



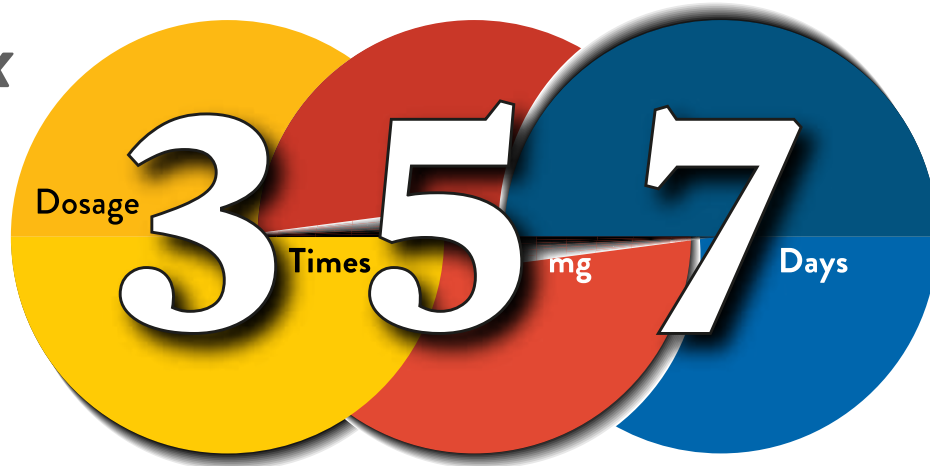
IN DIZZINESS# WITH NAUSEA-VOMITING, ANXIETY

Stemetil MD

Prochlorperazine maleate 5mg Mouth Dissolving tablets

Faster Relief, Better Control

Rx



Vestibular compensation takes up to 7 days for completion¹

AVAILABLE AS



Mouth dissolving tablet²



Inj 12.5 mg (for acute cases)²

Abridged Prescribing Information

Stemetil MD (Prochlorperazine mouth dissolving tablets)

Composition: Each tablet contains: Prochlorperazine maleate 5mg I.P.

Indications: Symptomatic treatment of vertigo due to Meniere's syndrome, labyrinthitis and other causes; nausea and vomiting of any aetiology, including that associated with migraine; in the treatment of schizophrenia, acute mania and as an adjunct in short term management of anxiety. **Dosage and Administration:** *Prevention of nausea and vomiting:* 5-10 mg twice or thrice daily. *Treatment of nausea and vomiting:* 20 mg stat followed, if necessary, by 10 mg two hours later. *Vertigo and Meniere's syndrome:* 5 mg thrice daily increasing, if necessary, to a total of 30 mg daily. After several weeks dosage may be reduced gradually to 5-10 mg daily. *Prevention of migraine:* 5 mg three or four times daily. *Treatment of migraine:* 20 mg stat, followed by 10 mg two hours later, if required. *Schizophrenia and other psychotic disorders:* Treatment varies depending on the condition. *Adjunct in the short term management of anxiety:* 15-20 mg daily in divided doses initially, but this may be increased, if necessary, to a maximum of 40 mg daily in divided doses. **Contraindications:** Hypersensitivity to phenothiazines or history of narrow angle glaucoma. **Precautions and Warnings:** Keep out of reach of children. Should be used with caution in elderly patients. To avoid in patients with renal and hepatic dysfunction, epilepsy, Parkinson's disease. To be avoided in pregnancy unless the treating Physician considers it essential. Nursing mothers: Breast-feeding should be suspended. **Adverse effects:** Generally well tolerated. Transient drowsiness, mild skin reactions, liver dysfunction, postural hypotension, extrapyramidal symptoms and rarely cardiovascular disorders have been reported. **Presentation:** 5 mg of Mouth Dissolving tablets: Strip of 10 tablets.

1. Curthoys et al. 1998. Vestibular Compensation. Therapy. Adv. Otorhinolaryngol. Basel, Karger, 55-82-110 2. Prochlorperazine. Prescribing Information. 2015 #OfVertiginous Origin

Please read the full prescribing information before usage.

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An Update on the Treatment of Vertigo and Dizziness

ASHOK K GUPTA

ABSTRACT

Balance disorders are manifested typically with symptoms of dizziness and vertigo. Accurate diagnosis still poses a major challenge in the management of the disease. The various treatment options available for the management of vertigo and dizziness include the treatment of underlying vestibular disease, treatment of the symptoms and aim to promote recovery of the patient. The present article reviews original research articles, systematic reviews and meta-analyses to present a detailed update on the current and new treatment strategies and modalities.

Keywords: Vertigo, dizziness, balance disorder, disease-specific treatment, vestibular therapy, symptomatic treatment, prochlorperazine, cinnarizine, betahistine.

Balance disorders occur due to various diseases and are typically presented with symptoms of dizziness and vertigo.¹ They also form one of the most common reasons for seeking medical help. Acute dizziness and vertigo also require interdisciplinary cooperation.²

Vertigo is not a well-defined disease; however, symptoms can occur in heterogeneous entities diagnosed and treated primarily by the involvement of otolaryngologists, neurologists, internal medicine and primary care physicians.³ Dizziness is a common symptom frequently with benign causes; however, some causes may be potentially life-threatening. One of the major challenges in the management of dizziness is accurate diagnosis due to lack of dedicated vestibular labs and injudicious use of vestibular suppressant medications.⁴

METHODOLOGY

PubMed, Cochrane database and Google Scholar were the databases used for the literature search. The search strategy included a combination of 'key word search' and 'backward chronological search'. The search terms included dizziness, vertigo, epidemiology, prevalence, incidence, treatment, management, diagnosis, guidelines. Boolean operators were used for the search. Twenty-three original research articles, systematic

reviews and meta-analyses were included for the development of this review (Table 1).

MANAGEMENT OF VERTIGO AND DIZZINESS

Appropriate management of vertigo requires correct diagnosis which includes identifying the origin of dizziness as a problem with the vestibular system and then determining the site and origin of that problem. The treatment of vertigo is classified into three categories:³

- ⊕ Specific to the underlying vestibular disease
- ⊕ Aimed at alleviating the symptoms of vertigo
- ⊕ Aimed at promoting recovery.

Disease-specific Treatments

There are various conditions which lead to vertigo affecting either the peripheral vestibular apparatus in the inner ear or the central nervous system. In many conditions, the treatment of the underlying condition successfully improves the symptoms while in some cases the symptoms are not improved but the treatment is important for overall prognosis of the patient.³

The different conditions in which the disease-specific treatment is helpful in diminishing the symptoms or in altering the disease course are:³

- ⊕ Vestibular neuritis
- ⊕ Vestibular migraine
- ⊕ Benign paroxysmal positional vertigo
- ⊕ Meniere's disease
- ⊕ Multiple sclerosis
- ⊕ Vertebrobasilar ischemia

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Table 1. Literature Search Strategy

| Databases | Search terms | Result | Comments |
|----------------------------------|--|--|---|
| PubMed, Cochrane, Google Scholar | Treatment of vertigo, management of vertigo, treatment of dizziness, management of dizziness, pharmacotherapy of vertigo and dizziness | 23 Original research articles + systematic reviews + meta-analyses | Published literature corresponding only to human subjects and in English language were selected |

- Herpes zoster
- Perilymphatic fistula
- Vestibular schwannoma
- Superior canal dehiscence
- Episodic ataxia type 2
- Cogan’s syndrome.

Symptomatic Treatment

Medications are used to suppress vestibular symptoms and are effective in alleviating acute episodes of vertigo lasting at least a few hours or days. However, these drugs are not beneficial in the treatment of very brief episodes of vertigo except in those cases where the frequency of symptoms is very high. There are three general classes of drugs used to suppress the vestibular system:⁵

- Antihistamines such as meclizine, dimenhydrinate, diphenhydramine
- Benzodiazepines such as diazepam, lorazepam, clonazepam, alprazolam
- Antiemetics such as prochlorperazine, promethazine, domperidone, ondansetron.

These medications are effective in ameliorating vertigo, particularly in the acute setting.

Antihistamines are considered to be the drug of choice in most patients, with meclizine being the drug of choice in pregnant women.⁶

Benzodiazepines are sedating in nature and are generally used when antihistamines do not produce the desired results.³

The phenothiazine antiemetics (especially prochlorperazine and promethazine) are also sedating and are specifically reserved for patients with severe vomiting. In a study conducted to compare the efficacy of cinnarizine ± head exercises with prochlorperazine ± head exercises, it was seen that prochlorperazine resulted in subjective improvement in more patients, it had fewer side effects and response to the treatment was also reported to be more in cases with vertigo of peripheral origin.⁷

In another double-blind crossover trial, comparing therapeutic effects of prochlorperazine and betahistine on patients with confirmed Meniere’s disease, the two were found to be of equal efficacy based on the reduction in the number of vertigo attacks.⁸

Symptomatic treatments are only given till the cessation of severe symptoms and vomiting (usually within 1-2 days). This is significant to prevent compromising long-term adaptation to vestibular loss by the brain.⁹ Certain animal studies have also shown benzodiazepines and antiemetics to be associated with impaired central vestibular compensation.⁵

Drugs such as cinnarizine and flunarizine have been used as antivertigo drugs and prevent motion sickness and are used as vestibular depressants. These drugs also possess anticholinergic, antihistaminergic and antidopaminergic action.¹⁰

A list of commonly used therapeutic drugs used for vertigo is given in Table 2.^{7,11}

Vestibular Rehabilitation

Central nervous system compensation has been shown to guide clinical recovery following peripheral vestibular injury occurring in advance of improved peripheral vestibular function in human and animal models.^{5,12-14} The primary target of vestibular rehabilitation is central compensation and an early rehabilitation is found to be more effective than late intervention.¹⁵⁻¹⁷

Physical Therapy

Physical therapy has been cited to play a pivotal role in the contemporary management of vertigo and imbalance. Physical therapy has been found to be one of the most efficacious modalities in the management of balance disorders, based on the advancements in the understanding of vestibular physiology and how it changes in different diseases. Organ-targeted physiotherapy has shown remarkable improvement in different measures, particularly in cases where defective sense organs were specifically stimulated. Virtual reality exercises have also shown promising results in patients of psychogenic vertigo.¹⁸

Table 2. Commonly Used Drugs for Vertigo

| Drugs | Dose and duration | Mechanism of action | Side effects | Effects on vestibular compensation |
|------------------|-----------------------|--|--|-------------------------------------|
| Cinnarizine | 75 mg/day for 3 days | Selective calcium channel blocker, acts largely on the peripheral vestibular labyrinth by affecting local calcium ion flux. Lowers whole blood viscosity Is effective for vertiginous syndrome caused by over-reactivity or unbalanced activity of labyrinthine apparatus in the inner ear. Suppresses the eye movement response or nystagmus | Sedation Pedal edema Extrapyramidal disorders | Delays vestibular compensation |
| Betahistine | 48 mg/day, 3-6 months | Increases cochlear and vestibular blood flow Increases histamine turnover in the central nervous and vestibular system Increase in the level of histamine in damaged vestibular nuclei reduces inhibition by intact vestibular nuclei by H3 hetero-antagonistic action | Mild side effects including gastrointestinal complaints, fatigue and altered taste | Facilitates vestibular compensation |
| Prochlorperazine | 10-15 mg/day | Decreases abnormal excitement in the brain No effect upon any measure of nystagmic or perceptual vestibular function | Mild sedation Dry mouth | Delays vestibular compensation |
| Diazepam | 5 mg/ 6-8 hours | Causes inhibition throughout the central nervous system, including activity in the vestibular nerve and vestibular nuclei | Drowsiness Dizziness Respiratory depression | Delays vestibular compensation |

Source: Kameswaran M, Sarda K. Therapeutic interventions in vertigo management. *Int J Otorhinolaryngol Head Neck Surg.* 2017;3(4):777-85.

There are several potential benefits of vestibular rehabilitation exercises.^{19,20}

- Activity promotes adaptation
- Activity facilitates strategic substitution
- Inactivity has secondary negative effects.

Osteopathic Manipulative Treatment

In 2013, it was reported by Fraix et al²¹ that osteopathic manipulative treatment (OMT) can improve balance in patients with chronic dizziness. It has also been reported that OMT is typically successful in managing benign paroxysmal positional vertigo (BPPV) by repositioning maneuvers such as Epley maneuvers, Semont maneuvers, home exercises, etc. and sometimes with medication. OMT could also be helpful in the treatment of refractory BPPV.²²

SURGERY

As per the current literature, surgical intervention is indicated in slightly more than 1% of the patients at specialist hospitals.²³ Surgical procedures are recommended as an only remaining alternative in patients who suffer from defined vertigo symptoms after exhaustion of pharmaceuticals as well as other conservative treatments and who are facing severely

impaired quality-of-life. Before attempting surgical therapy, the diagnosis has to be accurate and a sufficiently long conservative treatment should be given to the patient.²⁴

Generally, function preserving procedures are preferred, if possible. For patients with Meniere's disease, saccus surgery is an effective method with minimal side effects and can also be repeated if required. The occlusion of the respective semi-circular canal is reported to be beneficial in cases of BPPV. In case of a suspected erosion of a semi-circular canal due to cholesteatoma or acute inflammatory disease of the mastoid, surgery is immediately needed.²⁴

AN INDIAN PERSPECTIVE

A multicenter, prospective, registry was conducted in adult patients across 37 centers in India to evaluate the clinicoetiological pattern and pharmacotherapy practices of new onset vertigo. The study results revealed that vestibular vertigo, BPPV are the dominant type in Indian patients with new onset vertigo. Betahistine and prochlorperazine were found to top the physician's preference list with equal benefits and safety profile in preventing recurrence. With an additional antinausea and antiemetic

property, prochlorperazine was stated to have an added advantage in vertigo management and also in improving the patient satisfaction.²⁵

CONCLUSION

It is important to note here that in acute vertigo syndromes, the ear, nose and throat (ENT) physician plays a special role and responsibility in the interdisciplinary work-up, since ontological disorders are the most common causes of vertigo and dizziness. In any case, an ENT consultation is warranted. Appropriate management of vertigo requires the correct diagnosis. The treatment of vertigo is classified into 3 categories - specific to the underlying vestibular diseases, aimed at alleviating the symptoms of vertigo and aimed at promoting recovery. In nonpharmacological therapy, physical therapy has been cited to be one of the most efficacious modalities in the management of balance disorders. A multicenter prospective registry reported that in India, prochlorperazine and betahistine are the two most preferred drugs in the management and prevention of recurrence of vertigo and episodes of dizziness.

REFERENCES

- Bouccara D, Rubin F, Bonfils P, Lisan Q. Management of vertigo and dizziness. *Rev Med Interne*. 2018 Feb 26. pii: S0248-8663(18)30040-7. [Epub ahead of print]
- Löhler J, Eßer D, Wollenberg B, Walther LE. Management of acute vertigo and dizziness: Patients in emergency departments in Germany. *HNO*. 2018;66(6):472-479.
- Furman JM, Barton JJS. Treatment of vertigo. 2015. Available at: https://www.uptodate.com/contents/treatment-of-vertigo?search=treatment%20of%20vertigo&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1. Accessed on June 6, 2018.
- Das S, Chakraborty S, Shekar S. Dizziness in a tertiary care centre in Sikkim: our experience and limitations. *Indian J Otolaryngol Head Neck Surg*. 2017;69(4):443-8.
- Strupp M, Arbusow V, Brandt T. Exercise and drug therapy alter recovery from labyrinth lesion in humans. *Ann N Y Acad Sci*. 2001;942:79-94.
- Leathem AM. Safety and efficacy of antiemetics used to treat nausea and vomiting in pregnancy. *Clin Pharm*. 1986;5(8):660-8.
- Singh AK, Chaturvedi VN. Prochlorperazine versus cinnarizine in cases of vertigo. *Indian J Otolaryngol Head Neck Surg*. 1998;50(4):392-7.
- Aantaa E, Skinhoj A. Controlled clinical trial comparing the effect of betahistine hydrochloride and prochlorperazine maleate on patients with Menière's disease. *Ann Clin Res*. 1976;8(4):284-7.
- Baloh RW. Clinical practice. Vestibular neuritis. *N Engl J Med*. 2003;348(11):1027-32.
- Singh KR, Singh M. Current perspectives in the pharmacotherapy of vertigo. *Otorhinolaryngol Clin Int J*. 2012;4(2):81-5.
- Kameswaran M, Sarda K. Therapeutic interventions in vertigo management. *Int J Otorhinolaryngol Head Neck Surg*. 2017;3(4):777-85.
- Dieterich M, Brandt T. Functional brain imaging of peripheral and central vestibular disorders. *Brain*. 2008;131(Pt 10):2538-52.
- zu Eulenburg P, Stoeter P, Dieterich M. Voxel-based morphometry depicts central compensation after vestibular neuritis. *Ann Neurol*. 2010;68(2):241-9.
- Parietti-Winkler C, Gauchard GC, Simon C, Perrin PP. Long-term effects of vestibular compensation on balance control and sensory organisation after unilateral deafferentation due to vestibular schwannoma surgery. *J Neurol Neurosurg Psychiatry*. 2010;81(8):934-6.
- Helmchen C, Klinkenstein JC, Krüger A, Gliemroth J, Mohr C, Sander T. Structural brain changes following peripheral vestibulo-cochlear lesion may indicate multisensory compensation. *J Neurol Neurosurg Psychiatry*. 2011;82(3):309-16.
- Hillier SL, Hollohan V. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. *Cochrane Database Syst Rev*. 2007;(4):CD005397.
- Bamiou DE, Davies RA, McKee M, Luxon LM. Symptoms, disability and handicap in unilateral peripheral vestibular disorders. Effects of early presentation and initiation of balance exercises. *Scand Audiol*. 2000;29(4):238-44.
- Biswas A, Barui B. Specific organ targeted vestibular physiotherapy: The pivot in the contemporary management of vertigo and imbalance. *Indian J Otolaryngol Head Neck Surg*. 2017;69(4):431-42.
- Mathog RH, Peppard SB. Exercise and recovery from vestibular injury. *Am J Otolaryngol*. 1982;3(6):397-407.
- Schubert MC, Minor LB. Vestibulo-ocular physiology underlying vestibular hypofunction. *Phys Ther*. 2004;84(4):373-85.
- Fraix M, Gordon A, Graham V, Hurwitz E, Seffinger MA. Use of the SMART Balance Master to quantify the effects of osteopathic manipulative treatment in patients with dizziness. *J Am Osteopath Assoc*. 2013;113(5):394-403.
- Tegeler L, Blumer J. OMT may be helpful in the management of benign paroxysmal positional vertigo. *J Am Osteopath Assoc*. 2018;118(1):51-2.
- Patnaik U, Srivastava A, Sikka K, Thakar A. Surgery for vertigo: 10-year audit from a contemporary vertigo clinic. *J Laryngol Otol*. 2015;129(12):1182-7.
- Volkenstein S, Dazert S. Recent surgical options for vestibular vertigo. *GS Curr Top Otorhinolaryngol Head Neck Surg*. 2017;16:Doc01.
- Kameswaram M, Pujari S, Singh J, Basumatary LJ, Sarda K, Pore R. Clinicoetiological pattern and pharmacotherapy practices in patients with new onset vertigo: findings from a prospective multicentre registry in India. *Int J Otorhinolaryngol Head Neck Surg*. 2017;3(2):404-13.