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Assessment of depression, anxiety, stress, and sleep in the vertigo patients

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Abstract--Background: Dysfunction of the vestibular system was linked with the development of psychological and sleep disorders. Vertigo is one of the most common clinical syndromes with a five percent prevalence in the adult population. Aim and Objective: To determine the depression, anxiety, stress, and sleep in vertigo patients. Material and Methods: A total of 50 male and female vertigo patients were part of the study after obtaining informed consent. Age and gender-matched 50 controls were also recruited. After recruitment, the participants underwent a general physical examination and filling out the questionnaires. Results: Age was not significantly different between the groups. Higher scores of depression were present in the cases when compared to the control group. Higher levels of anxiety were observed in the cases when compared with the

control group. Significantly higher levels of stress scores were observed in the cases when compared to the control group. Significantly higher scores of insomnia were observed in the cases when compared with the control group. Conclusion: The present study results explain that there were significantly higher scores of depression, anxiety, stress, and insomnia scores in the participants of the cases group when compared with the control group. There is a strong need to consider these parameters in the diagnosis of vertigo to improve the treatment outcomes.

Keywords---Vertigo, Anxiety, Vestibular system.

Introduction

Dysfunction of the vestibular system was linked with the development of psychological and sleep disorders.¹ Vertigo is one of the most common clinical syndromes with a five percent prevalence in the adult population.² The vestibular system is well connected with the areas of the brain that are involved in the regulation of stress and emotions. Hence, whenever there is dysfunction of the vestibular system, that leads to the development of excessive stress and emotional disturbances. These negative psychological states had an adverse effect on sleep; hence, sleep disorders develop in these patients. The major issue is that these negative psychological states have an adverse effect on the treatment outcome and also suppress the quality of life of an individual.³ Hence, there is a strong need to assess the depression, anxiety, stress, and sleep in the patients of vertigo along with the diagnosis. The studies in this area are limited in the literature. Hence, the present study was undertaken to assess depression, anxiety, stress, and sleep in vertigo patients.

Aim and Objectives

To determine the depression, anxiety, stress, and sleep in vertigo patients.

Material and Methods

Study design: Observational study.

Study setting: Indian Centre for Neuro-Physiology, Ujjain, Madhya Pradesh, India.

Study participants

A total of 50 male and female vertigo patients were part of the study after obtaining informed consent. Age and gender-matched 50 controls were also recruited. The study was approved by the institutional human ethical committee. The participants were recruited using the following criteria.

Inclusion criteria

Willing participants, diagnosed with vertigo, male and female participants within the age group of 30-80 years.

Exclusion criteria

Patients with severe complications were excluded from the study.

Methods

After recruitment, the participants underwent a general physical examination and filling out the questionnaires.

Assessment of depression, anxiety, and stress

Depression, anxiety, and stress scores were assessed using DASS 42 which is a standard questionnaire to assess the negative psychological effects.⁴

Assessment of sleep

Sleep scores were assessed using the insomnia severity index which is a standard questionnaire to assess insomnia.⁵

Ethical considerations

The present study protocol was approved by the institutional human ethical committee.

Statistical Analysis

Data was analyzed using SPSS 20.0. A student t-test was administered to assess the significance of the difference between the groups. A probability value less than 0.05 was considered significant.

Results

Results were presented in table no 1. Age was not significantly different between the groups. Higher scores of depression were present in the cases when compared to the control group. Higher levels of anxiety were observed in the cases when compared with the control group. Significantly higher levels of stress scores were observed in the cases when compared to the control group. Significantly higher scores of insomnia were observed in the cases when compared with the control group (table no 1).

Parameter	Cases (n=50)	Controls (n=50)	P value
Age (years)	55±1.70	58±0.99	0.13
Depression	26±0.87	16±0.98	<0.0001***
Anxiety	22±0.95	10±0.61	<0.0001***
Stress	26±0.75	18±0.69	<0.0001***
ISI score	24±0.65	16±0.4	<0.0001***

Data were presented as mean and SEM. ***P<0.001 is significant.

Discussion

The present study was undertaken to determine the depression, anxiety, stress, and sleep in vertigo patients. There were significantly higher levels of depression, anxiety and stress, and insomnia scores in the patients with vertigo when compared with the control group. Earlier studies reported that there is a significant increase in the prevalence of emotional and stress disorders in patients of vestibular dysfunction.⁶⁻⁸ At the same time there are few studies that reported

that there is no association between vestibular disorder and anxiety.^{9,10} The possible reason for the relation between the higher levels of anxiety and vestibular disorders is the connections between the vestibular system with the brain areas like the hypothalamus, amygdala, limbic system, and raphe nucleus, parabrachial nucleus, etc. All these structures are involved in the management of emotions.¹¹ The structures like the hippocampus undergo atrophy followed by the vestibular lesion.¹² Further, it was reported that there may be an increase in the levels of the neurotransmitters like serotonin, and nor-epinephrine levels followed by lesions of the vestibular system. These abnormal high neurotransmitters levels may lead to the development of anxiety and depression.¹³ It was reported that the prevalence of anxiety varies with the type of vestibular disorder. Further, genetic and environmental factors also have a role.¹⁴ Earlier studies reported that there is a need to assess the stress and anxiety levels during the diagnosis of vertigo. Management of these psychological parameters helps to improve the treatment outcome and quality of life of the individual. Earlier studies reported that comorbid psychological disorders have a negative impact on the quality of life.¹⁵⁻¹⁹ It was reported that there are sleep problems associated with vertigo.²⁰ The present study results are in accordance with the earlier studies as we have observed similar results and associations between vestibular dysfunction and depression, anxiety, stress, and sleep. Understanding these association helps to plan effective management strategies for vertigo and comorbid psychological disorders.

Limitations

The study results cannot be generalized as the study was conducted at one center. The sample size of the study was less.

Conclusion

The present study results explain that there were significantly higher scores of depression, anxiety, stress, and insomnia scores in the participants of the cases group when compared with the control group. There is a strong need to consider these parameters in the diagnosis of vertigo to improve the treatment outcomes.

Conflicts of interest: None

Source of funding: None

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