

RESEARCH ARTICLE

Psychological and cognition and quality of life in patients with vertigo

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ABSTRACT


Background: Assessment of the psychological, cognitive, and quality of life in the patients of vertigo helps to plan better management methods. **Aim and Objective:** The present study was designed to assess the psychological and cognition and quality of life in patients with vertigo. **Materials and Methods:** The study included 30 vertigo patients (cases) and 30 age- and gender-matched healthy participants (controls). Depression, anxiety, and stress were assessed using DASS 42 questionnaire. Spatial and verbal memory test was used to assess the cognition functions of the participants. Quality of life was assessed using the World Health Organization Quality of Life-BREF questionnaire which is standardized questionnaire by the World Health Organization. **Results:** Depression, anxiety, and stress levels were significantly higher in the vertigo patients when compared with healthy controls ($P < 0.0001$). Spatial ($P = 0.0008$) and verbal memory ($P < 0.0001$) scores were significantly lower in the vertigo patients when compared with healthy controls. All the four domains of quality of life were significantly decreased in the vertigo patients when compared with healthy controls ($P < 0.0001$). **Conclusion:** There was a significant increase in the negative emotions and significant decrease in the cognitive parameters and quality of life in the vertigo patients when compared with healthy controls.

KEY WORDS: Vertigo Patients; Cognitive Parameters; Quality of Life

INTRODUCTION

Maintenance of balance has an eminent role in the day-to-day life. It mainly depends on sensory inputs from the vestibular, proprioceptive, and visual impulses which are integrated at the brain stem and cerebellum. Vestibular system was the most important sensory system in the maintenance of posture and equilibrium.^[1] Vestibular system has extensive connections throughout the cortical and subcortical structures which enables

it to regulate the most of the body functions apart from the body posture. Hence, the vestibular system was considered as sixth sense. Patients with vertigo feel spinning or swaying movements.^[2-4] The prevalence of vertigo was more in elderly patients.^[5] Earlier studies have linked the psychological disorders with vestibular disorders. Excessive stress was reported to cause vestibular disturbances directly through secretion of cortisol or indirectly through release of neuroactive substances.^[6] Vestibular damage was reported to deteriorate the cognitive functions as functional magnetic resonance imaging studies have reported that there was atrophy of the hippocampus followed by the vestibular lesions.^[7] It was reported that the quality of life was decreases and even worsen in the patients of vertigo when compared with other disorders.^[8] Assessment of the psychological, cognitive, and quality of life in the patients of vertigo helps to plan better management methods. Hence, the present study was designed to assess the psychological and cognition and quality of life in patients with vertigo.

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MATERIALS AND METHODS

Study Design

This was an observational study.

Study Setting

The present study was conducted at Little Flower Hospital and Research Centre, Angamaly, Kerala, India.

Study Participants

The study included 30 vertigo patients (cases) and 30 age- and gender-matched healthy participants (controls). The following criteria were used in the selection of cases.

Inclusion and Exclusion Criteria

Vertigo patients within 30–50 years of age and those willing to participate in study were included in the study. Those with any severe complications and those not willing to participate were excluded from the study.

Assessment of Psychological Functions

Depression, anxiety, and stress were assessed using DASS 42 questionnaire.^[9]

Assessment of Cognition

Spatial and verbal memory test was used to assess the cognition functions of the participants.^[10]

Assessment of Quality of Life

Quality of life was assessed using the World Health Organization Quality of Life-BREF questionnaire which is standardized questionnaire by the World Health Organization.^[11,12]

Ethical Consideration

The study was approved by the Institutional Ethical Committee and informed consent was obtained from all the participants after explaining the details of the study and ensuring the confidentiality.

Data Analysis

Data were analyzed by SPSS 20.0. Unpaired *t*-test was used to observe the significance of difference between the groups. *P* < 0.05 was considered as statistically significant.

RESULTS

Results are presented in Tables 1 and 2. Depression, anxiety, and stress levels were significantly higher in the vertigo

patients when compared with healthy controls (*P* < 0.0001) [Table 1]. Spatial (*P* = 0.0008) and verbal memory (*P* < 0.0001) scores were significantly lower in the vertigo patients when compared with healthy controls. All the four domains of quality of life were significantly decreased in the vertigo patients when compared with healthy controls (*P* < 0.0001) [Table 2].

DISCUSSION

The vestibular system is the specialized system which relates our body to the gravity which is essential for survival. Although the basic function of vestibular system is to maintain balance, entire physiology of the body will be influenced by the vestibular system. Several studies narrated the link between the anxiety, depression, and vestibular disorders.^[13-16] Interestingly, it was reported that the mental disorders like anxiety can harm the vestibular system and lead to dizziness, vertigo, etc. Further, these patients when treated with antidepressants showed great improvement.^[17,18] This indicates to and fro influence of the psychological parameters with vestibular system. Further, it was reported that these emotional disorders were linked with impaired cognitive functions. It was reported that one of the underlying causes for the development of emotional disorders is the cognitive impairment.^[19] Changes in the emotions have also direct influence on the vestibular function as there are serotonergic projections from the raphe nucleus which will be projecting to the amygdala and vestibular nucleus. It was reported that vestibular lesions cause impairment in the cognition, emotions, and personality.^[20,21] The present study results are in accordance with earlier studies as we have observed higher scores of depression, anxiety, and stress in the patients with vestibular disorder when compared with healthy controls. Vestibular lesions were reported to impair the cognitive

Table 1: Psychological parameters among cases and controls

| Parameter | Cases | Controls | <i>P</i> value |
|------------|------------|------------|----------------|
| Depression | 22.0±5.25 | 14±2.26 | <0.0001*** |
| Anxiety | 19.25±3.84 | 8.77±2.86 | <0.0001*** |
| Stress | 24.34±5.71 | 16.48±3.44 | <0.0001*** |

****P*<0.001 is very highly significant

Table 2: Cognitive parameters and quality of life among cases and controls

| Parameter | Cases | Controls | <i>P</i> value |
|----------------------------|-------------|-------------|----------------|
| Spatial memory | 4.26±1.33 | 6.12±2.54 | 0.0008*** |
| Verbal memory | 3.41±0.18 | 5.88±1.27 | <0.0001*** |
| Physical health score | 38.64±7.46 | 62.12±12.16 | <0.0001*** |
| Psychological score | 43.27±4.89 | 58.33±9.74 | <0.0001*** |
| Social relationships score | 28.11±4.18 | 47.29±8.31 | <0.0001*** |
| Environmental score | 37.83±11.13 | 60.25±16.32 | <0.0001*** |

****P*<0.001 is very highly significant

functions such as learning, memory, and attention. It was reported that vestibular damage causes permanent destruction of the cognition processing areas that include both spatial and non-spatial functions.^[22]

Limitations

The sample size was less in the study and the study was conducted at one center. Hence, the results cannot be generalized.

CONCLUSION

There was a significant increase in the negative emotions and significant decrease in the cognitive parameters and quality of life in the vertigo patients when compared with healthy controls.

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