety, visual disturbances, cardio-vascular diseases, arthrosis, osteoporosis, periferal neuropathy, CNS disorders. Older patients with BPPV experiece falls, depression, impairments of their daily activities.

## MATERIAL AND METHOD

The present study is a clinical prospective study conducted on a period of two years. The patients included in the study were patients diagnosed with BPPV that presented in the outpatient clinic of 'St. Mary' hospital in Bucharest between the 1<sup>st</sup> of January 2007 and the 31<sup>th</sup> of December 2009. The inclusion criteria was the diagnosis of BPPV evidenced by a positive Dix-Hallpike maneuver that triggered both positional vertigo and nystagmus observed without Frenzel goggles. The exclusion criteria were the age under 35 years old and over 85 years old, patients with vertebral column diseases that could not be mobilised at the therapeutic maneuver, patients in wich we could not notice nystagmus movements although the patient related vertigo sensations at the Dix-Hallpike maneuver.

The diagnosis of BPPV was sustained by a positive Dix-Hallpike maneuver. We measured the period of nystagmus and the latency period untill the nystagmus appeared. The patients had a general clinical examination, a complete otorhinolaryngological examination, and a carefull history was completed.

As a therapeutic maneuver we used the Epley maneuver. We performed the maneuver only once

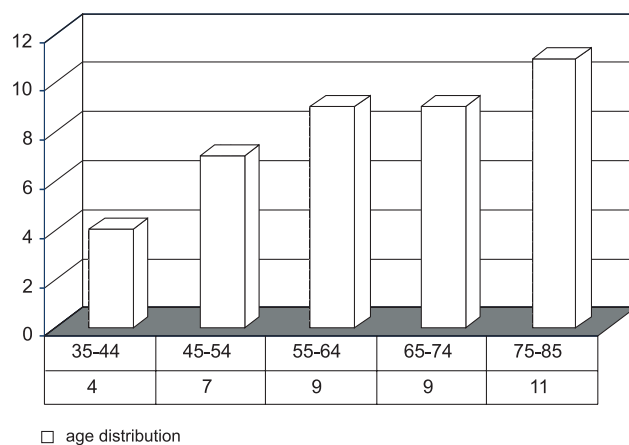
in the first therapeutic session. We reassessed the patients one week and one month after the first visit using also the Dix-Hallpike maneuver. In the case of a positive maneuver we performed once again the Epley maneuver.

## RESULTS

We took in study two groups of patients: one group of 20 patients with ages between 35 and 65 years old and another group of 20 patients with ages between 65 to 85 years.

Analising the sex distribution for the two age groups we could notice that the women were preponderant in both groups: 11 women in the adult group, 13 women in the elderly group. We could notice that in the elderly group the women represented 65% of the patients compared to 55% in the adult group. This is consistent with the data that were published by other authors wich found that the women were more affected by BPPV than the men.

Considering the age distribution for both groups we established the following pattern, as it can be noticed in (Figure 1).



**FIGURE 1**

There can be noticed the fact that the incidence of BPPV increases with age as it is already well established.

Only two of the patients had a history that could be related to the etiology of the BPPV. One of the patients of the elderly group and one of the patients of the adult group had a history of Meniere. The others were considered to be idiopathic vppb.

The history and the general exam evidenced the fact that the two age groups had different incidence of associated diseases the comparison establishing the fact that the elderly group which had many comorbidities.

Associated disease	Elderly group	Adult group
Cerebrovascular diseases	3	0
Diabetes	6	1
Cardiovascular diseases	18	1
Arthrosis	15	0
Osteoporosis	14	0
CNS disorders	2	1
Visual disturbances	20	5

The measurements of the latency periods for the onset of the nystagmus and vertigo at the Dix-Hallpike maneuver show that the two age groups had similar values mostly short periods of latency of 5-8 seconds, (Fig. 2).

Examining the vertigo and the nystagmus duration at the Dix-Hallpike maneuver it can be noticed that the measurements were almost similar for the two age groups in study. Most of the patients in both groups had a period of nystagmus and vertigo for a period of 10-20 seconds (Fig. 3).

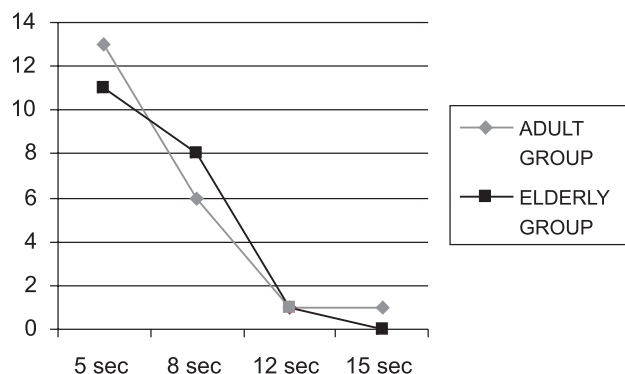


FIGURE 2

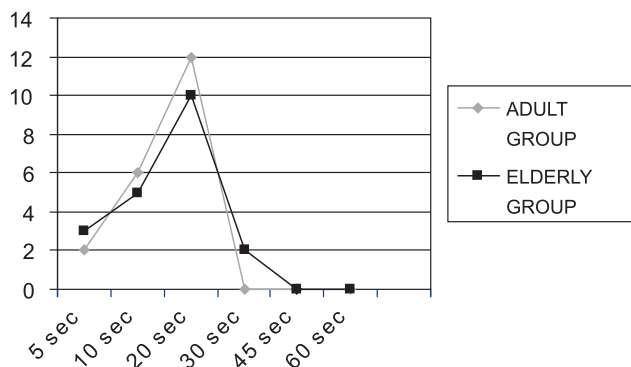


FIGURE 3

As for the results of the therapeutic maneuver the study showed a high rate of success 95% for the adult group and 90% for the elderly when reassessed at one month (see Figures 4,5). We reassessed the patients at one week and we performed once again the therapeutic maneuver

if the Dix-Hallpike maneuver was positive. The final assessment was made at one month after the first particle repositioning maneuver.

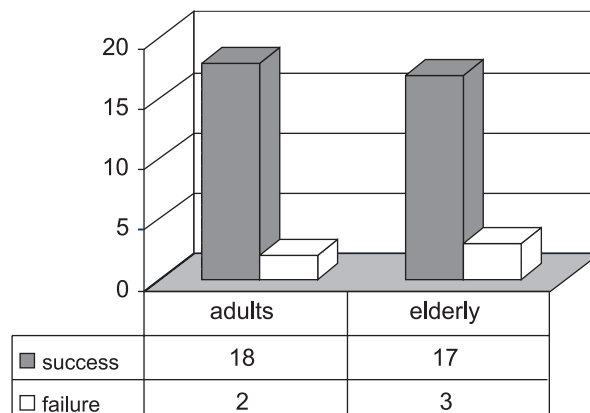


FIGURE 4. Assessment at one week

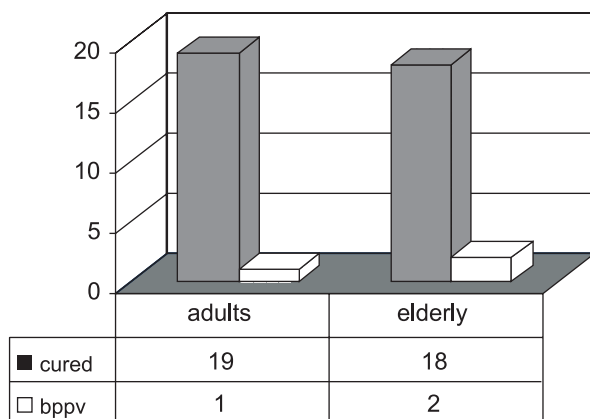


FIGURE 5. Assessment at one month

We could also notice the fact that only one of the patients had a lateral canal BPPV, one of the patients in the adult group.

Two of the patients had such intense nausea and vomiting that had to be treated under antiemetic medication. None of the others received medication for the vppb.

### CONCLUSION

The two groups we examined revealed similarities in the clinical aspects: the duration of the vertigo and of the nystagmus, the latency period assessed with the Dix-Hallpike maneuver. Most of the patients had a latency period of 5-8 seconds and a nystagmus duration of 10-20 seconds. The patients included in the elderly group had the same features of the BPPV as those from the adult group. The time elapsed from the moment when the patient was positioned in the triggering position to the moment the vertigo began as similar for both groups.

The duration of the vertigo was also similar for the two age groups.

The older patients group had more comorbidities but this fact didn't have any impact on the clinical features of the disease.

The results of the treatment were similar for the two age groups although the therapeutic maneuver, basically the same, had to be performed more carefully in the old patient group. The success rate obtained with the therapeutic maneuver is important 95% for the adult group and 90% for the elderly.

In conclusion there were no major differences between the two age groups concerning the clinical features and the treatment of BPPV.

BPPV is a disease that can be easily diagnosed and treated in the office. None of the patients was

admitted in the hospital during the period of the study for this disease.

Performing the Dix-Hallpike test is important in order to assess the existence of BPPV and treating the disease improving the quality of life in old age.

BPPV in the elderly is a subject that has never been studied in our country.

This subject follows a modern trend taking into account the fact that the life expectancy increases all over the world. It is expected that the incidence of BPPV will also increase. BPPV has a significant impact on the health related quality of life in the elderly patients and on their emotional and physical status compared to those unaffected.

## REFERENCES

1. James B. Snow Jr; P. Ashley Wackim – Ballenger's otorhinolaryngology head and neck surgery; 2009.
2. Thomas Brandt – Vertigo: It's multisensory syndromes, 2003.
3. A. Bronstein; T. Lempert – Dizziness. A practical approach to diagnosis and management; 2007.
4. J.P. Sauvages ; A. Chays ; A. Gentine – Vertiges positionels 2007.
5. Angeli, S. I., R. Hawley, et al. – Systematic approach to benign paroxysmal positional vertigo in the elderly. *Otolaryngol Head Neck Surg* 128(5): 719-25, 2003.
6. Drachman DA – A 69-year-old man with chronic dizziness. *JAMA*. 1998; 280(24): 2111-2118.
7. Baloh RW, Halmagyi GM et al – Part II. Clinical evaluation. In Baloh RW, Halmagyi GM. Disorder of the vestibular system. *Oxford University Press Inc.*, New York. 1996:157-274.
8. Baloh RW – VIII. The vestibular system. In: Canalis RF and Lambert PR. The ear, comprehensive otology. *Lippincott Williams & Wilkins, Philadelphia*. 2000:647-693
9. Furman JM and Cass SP – Primary care: benign paroxysmal positional vertigo. *NEJM*. 1999; 341(21): 1590-1596.
10. Baloh RW – Vertigo. *The Lancet*. 1988; 352(9143): 1841-1846.
11. Hoston JR and Baloh RW – Current concepts: acute vestibular syndrome. *NEJM*. 1998; 339(10): 680-685
12. Froehling DA, Bowen JM et al – The canalith repositioning procedure for the treatment of benign paroxysmal positional vertigo: a randomized controlled trial. *Mayo Clinic Proceedings*. 2000; 75(7): 695-700.
13. Foster C, Baloh RW et al – Part IV. Treatment of vertigo. In: Baloh RW and Halmagyi GM. Disorder of the vestibular system. *Oxford University Press*, In. New York. 1996: 541-599.