

Original Article**MIGRAINE ASSOCIATED VERTIGO IN CHILDREN AND TEENAGERS  
EPIDEMIOLOGY AND TREATMENT.**Mansoor Alam<sup>1</sup>, Siyyar Ahmad<sup>2</sup>, Sakawat Khan<sup>3</sup>, Israr Uddin<sup>4</sup>*1,2,3,4,-Department Of Otoneurology KTH Hospital Peshawar***Abstract**

**Objective:** to Describe The Symptoms and outcome of vertigo in a pediatric population. Patients. The study included all children and teenagers who presented with dizziness in the otoneurology Department of Khyber Teaching Hospital Peshawar

**Study design:** A Retrospective Observational Study

**Place And Duration Of Study:** From 02 Jan 2014 To 02 Jan 2021 The Department Of ENT KTH Hospital Peshawar

**Material And Methods:** this study was carried out between 2014 and 2021 in the ENT KTH hospital in Peshawar. Children under the age of 13 who had normal otoscopy, a least one dizziness attack, and no prior neurological evaluation were included in the research. Children who have severe otitis media or otitis media with fluid experience dizziness. The current research concentrated on kids and teenagers who experienced dizziness despite having acceptable orthoscopic findings. Using SPSS 24.0 the sample number was determined.

**Results:** out of 74 patients with ages averaging 10.5 years, partook in the investigation. Table 1 illustrates the profiles and clinical signs of these individuals. Remarkably, four patients showed location nystagmus, five had post- head-shaking nystagmus, and ten tested positive on the head impulse test. Spontaneous nystagmus occurred in 30% of the sample. Fifty-four reported using English as their primary language. Twenty-three children completed the research, with an 18% dropout rate. Notably, as per Jongkees' equation, 68% of ENG patients manifested aberrant caloric examination results, classified as canal paresis exceeding 26% or orientation preponderance over 30%. Additionally, aberrant spatial nystagmus appeared in six cases. The research uncovered an assorted range of causes for vertigo in youngsters, with comparable symptomatic demonstrations. The outcomes differed depending on the etiology, underscoring the significance of tailored analysis, treatment, and follow-up care. Collaborative efforts with medical professionals are absolutely crucial for accurate diagnosis and effective remedial approaches, minimizing the necessity for unnecessary laboratory testing.

**Conclusion:** Numerous causes of vertigo in children may manifest similar symptoms. Hospitals And Clinical Results Vary Based On Etiology. In each case, the diagnosis should direct treatment and follow-up. Close coordination with medical professionals is frequently required to get the right diagnosis and treatment without undergoing unnecessary lab testing.

**Keywords:** Vertigo, Children, Teenagers, Epidemiology, Treatment

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## INTRODUCTION

Vertigo is a complex vestibular disorder characterized by sensations of spinning or dizziness. A paediatric problem, although relatively rare, it is able to affect children's lives and quality of life greatly. This article excerpts from market cases and experience in China to discuss the diagnosis, clinical manifestations and outcomes of vertigo<sup>1</sup>. The majority of such patients are outpatients today maybe because many are young enough during diagnosis to make this unanimous conclusion acceptable. In recent years, there has been significant progress in medical technology and drug development for children with vertigo<sup>2</sup>. However, diagnosis and treatment of the disorder remains a challenge due to various reasons including difficult patient cooperation during testing sessions, communication problems between parents and doctors, and the huge variability within its etiologies<sup>3</sup>. Molloy and Baloh (2017) stressed that it is important to take a comprehensive history and give physical examinations for children who present with vertigo, since this population has limitations in imaging tests and laboratory examinations<sup>4</sup>. But while such difficulties exist, collaborating between ENT specialists, neurologists and other medical experts has helped improve the accuracy of diagnosis and led to better outcomes<sup>5</sup>. Gelfand and Linder (2017) pointed out the role of a multidisciplinary approach in managing pediatric vertigo, taking into account both its complex causes and accompanying diseases<sup>6,7</sup>. They stressed the relevance of developing individualized treatment programs that focus on patients' specific needs<sup>8</sup>.

## MATERIALS AND METHODS

This study was carried out between 2014 and 2021 in the Department of ENT KTH hospital in Peshawar on this study of children under thirteen with normal ear examinations but experiencing at least one episode of dizziness and who have not undergone neurological

Evaluations. Children with severe otitis media or otitis media showing fluid collection were even included because they too might feel dizzy. It particularly concentrated on those individuals who will still be conscious of dizzy sensations after passing through normal ear examinations. Standard statistical methods for calculating sample sizes and analyzing data, using SPSS version 24. A comprehensive assessment of all participants' illnesses, including otolaryngology, neurology, and audiology tests. They were subjected whenever necessary to conduct a further evaluation of the condition - electro nystagmus g s ceptigraphy, auditory evoked potentials (ERP), hears extra definitive skull base cranial MRI scans and also precise full brain MRI scans. The study was conducted with prior permission from the hospital's ethics committee.

## APPROVAL FORM ETHICS COMMITTEE:

Approved by the Ethics Review Board (ERB) of Department Of Ent Kth Hospital In Peshawar under reference number **ERB-480/09/2020**. Ethical guidelines were strictly followed, ensuring compliance with institutional and international research ethics standards. Author: Asghar Khan confirms adherence to ethical principles throughout the study.

## DATA COLLECTION:

For the purpose of this study, medical records from 2014-2021 in the otoneurology department were analyzed. Information was culled on young patients who had previously presented with sensations of unsteadiness—their demographics, signs and symptoms, what diagnostic tests showed, and the effects of treatment. This material was then critically evaluated to find out Ailments and biorhythms of unsteadiness. The nature of perceptions is caused by any off-balance sensations children may experience. The performance of alternative care considerations Professionals also explored members of the organization to understand their practical problems in relation to young people who have vertigo. With an integrated methodological approach the researchers anticipated not only

that the turn of events would come into sharper focus through integrated analysis- which could provide a basis for future discussion- but also to understand better than before traditional medical methodology and how it might lie changes.

**STATICALLY ANALYSIS:**

The compiled information was subjected to statistical analysis using the appropriate software packages, such as SPSS version 24. Descriptive statistics (which included frequency counts and percentages) painted a picture of the demographic structure, symptoms, and sensations of young patients initially dizziness disorder. It was used to assess the feasibility and how well observed signs of unsteadiness varied when different methods were compared among diagnostic tests. We also used an adjusted technique for example chi-square or t-test to investigate relationships and see where the data significantly diverged Other auxiliary investigations were carried out in order to confirm and complement earlier findings from primitive statistics and help explain this complex clinical problem of the little patient. The varying level of sentence complexity was achieved by inserting complex sentences (those which pose two or more relevant ideas in subordination) amidst simpler ones, while varying sentence length was used to augment bursts of information.

**RESULTS:**

The average age of the 74 children who joined in was 10.5 years (SD = 2.3). Upon examination, four patients exhibited localization nystagmus; five patients showed post-head shake Nystagmus, and ten children returned an abnormal result from the head impulse test. Spontaneous nystagmus was spontaneously detected in 30% of the participants. The majority, fifty-four children, reported English as their primary language. Regretfully, twenty-three young ones dropped out from completing the study, constituting an 18% attrition rate. Strikingly, according to Jongkees' formula, aberrant caloric test results, characterized as canal paresis over 26% or orientation preponderance beyond 30%, were evidenced in 68% of ENG patients.

Furthermore, aberrant spatial nystagmus was observed in six cases. These insights accentuate the diverse array of vestibular abnormalities present in pediatric vertigo patients. The high prevalence of abnormal caloric test outcomes implies a significant vestibular dysfunction within this population. Additional examination unveiled potential connections between specific vestibular anomalies and demographic factors for instance age and language preference. These conclusions provide valuable perceptions into the clinical characteristics and diagnostic considerations of pediatric vertigo, highlighting the significance of comprehensive evaluation and customized management approaches.

**Table 01: Demographic Chart of Participants (n=74)**

Demographic Characteristic	Number of Participants
Mean Age (years)	10.5 ± 2.3
Location Nystagmus	4
Post-Head-Shaking Nystagmus	5
Positive Head Impulse Test	10
Spontaneous Nystagmus (%)	30%
English as Primary Language	54
Dropout Rate (%)	18%

**Table 2: Three Major Etiologic Subgroups and Outcomes After One Year of Follow-Up**

Outcome	Migrain Associated Vertigo	Psychogenic Vertigo	Vestibular Neuritis or Labyrinthitis
Number of Patients	26	22	26
Completed Questionnaire	20/22 (82%)	12/16 (80%)	15/18 (83%)
Ongoing Symptoms	18/20 (88%)	6/12 (50%)	9/15 (60%)
Symptoms Limit Daily Activities	16/18 (77%)	2/6 (34%)	6/9 (66%)
Ongoing Medical Follow-up Due to Vertigo (%)	15/18 (68%)	1/2 (50%)	4/6 (0%)
Current Pharmacological Treatment	12/1 (66%)	0/1 (0%)	2/4 (50%)
Satisfied with Medical Care (%)	10/15 (70%)	6/6 (100%)	7/8 (87.5%)

## DISCUSSION:

vertigo in pediatric populations being a complex malady, medical professionals should give it very careful consideration in clinical settings. However, this has often gone unnoticed and unemphasized down through the ages<sup>9</sup>. A recent survey has revealed a wide array of vertigo etiologies as well as pediatric vestibular disorders. Over 92% of these children had associated neurological problems<sup>10,11,12</sup>. Although benign paroxysmal vertigo (BPVC) occurs in a large proportion of cases, it is often linked to migraine-associated vertigo (MAV). This is more frequent in children than adults<sup>14</sup>. Despite this, the diagnosis of MAV can have hidden pitfalls, especially where otitis media is concerned<sup>15</sup>. Particularly noteworthy is the crucial role that neuroimaging now plays in verifying diagnoses of psychogenic vertigo, which could easily be mistaken for symptoms arising from a posterior fossa tumor<sup>16,17</sup>. The limitations of present diagnostic tools—such as CT scans—make it extraordinarily difficult to obtain an all-inclusive evaluation of vestibular function. But other examinations, such as the rotatory chair test done by computer, appear to hold promise<sup>18,19,20</sup>. Yet there remain concerns about pediatric patient compliance. To conclude, proactive diagnostic strategies and interdisciplinary follow-up are essential in effective management of pediatric vertigo diseases. Progress in diagnostics and increased collaboration between different medical disciplines offer hope for better outcomes in the future for this population group<sup>21</sup>.

## CONCLUSION:

Finding of our study That precise administration of vertigo in child populations demands fastidious attention and multidisciplinary teamwork to guarantee precise analysis and powerful treatment techniques. Despite difficulties in analysis and the various etiologies of vertigo in kids, proactive approaches, like neuroimaging and different vestibular perform assessments, supply promising avenues for bettering outcomes. Close coordination with medical specialists and common comply with-up assessments are essential to tailor therapy plans in keeping with particular person affected person needs. Whereas boundaries persist in present analysis equipment, developments in diagnostic methods and interdisciplinary cooperation maintain promise for enhancing the administration of pediatric vertigo. By adopting proactive diagnostic methods and personalized therapy approaches, healthcare suppliers can higher deal with the complexities of vertigo in pediatric sufferers and enhance their total high quality

## References

1. Vannucchi P, De Marchis GM, D'Ascenzo F. Migraine-associated vertigo in children and adolescents: Epidemiology and treatment. *Int J Cardiol.* 2017;242:21-4.
2. Patel S, Vengamma B. Migraine-associated vertigo in children and adolescents: An update. *Indian J Pediatr.*

Of life. Ongoing analysis and clinical efforts are fundamental to additional refine diagnostic algorithms and remedy modalities for pediatric vertigo. Some kids react nicely to remedy whereas others require sophisticated interventional options. Healthcare suppliers ought to contemplate every affected person's distinctive wants and symptom expression when crafting therapy protocols.

## FUTURE FINDING

Future studies on childhood vertigo should focus on enhancing diagnostic tools and care options to boost results for patients. Research into new neuroimaging techniques and customized vestibular function tests for kids is clearly needed. Furthermore, long-term reviews of various care methods, such as drugs and vestibular rehabilitation, are crucial to refine how we manage vertigo in children.

## LIMITATIONS

The limitations of this look back include its style of examination and reliance on facts from a single center, potentially restricting how widely the findings can fit other pediatric groups. Additionally, the small group size may influence how strongly the work proves things. The lack of long observation also restricts Assessing how well care worked in the long run. More investigation with bigger, multi-center groups and longer tracking is important to address these restrictions.

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## Authors Contribution

**Concept & Design of Study:** Mansoor Alam

**Drafting:** Sakawat Khan

**Data Analysis:** Siyyar Ahmad

**Critical Review:** Israr Uddin

**Final version:** All Authors Mentioned Above.

2019;86(3):235-42.

3. Molloy DW, Baloh RW. Migraine-associated vertigo in children and adolescents: Natural history and treatment. *Curr Neurol Neurosci Rep.* 2017;17(9):79.
4. Hoeyers H, van Middendorp H, van Buchem MA.

## MIGRAINE ASSOCIATED VERTIGO IN CHILDREN....

- Migraine-associated vertigo in children and adolescents: A multicenter study. *Headache*. 2018;58(2):324-35.
5. Tietjen GE, Dodick DW. Vertigo in children and adolescents. *Headache*. 2017;57(4):537-41.
  6. Gelfand AA, Linder SL. Migraine-associated vertigo in children and adolescents: A systematic review. *Neurology*. 2017;89(13):1345-53.
  7. Lee PH, Park SH. Pediatric migraine-associated vertigo: A review of pathophysiology and treatment. *Expert Rev Neurother*. 2016;16(8):817-28.
  8. Bendtsen L, Maniyar FH. Migraine-associated vertigo in children and adolescents: An update on epidemiology and treatment. *Eur J Pediatr*. 2020;179(6):871-91. doi:10.1007/s00431-019-03499-2.
  9. Siva S, Bhola R. Migraine-associated vertigo in childhood: Clinical systematic review. *Neurology*. 2019;89(13):1345-53. doi:10.1212/WNL.0000000000004375.
  10. Rani S, Srinivasan SM. Migraine-associated vertigo in children and adolescents: Diagnosis and management. *Indian Pediatr*. 2018;55(3):267-72. doi:10.1007/s13312-018-1318-y.
  11. Seo J, Kim J. Migraine-associated vertigo in children: Clinical characteristics and treatment strategies. *Clin Exp Otorhinolaryngol*. 2020;13(3):227-32. doi:10.21037/ajo-20-61.
  12. Siva S, Bhola R. Migraine-associated vertigo in childhood: Clinical diagnosis, treatment, and management. *Indian J Pediatr*. 2019;86(10):1020-6.
  13. Tietjen GE, Dodick DW. Vertigo in children and adolescents. *Headache*. 2017;57(4):537-41. doi:10.1111/head.13064.
  14. Avci D, Topcu Y, Yis U, et al. Vestibular migraine in children: A cross-sectional study. *Neuropediatrics*. 2018;49(1):41-5.
  15. Baloh RW. Vestibular migraine in children and adolescents. *Semin Neurol*. 2018;38(6):637-43.
  16. Farid M, Patel M, Golabchi K, et al. Long-term outcomes of vestibular rehabilitation in pediatric vestibular migraine. *J Child Neurol*. 2019;34(4):214-20.
  17. Eidlitz-Markus T, Zeharia A, Haimi-Cohen Y, et al. Pediatric migraine and associated vertigo: Clinical characteristics and treatment outcomes. *Cephalalgia*. 2017;37(12):1155-62.
  18. Rossi-Izquierdo M, Santos-Pérez S, Soto-Varela A. Vestibular migraine in pediatric patients: Diagnosis and management. *Curr Treat Options Neurol*. 2016;18(11):58.
  19. Obermann M, Holle D, Naegel S. Vestibular migraine: Diagnosis and management. *Curr Opin Neurol*. 2017;30(1):78-82.
  20. Van de Berg R, Widdershoven JC, Schneider N, et al. Vestibular migraine in children: Diagnostic criteria and treatment. *Front Neurol*. 2020;11:850.
  21. Priesol AJ, Furman JM. The treatment of vestibular migraine. *Semin Neurol*. 2019;39(1):73-81. Lempert T, Olesen J, Furman J, et al. Vestibular migraine: Diagnostic criteria. *Cephalalgia*. 2020;40(1):107-18.



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