Cervical Vertigo: Implications In Practice

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Abstract

Vertigo and non-vestibular dizziness are the most common complaints in about 20-30% of patients. The various causes of vertigo are sometimes difficult and require careful examination. Some patients suspect that the cause is a pathological process in the cervical vertebrae, known as cervical vertigo. The diagnostic challenges of cervical vertigo are considerable because dizziness and neck pain are common symptoms with complex and multifactorial causes. Some studies related to cervical vertigo are still limited by the lack of defined diagnostic criteria. Through this review article, it is hoped that the diagnosis of cervical vertigo can still be a consideration after eliminating other causes of vertigo. So that patients can get the best management of their complaints.

Keywords: Cervical vertigo, Dizziness, Whiplash injury, Neck pain, Cervical spondylosis, Manual therapy, Vestibular rehabilitation

1. Introduction

Cervical vertigo is vertigo caused by disorders of the cervical spine. In this narrative review, we summarize the ideas and clinical evidence for cervical vertigo according to the current literature. Cervical vertigo is primarily diagnosed based on patient symptoms and specific clinical trials. Before cervical vertigo occurs, neurological, vestibular, and psychosomatic disorders should be excluded.[1] The primary clinical challenge in diagnosing cervical vertigo is that the symptoms of neck pain and dizziness can be confused with those of other pathologies. Doctors can detect the same symptoms as those associated with psychogenic dizziness and migraines.[2]

2. Etiology

2.1 Degenerative cervical spine disorders (DCD)

Cervical spondylosis is a degenerative cervical spine disorder. The word ‘cervicogenic dizziness’ is more commonly used than ‘cervicogenic vertigo’. Dizziness without an obvious cause is more commonly reported by DCD patients than vertigo. Human experiments and research show that the cervical joint plays a part in posture maintenance and contributes to cervicogenic dizziness. DCD may affect people at any age, but more frequent in the elderly. Nonspecific dizziness is commonly episodic, lasting for a few minutes into several hours. Neck twisting is the most common cause of dizziness in people with DCD. The other characteristics of

people with DCD are sore neck, shoulder pain, headache, radiculopathy, or myelopathy.[3]

2.2 Barre–Lieou syndrome (BLS)

Barre and Lieou suggested the neurovascular hypothesis of cervicogenic dizziness in 1926, attributing vertigo to symptoms associated with acute intracerebral ischemia triggered by sympathetic fiber compression caused by cervical joint disease. Clinically, it is difficult to differentiate BLS from dizziness caused by proprioceptive disorders in DCD, and there are no clear diagnostic methods available. Diagnosis of BLS can be made when dizziness is followed by radiological features such as cervical degenerative changes that improve with treatment and recovery of the cervical joint.[3]

2.3 Whiplash-associated disorders

Whiplash-associated disorders (WAD) are commonly identified in patients who have suffered neck injuries as a result of accelerated / decelerated neck movement and commonly as a result of traffic accidents. While neck pain is the most commonly reported symptom, neck stiffness, dizziness, paresthesia / anesthesia in the upper quadrant, headache, and arm pain are also frequently reported. Neck pain has been related to disability, decreased quality of life, and psychological distress. Because WAD is often a compensatory injury, it is a contentious disorder, with some even denying its existence. This is amid a wealth of data indicating physical and psychological manifestations of management implications.[4]

2.4 Bow hunter’s syndrome

Bow hunter’s syndrome is a condition characterized by vertebrobasilar insufficiency that manifests as symptoms associated with head rotation. Positional vertigo, dysarthria, dysphagia, nausea, and syncope are also possible symptoms. The symptoms are induced by transient compression of the vertebral artery caused by rotation of the contralateral head, most often the dominant vertebral artery. The majority of cases recorded included compressive osteophytic lesions between C4-5, C5-6, or C6-7 that were treated with or without anterior decompression. Latest studies including intraoperative angiography to ensure sufficient decompression and backflow to the affected vertebral artery, although this procedure is essentially the same as performing postoperative angiography. Osteophytes compressing the vertebral artery at the C1-2 stage respond well to posterior C1-2 decompression.[3,5,6]

2.5 Beauty parlor stroke syndrome

Beauty parlor stroke syndrome (BPSS), caused by the development of vertebrobasilar ischemia and infarction. Symptoms of sensory disturbances, hemiparesis, dizziness, tinnitus, headache, nausea, hemiparesis, and nystagmus have been reported in individuals whose heads hang back while sitting and have their hair washed in beauty salons.[7]

2.6 Cervical myofascial pain syndrome

Cervical myofascial pain syndrome is a condition that manifests as acute or chronic regional pain that originates in a muscle or fascia trigger point. It is commonly lead into disability. Trigger points are localized areas of pain that are highly irritable, sensitive to finger pressure, and cause the typical referred pain. This syndrome is characterized by autonomous phenomena, fatigue, anxiety, and depression.[8] Various psychological and emotional factors play a role in the symptoms of cervical myofascial pain syndrome. Cervical myofascial pain syndrome localized to the cervical and upper thoracic muscles is common and a proper diagnosis should show a trigger point for muscle weakness and spasm.[8]

3. Anamnesis

Cervical vertigo is diagnosed by defining the symptoms and onset. If the patient had a history of neck pathology followed by vertigo symptoms, cervical vertigo should be considered; otherwise, if there is no neck pathology, other causes of vertigo should be investigated. Neck pathology may manifest as neck pain that occurs while resting, moving, or during the examination. Cervical vertigo worsens with neck pain-inducing movements and improves when neck pain is alleviated. When diagnosing cervical vertigo, the patient's history must be carefully investigated to assess the most likely cause. Additionally, it is important to inquire about the severity of the patient's "vertigo" or "dizziness." Any cardiovascular risk factors, a history of migraines, tinnitus or aura symptoms, oscillopsia, and symptoms that are aggravated by exercise, changes in position, a busy environment, or certain activities should be examined.[9]

Cervical vertigo symptoms last from months into years, and each attack lasts between a few minutes and several hours. This will aid the clinician in identifying the condition from other potential pathologies. There are many differential diagnoses that often lead clinicians to question the existence of cervical vertigo in daily practice, including Meniere's disease and Benign Paroxysmal Positional Vertigo (BPPV). However, there are some distinct distinctions between it and cervical vertigo.[9]

Ménière disease is a chronic vestibular disorder that characterized by episodic attacks, ear fullness, vertigo,

and hearing loss. Cervical vertigo is not associated with a sense of fullness in the ears, tinnitus, or hearing loss. The most common vestibular condition is benign paroxysmal positional vertigo (BPPV). Vertigo associated with changes in the location of the head relative to gravity is a symptom of BPPV. BPPV-related vertigo is followed by nystagmus. If vertigo symptoms are associated with nystagmus and affected by head position changes, the risk of cervical vertigo decreases, and it requires further testing to confirm diagnose of BPPV. Neck movement, exhaustion, anxiety, and stress are the most common causes of cervical vertigo symptoms exacerbation. There were no complaints of tinnitus or hearing loss with cervical vertigo. Patient symptoms can help identify between balance disorders and cervical vertigo.[9]

4. Diagnosis

Reid et.al.[10] reported neck stiffness and / or neck pain, and on had cervical spinal dysfunction as their criterion, whereas Alund et al.[11] mentions “neck pain and local stiffness”. The diagnose of cervical vertigo is considered when other causes have been excluded. BPPV-associated vertigo is often similar to cervical vertigo. Vestibular disorders should be excluded, before suspecting a cervical vertigo.[12] [13] The Dix-Hallpike test is one of the examination that may help to conclude the diagnose. The patient is seated on the bed, and the examiner then rotates the patient’s head 45 degrees to the right. The patient is then positioned so that his or her head hangs approximately 15-20 degrees below the bed’s flat surface. Nystagmus may found in the patient. The patient then told to sit up straight again. Nystagmus elicits a positive response.[14]

Complaints that sometimes manifest as pain in the back of the neck and occipital area, sometimes followed by neck stiffness. Certain patients may be unaware of neck pain before neck manipulation is performed. Vertigo, tenderness in the suboccipital region, cervical transverse processes C1 and C2, cervical spinous processes C2 and C3, levator scapulae, and upper trapezius muscles may all be caused by neck manipulation.[13]

Another test that can identify cervical vertigo is a neck torsion test. This test is performed with sitting position on a chair. Then the patient’s head is positioned fixed and stable, while the body underneath is rotated from side to side. Positive response if nystagmus is present. Investigation in cases of cervical vertigo is not specific. Radiological examination is more likely to rule out the cause of the intracranial lesion. Magnetic resonance angiography (MRA) or computed tomography angiography (CTA) studies can reveal compression pathology of the vertebral arteries, as with Bow Hunter’s syndrome.[1]

5. Management

Spinal manipulation is an effective manual therapy in treating cervical vertigo by restoring normal motion of the joints, reducing pain and muscle hypertonicity. So that the proprioceptive function and biomechanics of the cervical spine can be restored.[15,16] Several studies have recommended vestibular rehabilitation in the treatment of dizziness from cervical origin.[12,17] The postural stability of the cervical spine results from a combination of reflexes mediated by vestibular, visual, cervical, and cerebellum sensory input playing an important role in integrating sensory information.[18] In cases of cervical vertigo, a well-integrated vestibulo-cerebellar system may be able to compensate for altered cervical sensory input. If cervical afferent input is impaired, compensated vestibular rehabilitation may help to improve the vestibulo-cerebellar system's ability to adapt.[11] Published case studies have reported positive results when combining manual therapy and vestibular rehabilitation.[1] Mechanical decompression of the vertebral arteries is very beneficial for cervical vertigo associated with Bow hunter's syndrome. Conservative medications such as cervical braces and anticoagulant therapy can be used to relieve symptoms in moderate cases. If these conservative methods fail, surgical decompression may be considered..[19]

6. Conclusion

Cervical vertigo is a symptom of vertigo, accompanied by pathological signs on the cervical spine. The diagnosis can be made depending on the symptoms of imbalance and vertigo associated with neck pain, and there should be no other vestibular disturbances based on the history and examination of vestibular function. Manual therapy in cervical vertigo is recommended to treat proprioceptive cervical vertigo.

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