

Archive Volume 98, Issue 1, April 2022

[Influence of Organizational Transparency on Employees' Trust among Cooperatives in Davao del Norte](#)

Published Online: 02 April 2022 Pages: 1-25

DOI: 10.47119/IJRP100981420223013 , Views: 133 , Download: 73

 Download PDF

[DIFFERENCES OF DAYTIME NASAL SYMPTOMS SCORE AND NIGHTTIME SYMPTOMS SCORE BETWEEN THE COMBINATION OF MONTELUKAST WITH LORATADINE AND SINGLE LORATADINE IN ALLERGIC RHINITIS \(Meta-Analysis\)](#)

Published Online: 03 April 2022 Pages: 26-35

DOI: 10.47119/IJRP100981420223016 , Views: 110 , Download: 53

 Download PDF

[Multiple Linear Regression Analysis Applied for Modeling in Torrens Community Disaster Resilience Score Card for Flood-Prone Schools in the Schools Division of Misamis Oriental, Northern Mindanao – the Philippines](#)

Published Online: 04 April 2022 Pages: 36-43

DOI: 10.47119/IJRP100981420223020 , Views: 115 , Download: 58

 Download PDF

[Towards A Theory of Stakeholders Participation in School-Initiated Activities](#)

Published Online: 06 April 2022 Pages: 44-56

DOI: 10.47119/IJRP100981420223026 , Views: 75 , Download: 45

 Download PDF

[Summer Reading Tutorial in Zambales. Did it work?](#)

Published Online: 06 April 2022 Pages: 57-69


DOI: 10.47119/IJRP100981420223027 , Views: 72 , Download: 43

 Download PDF

[Orthokeratology and high myopia](#)

Published Online: 06 April 2022 Pages: 70-82


DOI: 10.47119/IJRP100981420223028 , Views: 256 , Download: 74

 Download PDF

[Rehabilitation Of Knee Osteoarthritis With Varus Deformity: A Case Report](#)

Published Online: 06 April 2022 Pages: 83-88

DOI: 10.47119/IJRP100981420223025 , Views: 115 , Download: 58

 Download PDF

FABLE WRITING SKILLS IN THE INDONESIAN LANGUAGE THROUGH THE USE OF SHORT FILM LEARNING MEDIA IN CLASS VII STUDENTS OF SMPN 2 SEMAAPURA

Published Online: 08 April 2022 Pages: 89-97


DOI: 10.47119/IJRP100981420223040 , Views: 113 , Download: 54

 Download PDF

OPERATIONAL CHARACTERISTICS OF PUBLIC TRANSPORTATION IN JOS METROPOLIS, NIGERIA.

Published Online: 08 April 2022 Pages: 98-112

DOI: 10.47119/IJRP100981420223037 , Views: 110 , Download: 56

 Download PDF

Acculturation and Adaptation of Overseas Filipino Students in Philippine School Doha, S.Y. 2021-2022

Published Online: 08 April 2022 Pages: 113-125

DOI: 10.47119/IJRP100981420223023 , Views: 157 , Download: 73

 Download PDF

Cervical Vertigo: Implication in practice

Published Online: 09 April 2022 Pages: 126-131

DOI: 10.47119/IJRP100981420223019 , Views: 145 , Download: 63

 Download PDF

Stem Cell Harvest From Adipose Tissue

Published Online: 09 April 2022 Pages: 132-141

DOI: 10.47119/IJRP100981420223034 , Views: 110 , Download: 53

 Download PDF

Considerations Anesthesia Management for Cesarean Section in Pregnancy With COVID 19 - Severe ARDS: A Case Report

Published Online: 11 April 2022 Pages: 142-150

DOI: 10.47119/IJRP100981420223030 , Views: 115 , Download: 50

 Download PDF

The Mat-Weavers' Legacy: Preservation and Promotion of Basey, Samar Banig Culture

Published Online: 11 April 2022 Pages: 151-163

DOI: 10.47119/IJRP100981420223033 , Views: 288 , Download: 96

 Download PDF

Relationship between PPCM and Preeclampsia: Pathophysiology, Cardiovascular Changes, and Echocardiographic Characteristics

Published Online: 11 April 2022 Pages: 164-170

DOI: 10.47119/IJRP100981420223036 , Views: 99 , Download: 49

 Download PDF

A Symmetric Key-Based Cryptographic Transaction on Cryptocurrency Data

Published Online: 14 April 2022 Pages: 171-177

DOI: 10.47119/IJRP100981420223011 , Views: 124 , Download: 59

 Download PDF

Factors Associated with the Use of Caesarean Section in Nigeria

Published Online: 14 April 2022 Pages: 178-185

DOI: 10.47119/IJRP100981420223012 , Views: 94 , Download: 50

 Download PDF

INFLUENCE OF PARENTAL AVAILABILITY ON THE PSYCHOSOCIAL WELLBEING OF ADOLESCENTS IN KANDARA SUB-COUNTY, MURANG'A KENYA

Published Online: 15 April 2022 Pages: 186-195

DOI: 10.47119/IJRP100981420223038 , Views: 108 , Download: 55

 Download PDF

EPIDEMIOLOGY AND CLINICAL FINDINGS OF GYNECOMASTIA IN ANDROLOGY DEPARTMENT OF DR. SOETOMO HOSPITAL, SURABAYA, INDONESIA

Published Online: 15 April 2022 Pages: 196-200

DOI: 10.47119/IJRP100981420223048 , Views: 128 , Download: 53

 Download PDF

A Rare Case of Biliary Duct Lymphoblastic Lymphoma

Published Online: 16 April 2022

DOI: 10.47119/IJRP100981420223050 , Views: 101 , Download: 49

 Download PDF

All Editor:

DR. SAMIR GIRISHKUMAR
Prof Rudki Damon
Md. Amir Hossain
Deepankar Ashish
Dr.P.Sukumar
Rifky A.L.M
Dr. Luke Chinaru Nwosu
Sankaragomathi B
Dr. Jagruti Rathod
Atul Bansal
Dr.Abubkr Ahmed Elhadi
Kun Jiang
Dr P Malyadri
DR AUBID HUSSAIN PARREY
Ajay raj rajan
Dr.D.VENKADESH
Praveen Kumar Sharma
Dr. G. B. Dharma Rao
Dr. Ashish Kumar
Dr Chetan Dudhagara
Dr. Abhishek Das
Dr.A.Sasi Kumar
Bachu SRinivas
R. Poorvadevi
Dr Abhishek Shukla
Elsanosy M. Elamin
Dr Khalaf S Gaeid
Pooja Nagpal
Dr. Kshitij Shinghal
J Ashok
Dr KVNR Sai Krishna
DR DINESH CHANDRA JAIN
Dr.SUDHIR PARASKAR
SHARADA PN
Vinod Shakya

Ankit Garg
Vikrant Sharma
Dr. Balwinder Raj
Prof.Hameed miyan
Laith Ahmed Najam
Dr Kailash Chandra Sati
Dr. Borlagala Gamage Sampath Aruna Pradeep
Ujwal Vishnupant Ramekar
Laith
Sadekur Rahman
Hamid Ali Abed AL-Asadi
Behzad
Arun Saksena
Shugan Chand Jain PhD
TERESA MAY B. BANDIOLA
Professor Rohini Chandrica Widyalandara
Dr Norizan Mohd Yasin
Prof Vivek DIXIT
Prof. Dr. Amer A. Taqa
Dr SONALI CHATURVEDI
Dr. Estari Mamidala, Ph.D, PDF (USA)
Mahavir Singh
Dr. Mohamed N. Morsy
PROF. ORPHA K. ONGITI
Dr. Simon Obwatho
Jiban Shrestha
Umut Özkaya
M SURESH BABU
Packeer Thamby Mohamed Niyas
Prof. Arup Barman
SHADAB AHMAD
T.Muthu Pandian
Aitor Garcés-Manzanera
Simanchal Panda
P.JAYA PRAKASH

Dr. Angie Parker
Janardan Paudel
Jeffrey Manuel, Jr.
Dr. A. Sathiyaraj
Dr. Hlaing Htake Khaung Tin
Dr. Jaya Bishnu Pradhan
Nihad Khalawe Tektook
Dr. Bisweswari Sahu
ABIMBOLA IBRAHIM
J Banu Priya
Mohd Israil
KAVYACHAND YALAMUDI
Dr. Esra Sipahi
Mervin William Mahaendran
Anam Bhatti
Dr. Md. Mamun Mia
OLUWOYO JOHNSON
Dr. Rupinder Singh
Dr. Ganesh Pundlikrao
Dr.S.RAJA
Dr.J.SENTHIL
Dr.G.DINESH KUMAR
Mr. S. Azhagu Madhavan
Dr Rajendiran Muthusamy

Richmond U Ideozu PhD
Dr. A. Sita Madhavi
Dr. RAJ KUMAR BOORA
Phyo Wai Thaw
SIMANCHAL PANDA
Dr. N Dinesh Kumar
R.H.M Abu Hasnat Chowdhury
Punnaiah Veeraboina
Zahid Naeem Qaisrani
Dr GURUDUTT SAHNI
Mayuri Srivastava
Dr. Nilesh K. Patel
Dr. JASMEET KAUR TANDON
Dr. Manoranjan Tripathy
Dr. Okrikata Emmanuel
SARA YESMIN
NAPOLEON.D
Dr Ganesan Sivamani
Prof. Mark Gabriel Wagan Aguilar
Dr.M.GAYATHRI
MURUGESAN R
MURUGESAN R
Prof C.Muruganandam
Prof N RUBA

Cervical Vertigo: Implications In Practice

Putri Irsalina^a, Hanik Badriyah Hidayati^a

^aputri.salina-2018@fk.unair.ac.id

^aDepartement of Neurology Faculty of Medicine Airlangga University, Surabaya, Indonesia

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 diagnosis 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 diagnosis 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 diagnosis. 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.

Acknowledgements

None

References

1. Li Y, Peng B. Pathogenesis, Diagnosis, and Treatment of Cervical Vertigo. Published online 2015:583-596.
2. Thompson-harvey A, Hain TC. Symptoms in Cervical Vertigo. 2019;(February):109-115. doi:10.1002/lho2.227
3. Devaraja K. Approach to cervicogenic dizziness: a comprehensive review of its aetiopathology and management. *Eur Arch Oto-Rhino-Laryngology*. 2018;0(0):0. doi:10.1007/s00405-018-5088-z
4. Sterling M. Physiotherapy management of whiplash-associated disorders (WAD). *J Physiother*. 2014;60(1):5-12. doi:10.1016/j.jphys.2013.12.004
5. Strickland BA, Pham MH, Bakhsheshian J, Russin J, Mack WJ, Acosta FL. Bow Hunter's Syndrome: Surgical Management (Video) and Review of the Literature. *World Neurosurg*. Published online 2017. doi:10.1016/j.wneu.2017.04.101
6. Taura A. Cervical vertigo. *Equilib Res*. 2018;77(2):47-57. doi:10.3757/jser.77.47

7. Kameda T, Otani K, Tamura T, Konno S. Beauty parlor stroke syndrome due to a bone fragment from an osteophyte of the atlas: case report. 2018;28(April):389-394. doi:10.3171/2017.7.SPINE17226.
8. Karatafl Ö, Özkaya M, Çakmak A, Berker E. EXPERIMENTAL AND CLINICAL STUDIES DENEYSEL VE KLİNİK ÇALIŞIMLAR Servikal miyofasyal ağrı sendromlu hastalarda demografik özellikler , klinik bulgular ve fonksiyonel durum. Published online 2008:14-19.
9. Reiley AS, Vickory FM, Funderburg SE, Cesario RA, Clendaniel RA. How to diagnose cervicogenic dizziness. Published online 2017:1-12. doi:10.1186/s40945-017-0040-x
10. Reid SA, Callister R, Katekar MG, Treleaven JM. Utility of a brief assessment tool developed from the Dizziness Handicap Inventory to screen for Cervicogenic dizziness: A case control study. *Musculoskelet Sci Pract.* 2017;30:42-48. doi:10.1016/j.msksp.2017.03.008
11. RP L, G B, M B-S, CV C. Manual therapy with and without vestibular rehabilitation for cervicogenic dizziness: a systematic review (Provisional abstract). *Chiropr Man Ther.* 2011;19(1):21. <http://onlinelibrary.wiley.com/doi/10.1002/14651914.chi110001>
12. Wrisley D, Sparto P, Whitney S FJ. Cervicogenic Dizziness: A review of Diagnosis and Treatment. *Cervicogenic Dizziness A Review of Diagnosis and Treatment J Orthop Sport Phys Ther* 2000; 30:755-766. 2000;30(5):755-766. doi:10.1128/AAC.20.5.625
13. Heidenreich KD, Beaudoin K, White JA. Cervicogenic dizziness as a cause of vertigo while swimming: an unusual case report. *Am J Otolaryngol - Head Neck Med Surg.* 2008;29(6):429-431. doi:10.1016/j.amjoto.2007.10.008
14. Sumner A. The Dix-Hallpike Test. *J Physiother.* 2012;58(2):131. doi:10.1016/S1836-9553(12)70097-8
15. Reid SA, Rivett DA. Manual therapy treatment of cervicogenic dizziness: A systematic review. *Man Ther.* 2005;10(1):4-13. doi:10.1016/j.math.2004.03.006
16. Heikkilä H, Johansson M, Wenngren BI. Effects of acupuncture, cervical manipulation and NSAID therapy on dizziness and impaired head repositioning of suspected cervical origin: A pilot study. *Man Ther.* 2000;5(3):151-157. doi:10.1054/math.2000.0357
17. Collins ME, Misukanis TM. Chiropractic Management of a Patient with Post Traumatic Vertigo of Complex Origin. *J Chiropr Med.* 2005;4(1):32-38. doi:10.1016/S0899-3467(07)60110-4
18. Kristjansson E, Treleaven J. Sensorimotor function and dizziness in neck pain: Implications for assessment and management. *J Orthop Sports Phys Ther.* 2009;39(5):364-377. doi:10.2519/jospt.2009.2834
19. Park J, Lee C, You N, Kim S, Cho K. Cervicogenic Vertigo Treated by C1 Transverse Foramen Decompression : A Case Report. 2014;11(3):209-211.