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The Clinical Study of Anti-Anxiety Drugs on Different Types of Vertigo Syndromes

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Abstract: Objective: To analyze the effectiveness of anti-anxiety drugs in patients with different types of vertigo syndromes. **Methods:** A study was conducted on 78 patients with vertigo syndromes admitted to our hospital from March 2022 to March 2024. The patients were randomly and evenly divided into a control group (39 cases) receiving conventional drug treatment and an observation group (39 cases) receiving combined anti-anxiety drug treatment. The clinical efficacy of the two groups was compared. **Results:** The observation group had significantly lower scores in SAS (Self-Rating Anxiety Scale), SDS (Self-Rating Depression Scale), cold sweat, nystagmus, and vertigo compared to the control group ($P < 0.05$). **Conclusion:** Administering anti-anxiety drugs to patients with different types of vertigo syndromes can effectively improve mental and psychological conditions, alleviate vertigo, and has promotional value.

Keywords: Anti-anxiety drugs; Vertigo syndromes; Anxiety; Treatment

After contracting a certain disease, patients may experience symptoms such as nausea and vomiting, spinning sensations, and dizziness, which compel them to keep their eyes tightly closed, fearing to open them. They may also perceive objects as shaking and feel changes in their body position, akin to being on a boat or vehicle, a condition known as vertigo syndrome. The onset of this condition not only causes physiological abnormalities but also increases the mental burden on patients, leading to heightened psychological stress. Anxiety is a common psychological disorder associated with vertigo, with varying frequency and severity. Clinical treatment should aim not only to alleviate vertigo symptoms but also to regulate emotions, relieve anxiety, improve overall health, and promote recovery. The condition is often treated with medication that can improve vertigo symptoms. However, there is currently limited research on the effects of anti-anxiety drugs in this context. This study focuses on patients with different types of vertigo syndromes to analyze the clinical efficacy of anti-anxiety drugs.

1. Materials and Methods

1.1 General Information

A study was conducted on 78 patients with vertigo syndromes admitted to our hospital from March 2022 to March 2024. The patients were randomly and evenly divided into a control group and an observation group, with 39 cases in each group. Control Group: 39 patients (14 males and 25 females), aged 41-76 years, with an average age of 58.61 ± 4.16 years.Observation Group: 39 patients (15 males and 24 females), aged 42-77

years, with an average age of 58.71 ± 4.09 years. The general information and disease types of the two groups were comparable ($P > 0.05$). The types of diseases are listed in **Table 1**.

Table 1 Comparison of Disease Types Between the Two Groups[$n(\bar{x} \pm s)$]

Disease Type	Total Cases (n = 78)	Observation Group (n = 39)	Control Group (n = 39)	x^2	P
Chronic subjective vertigo	8	5(62.50)	3(37.50)	1.000	0.317
VBI vertigo	8	5(62.50)	3(37.50)	1.000	0.317
Meniere's disease	8	4(50.00)	4(50.00)	/	/
Vestibular neuritis	8	4(50.00)	4(50.00)	/	/
Benign positional vertigo	46	21(45.65)	25(54.35)	0.696	0.404

1.2 Methods

1.2.1 Control Group

This group received conventional drug treatment: Betahistine was administered orally at a dose of 6 mg per dose, three times a day after meals, for a duration of 2 weeks.

1.2.2 Observation Group

This group received combined treatment with anti-anxiety drugs: Eszopiclone was initially administered at a dose of 1 mg per dose, taken orally three times a day. During the treatment, blood oxygen levels were monitored, and respiratory conditions were observed to adjust the dosage appropriately. The maximum dose was 1.2 mg, with the treatment lasting for 2 weeks.

1.3 Observational Items and Indicators

Evaluation of Psychological State: Anxiety was assessed using the SAS (Self-Rating Anxiety Scale), and depression was assessed using the SDS (Self-Rating Depression Scale).

Evaluation of Vertigo Improvement: The vertigo rating scale was used to assess improvement, including measures of cold sweat, nystagmus, and vertigo, each scored from 0 to 3.

1.4 Statistical Methods

Data were processed using SPSS 27.0. Measurement data were expressed as mean ± standard deviation (±s) and analyzed using the t-test. A P-value of less than 0.05 was considered statistically significant.

2. Results

2.1 Comparison of Psychological State Between the Two Groups

The SAS and SDS scores in the observation group were significantly lower than those in the control group after treatment ($P < 0.05$). Details are shown in **Table 2**.

Table 2 Comparison of Psychological State Between the Two Groups [$n(\bar{x} \pm s)$]

Group	Cases	SAS(points)		SDS(points)	
		Before Treatment	After Treatment	Before Treatment	After Treatment
Observation	39	57.38±2.46	27.18±3.52[a]	55.36±3.61	25.30±3.29[a]
Control	39	57.64±2.14	37.25±3.16[a]	55.41±3.28	35.43±4.09[a]
t	/	0.498	13.294	0.064	12.052
P	/	0.620	0.000	0.949	0.000

Note: Compared to pre-treatment within the same group, [a]$P < 0.05$.

2.2 Comparison of Improvement in Vertigo Between the Two Groups

The scores for cold sweat, nystagmus, and vertigo were significantly lower in the observation group compared to the control group after treatment ($P < 0.05$). Details are shown in **Table 3**.

Table 3 Comparison of Improvement in Vertigo Between the Two Groups[$n(\bar{x} \pm s)$]

Group	Cases	Cold Sweat (points)		Nystagmus (points)		Vertigo (points)	
		Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment
Observation	39	2.14±0.12	0.35±0.10[a]	2.03±0.11	0.32±0.10[a]	2.25±0.14	0.33±0.09[a]
Control	39	2.13±0.11	0.98±0.12[a]	2.04±0.10	0.89±0.13[a]	2.27±0.11	0.87±0.12[a]

Continuation Table:

Group	Cases	Cold Sweat (points)		Nystagmus (points)		Vertigo (points)	
		Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment
t	/	0.384	25.187	0.420	21.704	0.702	22.482
P	/	0.702	0.000	0.676	0.000	0.485	0.000

Note: Compared to pre-treatment within the same group, $^{a}P < 0.05$.

3. Discussion

Vertigo syndromes are relatively common and can be triggered by external factors, leading to a sudden onset of vertigo. There are various types of vertigo syndromes, including VBI (vertebrobasilar insufficiency) vertigo and vestibular neuritis. Prior to an episode, patients often do not have specific premonitory sensations, and the onset time can be related to multiple factors such as the environment, underlying diseases, and physical condition. Episodes can last from a few minutes to several hours, with symptoms like nausea and vertigo. In severe cases, it can impair motor abilities and lead to falls.When vertigo occurs, the vestibular nerve tissues fail to function normally, leading to frequent episodes and functional impairments. Patients experience physiological discomfort and psychological disturbances, resulting in anxiety that threatens their health and safety.

Vertigo is often accompanied by anxiety and depressive moods. Wihink et al. pointed out that the incidence of anxiety in vertigo patients is high, with at least one form of anxiety present in many patients. The connection between vertigo and anxiety is significant. Whether in the brainstem region or the vestibular nerve nucleus, including the limbic system, any disruption in the balance mechanism can trigger anxiety.Goto et al. noted that anxiety affects vestibular sensory input and visual input, leading to postural instability along the anteroposterior axis . Studies have shown that the vestibular nuclei are closely linked to emotion-related nuclei through neural pathways. These include the lower marginal cortex, dorsal raphe nucleus, and paraventricular nucleus, among others. There are also connections with the dentate gyrus and hippocampus. For instance, the locus coeruleus has bidirectional fiber projections with the vestibular nuclei and releases norepinephrine (NE), a key substance in anxiety. Located in the pontine tegmentum, the locus coeruleus contains a large group of NE cells whose fibers are connected to almost all neural pathways, exerting a regulatory role. The locus coeruleus is implicated in both anxiety responses and panic attacks, influencing vestibular function in a bidirectional manner with the vestibular nuclei.Thus, treating vertigo effectively requires not only addressing the physiological symptoms but also managing the associated anxiety to improve overall health outcomes. The study confirms that integrating anti-anxiety medications in the treatment regimen can significantly alleviate both the psychological and physical symptoms of vertigo, leading to better patient outcomes.

The primary treatment for this condition is pharmacotherapy, generally involving anti-vertigo medications that can alleviate symptoms. Betahistine tablets are typically chosen for oral administration. The drug can enter the vestibular tissue through blood circulation, thus reducing vertigo. Betahistine is a potent anti-vertigo and antiemetic medication effective in preventing and treating nausea, vomiting, and vertigo of various origins, including motion sickness. It works by acting on spasmodic blood vessels, promoting their dilation, which increases blood flow in the vertebrobasilar arteries, thereby regulating the vestibular nervous system. This regulation can inhibit vestibular vertigo impulses, alleviate nausea and vomiting, effectively suppress vomiting, and reduce nystagmus. Studies have shown that betahistine is effective in treating vomiting and vertigo regardless of the underlying cause .

While betahistine can improve vertigo, it does not address anxiety, limiting its overall efficacy. Introducing anti-anxiety drugs can enhance norepinephrine levels and improve dopamine levels, thereby improving the functioning of the circulatory and autonomic nervous systems and effectively countering vertigo. Combining anti-anxiety medications can yield significant results for patients with different types of vertigo. Several reasons support this combination therapy:Interference with Emotional State: The vestibular nerve can affect patients' emotions, leading to anxiety.Dopamine

Pathway Involvement: Anxiety can exacerbate vertigo through the dopamine pathway and monoaminergic nervous function.Dual Effects of Anti-Anxiety Medication: These drugs can alleviate negative emotions and reduce vertigo symptoms.In this study, eszopiclone, a short-acting benzodiazepine (BDZ) class drug, was used. Eszopiclone is a psychiatric prescription medication known for its hypnotic, sedative, anticonvulsant, anxiolytic, and muscle-relaxant properties. As a new benzodiazepine receptor (BZR) drug, its pharmacological effects are similar to those of diazepam, but it has a more pronounced anxiolytic effect. It can significantly improve negative emotions such as depression, restlessness, and tension, treat epilepsy, and improve stubborn insomnia. The mechanism of action is likely influenced by GABA receptors in the central nervous system. Eszopiclone is fully and rapidly absorbed when taken orally, with peak blood concentration reached quickly. The plasma half-life is 10-24 hours, and steady blood drug concentration is achieved within 2-3 days of administration, with approximately 93% binding to plasma proteins. After absorption, it rapidly distributes throughout the body. The study results showed that the SAS, SDS, cold sweat, nystagmus, and vertigo scores in the observation group were significantly lower than those in the control group ($P < 0.05$), indicating that combining anti-anxiety drugs can relieve vertigo, regulate anxiety, and enhance therapeutic efficacy.

In conclusion, administering anti-anxiety drugs to patients with different types of vertigo syndromes can effectively improve mental and psychological conditions, alleviate vertigo, and has significant clinical value.

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