

THE IMPACT OF BENIGN PAROXYSMAL POSITIONAL VERTIGO ON QUALITY OF LIFE

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Acknowledgements

This paper is supported by the Sectoral Operational Programme Human Resources Development, financed from the European Social Fund and by the Romanian Government under the contract numbers POSDRU/89/1.5/S/64331 and POSDRU/89/1.5/S/64109.

ABSTRACT

Objectives: Authors want to illustrate that BPPV influence the quality of patients' life, therefore to demonstrate the utility of the treatment.

Method and materials: The study was conducted in our clinic on a group of 55 patients diagnosed with BPPV over a five month time frame. Each patient was asked to fill a DHI questionnaire in order to appreciate the impact of the condition over the patients' quality of life. Results were statistically analyzed with the program Microsoft Excel 2003.

Results: The most affected patients were those in their fifth decade of life; 64% of patients were women, 36% of patients were men; PSC was the most frequently affected canal; at follow-up examination, one week after applying repositioning maneuver 52 patients were stable; most patients needed only one repositioning maneuver to cure the condition; 54 patients (98%) didn't suffer any recurrences till the end of the study.

Conclusions: DHI questionnaire proved to be a good assessment tool for the quality of life of BPPV patients.

Key words: semicircular canal, otoliths, vertigo, repositioning maneuver

Abbreviations:

BPPV = Benign Paroxysmal Positional Vertigo
DHI = Dizziness Handicap Inventory
PSC = posterior semicircular canal
HSC = horizontal semicircular canal
SSC = superior semicircular canal
QoL = quality of life

Vertigo, dizziness and imbalance are the main symptoms of vestibular disorders. They can lead to physical consequences, such as reduced postural control and falls, to psychological/psychiatric consequences, such as anxiety – depression symptoms, panic, agoraphobia and to cognitive defects, especially in the elderly. Therefore, the general health status and the quality of life (QoL) of vestibular patients can be significantly impaired. Additionally, the main goal of treatments of vestibular disorders should be to control symptoms, reduce functional disability and to improve patients' QoL.

Vertigo, the illusion of motion, namely of rotation of the body or the environment, is a common and debilitating complaint in patients presenting

with peripheral and central vestibular disorders. It reflects a distortion of spatial orientation and is the most prevalent type of dizziness (which encompasses sensation of vertigo, lightheadedness, presyncope and disequilibrium). Most cases of peripheral vertigo are accounted by benign paroxysmal positional vertigo, acute vestibular neuritis and Meniere's disease.

BPPV is a short-term vertigo that appears when the head is placed in a certain position with respect to gravitation or in sudden head movements like flexion or extension of the neck. It is characterized by a specific nystagmus for each affected semicircular canal. For example the posterior canal BPPV generates torsional geotropic nystagmus while the horizontal canal BPPV generates linear geotropic nystagmus. BPPV can also be accompanied by vegetative symptoms and anxiety. Another important fact about BPPV is that hearing is never impaired.

Incidence: BPPV affects persons between 20 and 60 years old and it is more frequent in women

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than in men (women – men ratio is about 2:1). About 20% of patients who complain of vertigo and about 40% of patients with peripheral vertigo have BPPV.

There are several factors involved in BPPV epidemiology, such as trauma, prolonged rest in bed, viral infections (neurolabyrinthitis), disturbances in calcium metabolism, previous ear surgery, degenerative changes, occlusion of the anterior vestibular artery. BPPV can also be idiopathic.

Physiopathology of this type of disorder usually involves excessive fragmentation of otoliths. There are two major theories related to this aspect:

- Canalolithiasic theory (Mc. Clure – 1970 and Barnes – 1990), which states that the particles are free floating inside the semicircular canals and the geotropcnystagmus is oriented towards the affected ear;
- Cupulolithiasic theory (Harold Schucknecht – 1961), which states that the particles become adherent to the semicircular canal's cupula and the nystagmus switches its orientation (becomes ageotropic).

The BPPV nystagmus presents the following characteristics:

1. Appears in a certain position related to gravity (Dix & Hallpike for PSC, dorsal decubitus with the head turned toward the affected ear for HSC)
2. Latency (1-5 seconds)
3. Fatigability (disappears in about 15-30 seconds)
4. Adaptability

The treatment methods in BPPV are:

- Particle repositioning maneuvers
 - For PSC: Semont maneuver, Epley maneuver
 - For HSC: prolonged position maneuver, the “log roll” maneuver
 - For SSC: forced prolonged position maneuver
- Physical therapy (Brand-Daroff exercises)
- Surgical treatment: posterior canal plugging

The study was observational, descriptive and retrospective and it was conducted at I.F.A.C.F. O.R.L. “Prof. Dr. Dorin Hociota” in Bucharest, Romania, over a five month time frame on a group of 55 patients diagnosed with BPPV. The diagnostic was established by bed-side examination with an infrared camera system. DCP (Dynamic Computer-

ized Posturography), pure tonal audiometry (PTA) and speech audiometry excluded other ENT pathologies.

Each patient was asked to fill in a DHI (Dizziness Handicap Inventory) form before being treated using appropriate repositioning maneuvers. The DHI form represents an evaluation of the quality of life of a patient suffering from any kind of vestibular system disorder. It is composed of 25 standard questions organized in 3 categories: emotional, physical and functional (fig. 1) A value of 4, 2 or 0 points is attributed to each answer (Yes – 4 pts, Sometimes – 2 pts, No – 0 pts). The final result is the sum of these points.

The score may take values between 0 and 100 pts. Therefore we can speak about a mild handicap for scores up to 30, a moderate handicap for scores between 31 and 60, a severe handicap for scores above 60 pts.

After the treatment our patients were advised to avoid sleeping on the affected ear for further five nights.

The results were statistically analyzed and correlated with age, sex, the affected semicircular canal, DHI scores, emotional, functional and physical category scores, status at control examination, the number of repositioning maneuvers, BPPV recurrence. Here are some observations:

- The most affected patients were those in their fifth decade of life (fig. 2)
- The condition affected mostly women: 64% of patients were females, 36% were males (fig. 3)
- PSC was the most frequent affected canal (91% of cases), SSC was involved in 7% of cases, only 2% of patients have bilateral BPPV (fig. 4)
- At follow-up examination, one week after repositioning maneuver, 52 patients were stable, one patient presented nystagmus in right Dix-Hallpike position, one patient presented nystagmus in left Dix-Hallpike position and one patient presented spontaneous nystagmus (fig. 5).
- 50 patients needed only one repositioning maneuver for treatment, 3 patients were stabilized after 2 repositioning maneuvers and only 1 patient needed 3 maneuvers to cure the condition (fig. 6)
- 54 patients didn't suffer any recurrences till the end of the study. There was one female patient who had a recurrence after she slipped on ice (fig. 7).

Dizziness Handicap Inventory Questionnaire

Name: _____ DOB: _____ Date: _____

Instructions: The purpose of this scale is to identify difficulties that you may be experiencing because of your dizziness or unsteadiness. Please answer “yes”, “no” or “some” (sometimes affected) to each question. *Answer as it applies to your dizziness or unsteadiness only.*

Does looking up increase your problem?	Yes	Some	No
Because of your problem, do you feel frustrated?	Yes	Some	No
Because of you problem, do you restrict your travel for business or recreation?	Yes	Some	No
Does walking down the aisle of a supermarket increase your problem?	Yes	Some	No
Because of your problem, do you have difficulty getting into or out of bed?	Yes	Some	No
Does your problem significantly restrict your participation in social activities such as going out to dinner, going to the movies, dancing or to parties?	Yes	Some	No
Because of your problem, do you have difficulty reading?	Yes	Some	No
Does performing more ambitious activities like sports, dancing, household chores such as sweeping or putting dishes away increase your problem?	Yes	Some	No
Because of your problem, are you afraid to leave your home without someone accompanying you?	Yes	Some	No
Because of your problem, have you been embarrassed in front of others?	Yes	Some	No
Do quick movements of your head increase your problem?	Yes	Some	No
Because of your problem, do you avoid heights?	Yes	Some	No
Does turning over in bed increase your problem?	Yes	Some	No
Because of your problem, is it difficult for you to do strenuous housework or yard work?	Yes	Some	No
Because of your problem, are you afraid people may think you are intoxicated?	Yes	Some	No
Because of your problem, is it difficult for you to go for a walk by yourself?	Yes	Some	No
Does walking down a sidewalk increase your problem?	Yes	Some	No
Because of your problem, is it difficult for you to concentrate?	Yes	Some	No
Because of your problem, is it difficult for you to walk around your house in the dark?	Yes	Some	No
Because of your problem, are you afraid to stay home alone?	Yes	Some	No
Because of your problem, do you feel handicapped?	Yes	Some	No
Has your problem placed stress on you relationships with members of your family or friends?	Yes	Some	No
Because of your problem, are you depressed?	Yes	Some	No
Does your problem interfere with your job or household responsibilities?	Yes	Some	No
Does bending over increase your problem?	Yes	Some	No

Figure 1. Dizziness Handicap Inventory Questionnaire

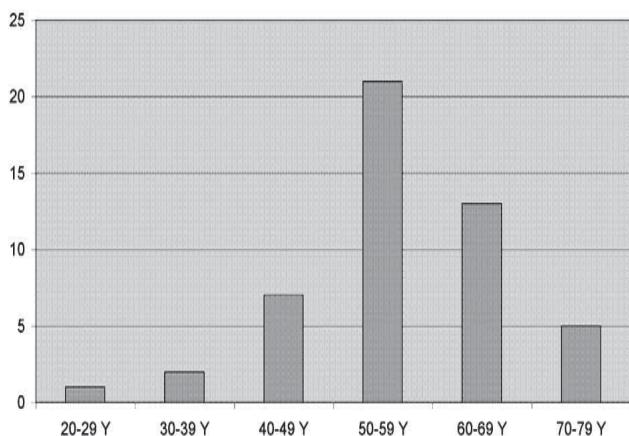


Figure 2. Occurrence by age group

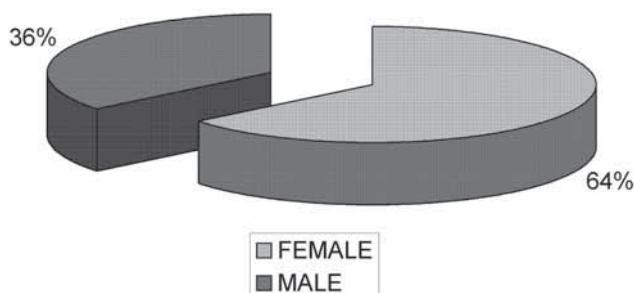


Figure 3. Gender-related occurrence

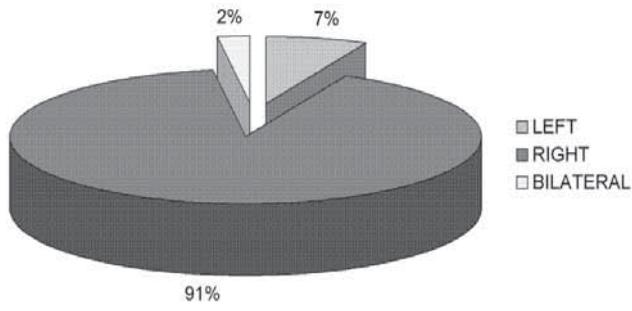


Figure 4. Distribution by affected semicircular canal

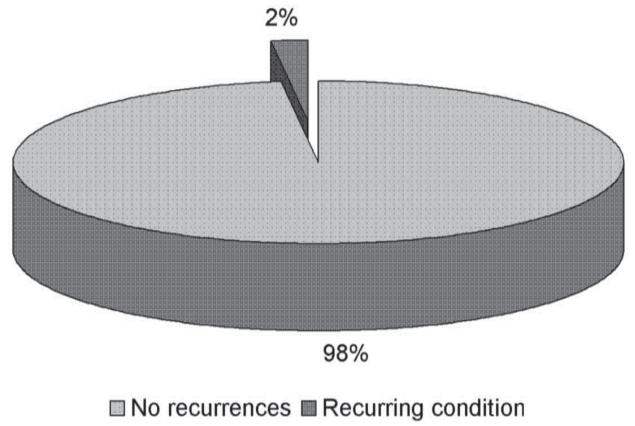


Figure 7. Recurrences

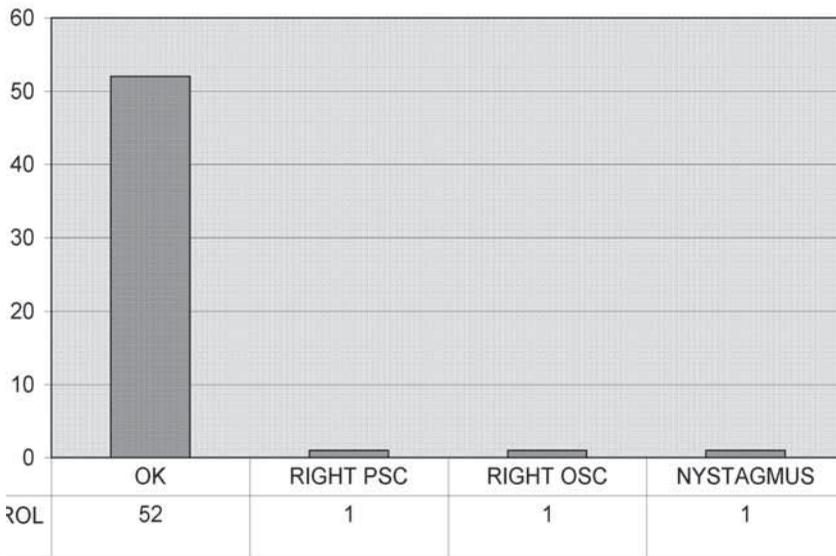


Figure 5. Status at control examination



Figure 6. Numbers of epley maneuvers

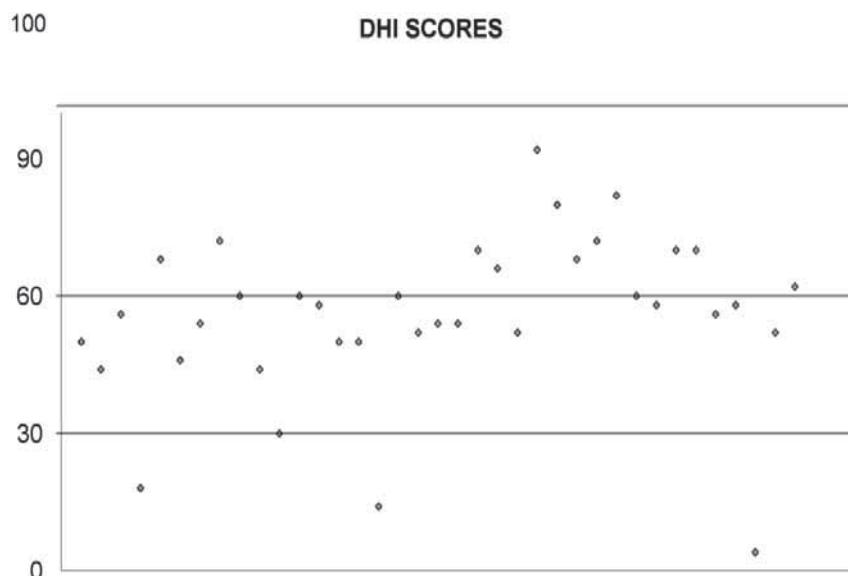


Figure 8. DHI scores

CONCLUSIONS

- BPPV is a self-limited, recurrent, chronic condition
- Although BPPV is usually a benign pathological condition, it can be dangerous for certain professional categories (working at heights)
- DHI questionnaire proved to be a good assessment tool for BPPV patients' QoL
- BPPV produces a moderate handicap to the patient (fig. 8), therefore it is absolutely necessary to treat the disease
- The treatment was efficient for most of the patients
- Quality of patients' life had an important improvement after the BPPV appropriate therapy

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