Turkish Journal of Clinical Research

Turk J Clin Res. 2025;1(1):11-14
https://doi.org/10.63909/1453003

RESEARCH ARTICLE

Evaluation of the effect of treatment maneuvers on depression and quality of life in patients with benign paroxysmal positional vertigo

Benign paroksismal pozisyonel vertigo hastalarında tedavi manevralarının depresyon ve yaşam kalitesi üzerine etkisinin değerlendirilmesi

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Abstract

Aim: The aim of this study was to investigate the differences between changes in depression and quality of life in two different periods after Benign Paroxysmal Positional Vertigo (BPPV) attacks and treatment.

Methods: This study was conducted a total of 21 patients. Spontaneous Nystagmus, Positional tests, Post Head Shake, Roll test, Dix-Hallpike, Bow & Lean vestibular tests were performed using the Interacoustics Visualeyes TM 515 Videonystagmography (VNG) Device. In addition to the maneuvers in the treatment, the Beck Depression Inventory and Activies of Daily Living Scale were administered before and after the test.

Results: A statistical difference was found between the pre- and post-test results in the Beck depression scale (t:7.45; p<0.05). Considering the average values, it was determined that the Beck depression scale pretest values (23.05±8.52) were higher than the posttest values (8.29±4.90). A statistically significant difference was found between the pre- and post-test values in the activities of daily living scale (t:7.2; p<0.05). When the average values were examined, it was determined that the pre-test values of the Activities of Daily Living Scale (23.05±8.52) were higher than the post-test values (8.29±4.90).

Conclusion: As a result of the evaluations made on BPPV patients in the study, a statistically significant difference was found between depression and quality of life levels at two different times. It has been observed that the method applied to people increases their quality of life by reducing depression.

Keywords: Dizziness, beck depression scale, activies of daily living Scale, benign paroxysmal positional vertigo.

Özet

Amaç: Benign paroksismal pozisyonel vertigo (BPPV) atakları ve tedavisi sonrası iki farklı dönemde depresyon ve yaşam kalitesi düzeyindeki değişiklikler arasında farklılığın incelenmesi amaçlanmıştır.

Yöntemler: Bu çalışma toplam 21 hasta ile yürütülmüştür. İnteracoustics Visualeyes™ 515 Videonistagmografi (VNG) cihazı kullanılarak Spontan Nistagmus, Pozisyonel testler, Baş Sallama Sonrası (Post Head Shake), Roll testi, Dix-Hallpike testi ve Bow & Lean vestibüler testleri uygulanmıştır. Tedavide uygulanan manevralara ek olarak, Beck Depresyon Envanteri ve Günlük Yaşam Aktiviteleri Ölçeği testten önce ve sonra uygulanmıştır.

Bulgular: Ön ve son test sonuçları arasında Beck depresyon ölçeğinde istatistiksel olarak farklılık bulunmuştur (t:7,45; p<0,05). Ortalama değerlere bakıldığında Beck depresyon ölçeği ön test değerlerinin (23,05±8,52) son test değerlerinden (8,29±4,90) daha yüksek olduğu saptandı. Ön ve son test değerleri arasında günlük yaşam aktiviteleri ölçeğinde istatistiksel olarak anlamlı bir farklılık bulunmuştur (t:7,2; p<0,05). Ortalama değerlere bakıldığında Günlük yaşam aktiviteleri ölçeği ön test değerlerinin (23,05±8,52) son test değerlerinden (8,29±4,90) daha yüksek olduğu saptandı.

Sonuç: Araştırmada BPPV hastaları üzerinde yapılan değerlendirmeler sonucunda depresyon ve yaşam kalitesi düzeyleri arasında iki farklı zamanda istatistiksel olarak anlamlı farklılık bulunmuştur. Kişilere uygulanan yöntemin depresyonu azaltarak yaşam kalitesini arttırdığı gözlenmiştir.

Anahtar Kelimeler: Baş dönmesi, beck depresyon ölçeği, yaşam kalitesi ölçeği, benign paroksismal pozisyonel vertigo.

INTRODUCTION

Benign paroxysmal positional vertigo (BPPV) is a common disorder of the peripheral vestibular system. It is characterised by episodes of dizziness and nystagmus occurring in certain positions of the head. It occurs

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Cite as: Irem I, Ozgur UE, Bolat C. Evaluation of the effect of treatment maneuvers on depression and quality of life in patients with benign paroxysmal positional vertigo. Turk J Clin Res. 2025;1(1):11-14

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Received: 08 April 2025 | **Accepted:** 10 May 2025 | **Published:** 30 May 2025

Turk J Clin Res. 2025;1(1):11-14
https://doi.org/10.63909/1453003

spontaneously in most patients. The disease frequently occurs in middle age, with a lifetime prevalence of 2.4% and a 1-year prevalence of 1.6%, although the incidence increases markedly in older age (1-4).

The pathophysiology of BPPV is explained by the theories of canalolithiasis and/or cupulolithiasis. In canalolithiasis, autoconial residues are separated from the autolytic membrane and move freely in the endolymph. In cupulolithiasis, the autoconial residues released from the otolithic membrane settle on the cupula of the semicircular canal (SSC) and the specific gravity of the cupula increases, resulting in short-term vertigo (5). The SSCs are stimulated with maneuvers applied in positional tests and the SSC from which BPPV originates is evaluated. Repositioning maneuvers are applied to individuals diagnosed with BPPV for therapeutic purposes (6). In the majority of patients, more than one manoeuvre may be required to improve symptoms (7). BPPV can cause dizziness attacks triggered by rapid head movements, giving the patient unpleasant prolonged experiences of fear of falling, and these patients often develop avoidance behaviours. Avoidance behaviours can trigger depression or exacerbate existing symptoms of depression (8).

METHODS

A total of 21 patients between the ages of 18-70 years who were diagnosed with BPPV were included. Informed Voluntary Consent Form was signed by the patients included in the study. The Epley maneuver was applied for Posterior Canal BPPV, the Yacovino maneuver for Anterior Canal BPPV, and the Barbeque maneuver for Lateral Canal BPPV. In addition to the maneuvers given in the treatment of posterior, anterior and lateral canal BPPV cases, Beck depression scale and Activies of Daily Living Scale were applied before and after the test.

Research Questions/Hypothesis

H0: There is no significant difference between the depression and quality of life levels of the findings obtained during the attack period and the post-treatment period.

H1: There is a significant difference between the depression and quality of life levels of the findings obtained during the attack period and the post-treatment period.

Population and Sample of the Study

The age range of the sample group was 43.33±11.49 years, 21 people aged between 18 and 70 years applied to the Vertigo Clinic. Paired sample t-test was used in the comparison of two dependent groups. The statistical significance level of the obtained values was accepted as 0.05.

Data Collection and Data Tools

In this study, the number of BPPV attacks, type of BPPV, affected semicircular canal, diagnostic and therapeutic maneuvers, recovery times and information about the questionnaire studies for treatment were recorded in the data set prepared by the researchers and the study data were collected.

Ethical Aspects of the Research

The ethics committee permission required for the conduct of the research was obtained as a result of the meeting of Üsküdar University Non-Interventional Research Ethics Committee No. 04 held on 26/04/2024.

Limitations of the Research

Within the scope of the research, the responsible researcher who will apply diagnostic and therapeutic maneuvers to the patients is always with the patient and the safety of the environment is ensured. When the other scales are applied face-to-face in a questionnaire style, there is no risk of any side effects.

Analysis and Evaluation of Data

All data included in the research were recorded in SPSS for Windows 22 programme. In the analysis of the data, firstly, the assumptions to be met were tested and it was decided which tests would be applied. Shapiro-Wilk, kurtosis and skewness values, which are other assumptions of normal distribution, were used to decide on the normality of the data. Dependent sample t-test was used to compare two dependent groups. In the interpretation of the significance level of the obtained values, 0.05 significance level was used as a criterion.

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RESULTS

Within the scope of the study, 52.4% (n=11) of the participants were female. The mean age of the participants was 43.33±11.49 years (Table 1).

Table 1. Comparison of demographic data

		n	%
Gender	Male	10	47.6
	Female	11	52.4
Age	±Sd	43.43±11.49	

It was evaluated by considering that the kurtosis and skewness values of the variables which were found to be significant as a result of the Shapiro-Wilk test (p<0.05) were between ±2.0 and the analyses were performed with parametric tests and the values did not deviate excessively from the normal distribution.

Table 2. Findings related to normality assumption

	Shapiro-wilk			Kurtosis	Skewness	Mean	SD
	Statistics	SD	p				
Beck depression pre-test	0.94	21.00	0.251	-0.19	-0.60	23.05	8.52
Beck depression post-test	0.96	21.00	0.542	1.32	1.89	8.29	4.90
Activities of daily living scale pre-test	0.89	21.00	0.032	1.62	1.91	77.90	26.18
Activities of daily living scale posttest	0.83	21.00	0.001	1.32	0.96	49.76	22.44

A statistically significant difference was observed between the pre-test and post-test values of Beck depression scale (t:7.45; p<0.05). When the mean values were analysed, it was found that Beck depression scale pre-test values (23.05±8.52) were higher than post-test values (8.29±4.90) (Table 3).

Table 3. Findings for comparison of pre and post test scale scores

		n	±SD	t	SD	p
Beck depression scale	Pre-test	21	23.05±8.52	7.45	20.00	0.012
	Final test	21	8.29±4.90			
Activities of daily living scale	Pre-test	21	77.90±26.18	7.20	20.00	0.013
	Final test	21	49.76±22.44			

t:Dependent sample t test

DISCUSSION

BPPV is usually treatable and it is possible to reduce or eliminate symptoms with positional maneuvers (9). Generally, it is reported that the posterior semicircular canal is the most commonly affected canal of BPPV, while the anterior semicircular canal is less affected in BPPV than other semicircular canals due to its anatomical structure. This canal is generally less affected in rotational movements of the head and therefore anterior canal variants of BPPV are less common (10). According to the results of our study, it was concluded that the posterior semicircular canal was the most affected canal, followed by the lateral canal and the anterior semicircular canal was the least affected. It was stated that these results were similar to the findings in the literature. In studies, it is pointed out that BPPV cases increase in middle age in the 5th and 7th decades and are generally more common in women(11). In our study, the mean age of the subjects was 43.33±11.49 years (52.4%) female (52.4%) and male (47.6%) in accordance with the literature. The effect of hormonal factors and gender roles may be

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considered in relation to the higher prevalence of BPPV in women. In the literature, there is a consensus that individuals with vertigo originating from the peripheral system feel more disabled in their daily lives (11). Depression is usually characterised by symptoms such as decreased enjoyment of life, loss of interest, low energy, and hopelessness. Many studies in the literature have reported that peripheral system-induced vertigo may cause depression (12). In studies conducted on individuals diagnosed with BPPV, Beck depression scale and quality of life assessments were performed before and after treatment. In these studies, it was observed that with appropriate treatment, the disabilities in the daily lives of individuals decreased and their quality of life increased (13). In our study, the observation of statistically significant differences between the quality of life and depression levels of the BDI before and after treatment emphasises the effectiveness and importance of the treatment. Obtaining similar results with the literature supports the generalisability and reliability of the findings of this study.

CONCLUSION

As a result of the evaluations made on BPPV patients in our study, statistically significant differences were obtained between depression and quality of life levels before and after treatment at two different times. It was observed that the method applied to the people decreased depression and increased the quality of life. The beck depression scale and activities of daily living scale scales applied in this study helped to understand the causes of vertigo. It was observed that the appropriate treatment approach to the diagnosed patient increased the quality of life.

Acknowledgement: None.

Ethical Approval: Approval was obtained from the Üsküdar University Non-Interventional Research Ethics Committee (Decision No: 04, dated 26/04/2024).

Author Contributions: Idea/Concept: İ.İ., U.E.Ö., C.B.; Design: İ.İ., U.E.Ö., C.B.; Supervision: İ.İ., U.E.Ö., C.B.; Resources: İ.İ., U.E.Ö., C.B.; Materials: İ.İ., U.E.Ö., C.B.; Data Collection and/or Processing: İ.İ., U.E.Ö., C.B.; Analysis and/or Interpretation: İ.İ., U.E.Ö., C.B.; Literature Review: İ.İ., U.E.Ö., C.B.; Written: İ.İ., U.E.Ö., C.B.; Critical Reviews: İ.İ., U.E.Ö., C.B.

Conflict of Interest: There is no conflict of interest between authors.

Financial Disclosure: There is no financial support or funding for this study.

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