

Bilateral Vestibular Loss

Author: April Hodge, PT, DPT

Fact Sheet

Produced by



A Special Interest
Group of



Contact us:

ANPT

5841 Cedar Lake Rd S.

Ste 204

Minneapolis, MN 55416

Phone: 952.646.2038

Fax: 952.545.6073

info@neuropt.org

www.neuropt.org

a component of



What is Bilateral Vestibular Loss?

Bilateral vestibular loss (BVL) is commonly a side effect of ototoxic medication or may be a secondary effect of other pathologies including meningitis, bilateral tumors, or Paget's disease. A patient with BVL will experience decreased balance, presenting as gait ataxia and a widened base of support. Complaints of blurry vision or oscillopsia with head movements and gait accompany postural instability. This combination of instability and visual impairment causes poor activity tolerance, which in turn can lead to increased fear of falling and a more sedentary lifestyle.¹ Patients with BVL are at a higher fall risk than the normal population.²

Ototoxicity can be a side effect of multiple drug groups such as

aminoglycosides, anti-neoplastics, environmental chemicals, or loop diuretics. The most common cause of BVL is from ototoxic medication such as gentamicin, which may damage the hair cells of the ampulla.¹ The effects of ototoxicity can vary from hearing loss and ringing in the ear to severe imbalance and impaired walking. The damage caused cannot be reversed, but the resulting impairments can be assessed and treated. Loss of function may be gradual, and patients can continue to lose function even after the medication has been discontinued.¹

Partial versus Total Loss of the Vestibular System

It is important to assess whether a patient has any remaining vestibular function. This will guide treatment and predict recovery. A patient who has experienced a partial loss of vestibular function can be treated with vestibular adaptation exercises. Treatment for patients with a complete loss in function focuses on compensation and substitution using the visual and somatosensory systems. These individuals have reported difficulty walking in the dark, driving, or participating in sports.¹

The Road to Recovery: Do These Patients Get Better?

Recovery is possible and seems to depend on initial disability, early treatment, and level of activity. Patients with less initial disability and earlier treatment have been shown to have better recoveries than those who are sedentary.¹ Patients with comorbidities such as peripheral neuropathy, macular degeneration, or glaucoma have a limited potential for full recovery.¹ It has been found that this patient population does respond well to physical therapy.³ Herdman et al found that patients with bilateral vestibular hypofunction demonstrated significant improvements in dynamic visual acuity after performing vestibular exercises.⁴ Recent research has also revealed that it is possible for patients with little to no vestibular function to return to such tasks as driving.⁵ It should be noted that recovery following BVL is slow and can span a 2-year period.¹

Why Should I Refer These Patients To Physical Therapy?

A physical therapist specializing in vestibular rehabilitation would be the best referral for this complex patient population. Determining the appropriate treatment progression through a combination of gaze stabilization exercises, balance re-education, and compensatory strategies is best done by an experienced physical therapist.

References

1. Herdman SJ. Vestibular Rehabilitation. 2nd ed. Philadelphia: F.A. Davis Company; 2000.
2. Herdman SJ, Schubert MC, Tusa RJ. Strategies for balance rehabilitation: fall risk and treatment. *Ann N Y Acad Sci.* 2001; 942: 394-412.
3. Brown KE, Whitney SL, Wrisley DM, Furman JM. Physical therapy outcomes for persons with bilateral vestibular loss. *Laryngoscope.* 2001;111(10): 1812-7.
4. Herdman SJ, Hall CD, Schupert MC, Tusa RJ. Recovery of dynamic visual acuity in bilateral vestibular hypofunction. *Arch Otol Head Neck Surg.* 2007; 133(4): 383-9.
5. MacDougall HG, Moore ST, Black RA, Jolly N, Curthoys IS. On-road assessment of driving performance in bilateral vestibular-deficient patients. *Ann N Y Acad Sci.* 2009 May; 1164: 413-8.

Produced by



**a Special Interest
Group of**



a component of

