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**Mansoor Alam, Ubaid Ullah , Azam Khan , Sakawat Khan,Israr Uddin , Allah Noor**

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# Migraine Associated Vertigo in Children and TeenagersEpidemiology and Treatment A single-Center Study.

**[1] Mansoor Alam , [2] Ubiad ullah, [3]Azam Khan ,[4]Sakawat khan , [5]Israr Uddin , [6] Allah Noor**

[1.] Registrar ENT Khyber teaching Hospital Peshawar , Pakistan
[2.] Register Ent Saidu Group of teaching Hospitals Swat , Pakistan
[3]. Assistant Prof Department ENT North west general hospital Peshawar , Pakistan
[4]. Consultant ENT specialist Khyber teaching hospital Peshawar , Pakistan[5]
5Assistant Professor ENT Khyber teaching hospital Peshawar , Pakistan[6] Register
ENT Department HMC hospital Peshawar , Pakistan
**Corresponding Author: Dr. UBAID ULLAH,** Email:ubaid.kmc@gmail.com

**Abstract** **Original Research Article**

**OBJECTIVE:** Describe The Symptoms And Outcome Of Vertigo In A Pediatric Population. Patients. The Study Included All Children And Teenagers Who Presented With Vertigo In The Department Of Otoneurology Northwest General Hospital Peshawar, Duration Between 2014 To2021.

**MATERIAL AND METHODS**: Single-Center Study Looked At Children And Teens Who Reported Vertigo Between 2014 And 2021. The Study Comprised Kids Under 13 With Normal Otoscopy, AtLeastOne Vertigo Episode, And No Previous Neurological Examination.
Acute Otitis Media And Otitis Media With Effusion Induce Vertigo In Children. The Current Study Focused On Children And Adolescents Who Had Vertigo Despite Normal Orthoscopic Results. The Sample Size Was Obtained Using SPSS 2.4.

**RESULTS:** The Study Included 74 Patients. Table 1 Shows Patients' Demographics And Presenting Symptoms. 20 Patients (30%) Had Spontaneous Nystagmus, 5 Had Post-Head-Shaking Nystagmus, 10 Had A Positive Head Impulse Test, And 4 Had Positional Nystagmus (4 Percent). ENG Was Suggested In 54 Individuals. Twenty-Three Youngsters Passed The Study, While Four Did Not. 20 (68%) Of The ENG Patients Showed Abnormal Caloric Tests, Characterized As Canal Paresis >26% Or Directional Predominance >30%, According To Jongkees' Formula.
6 Patients Had Abnormal Positional Nystagmus

**CONCLUSION:** In A Child, Several Causes Of Vertigo May Appear With Identical Symptoms. Depending On The Etiology, Hospitals And Clinical Results Vary. The Diagnosis Should Guide Therapy And Follow-Up In Each Instance. Close Coordination With Medical Professionals Is Often Needed To Get The Proper Diagnosis And Therapy While Avoiding Superfluous Lab Testing.

**KEYWORDS: Vertigo, Children, Teenagers, Epidemiology, Treatment, A Single-Center Study**

## Introduction

Vertigo Is A Rare Ailment Among Children And Adolescents. One-Year Incidence Of Nonspecific Dizziness Is 23%, And Vestibular Vertigo Is 5% In Adults 1. A Comprehensive Assessment Of All Icd-9 Codes Linked To Vestibular And Balance Disorders In Over 880000 Pediatric Patient Encounters Over

7 Years Indicated A Prevalence Of Just (0.4)Percent For Unspecific Dizziness (0.03

)Percent For Peripheral, And 0.02 Percent ForCentral Vestibulopathy.

Pediatric Vertigo Was First Described In The Scientific Literature In 19602,3. DespiteSubstantial Progress In Diagnostic Tool Development Since Then, Diagnosis Relies On Patient History And Physical Exam4. Diagnosis Of Dizziness In Children These Limitations.

Pediatric Patients' Cooperation May Restrict AFull Neurological Assessment. The Majority's Ability Is A Challenge8. Pediatric Patients' Cooperation May Restrict A Full Neurological

Produce Disequilibrium And Everyday Activity Limits In Adults, But Not In Children10.Vertigo In Children Is Diagnosed Differently Than In Adults. In Addition, Certain Etiologies Are Peculiar To Children, Whereas Others Affect Both Children And Adults 11. This Study's Goal Was To Highlight The Etiologies And Course Of Vertigo In Children

Testing Are Essential To A Proper Diagnosis Due To And Adolescents Begins With A Primary Care Physician. Pediatricians Seldom Identify Genuine Vertigo.Dizziness And Vertigo May Signal Serious Disease, And Patients Are Often Sent To An Otolaryngologist Or Neurologist For Further Testing. 5.

A Comprehensive Clinical History Helps Diagnose Vertigo. When A Youngster Is A Patient, This Work May Be Complicated ByPoor Communication, A Restricted Vocabulary, And Distractibility6. These Challenges Might Provide The Wrong Impression That Symptoms Are Caused By A Lack Of Coordination OrBehavioral Concerns. 7. A Comprehensive Physical Exam And Laboratory

And Adolescents.

**Materials And Methods :**

Single-Center Study Looked At Children And Teens Who Reported Vertigo Between 2014 And 2021. Patients Under 17 With Normal Otoscopy, Vertigo, And No Previous Neurological Assessment Were Included.

Acute Otitis Media And Otitis Media With Effusion Induce Vertigo In Children. This Study Focused On Adolescents And Teens Experiencing Vertigo Despite Normal Orthoscopic Results. We Eliminated Patients Who Had Previously Had Cranial Or Neurosurgical Surgery Or Had

Developmental Problems. The Patient's Parents Recounted His Vestibular And Migraine Symptoms. All Patients Had Otolaryngological, Neurological, And Audiological Exams, Including Pure Tone, Speech, And Admission Audiometry.

Electronystagmography (Eng), Auditory Brainstem Response (A.B.R.), C.T., And

Assessment. The Exceptional Ability Of Most Individuals Adds To The Task. 9. Children'sStatic

Vestibular Impairments Vestibular Injuries Symptoms.Twenty Patients (30%) Had

M.R.I. Were Conducted As Recommended. A Parent Completed A Telephone-Administered Questionnaire That Addressed Chronic Or Recurrent Symptoms, The Need For Further Examination And Therapy, General Wellbeing, And Compliance With Prescribed Treatment (See The Addition). The Hospital Ethics Committee Authorized This Study.

**Results:**

The Study Included 74 Patients. Table 1 Shows Patients' Demographics And Presenting

Spontaneous Nystagmus; Five Had Post-Head-Shaking Nystagmus (14 Percent )

Figure 01

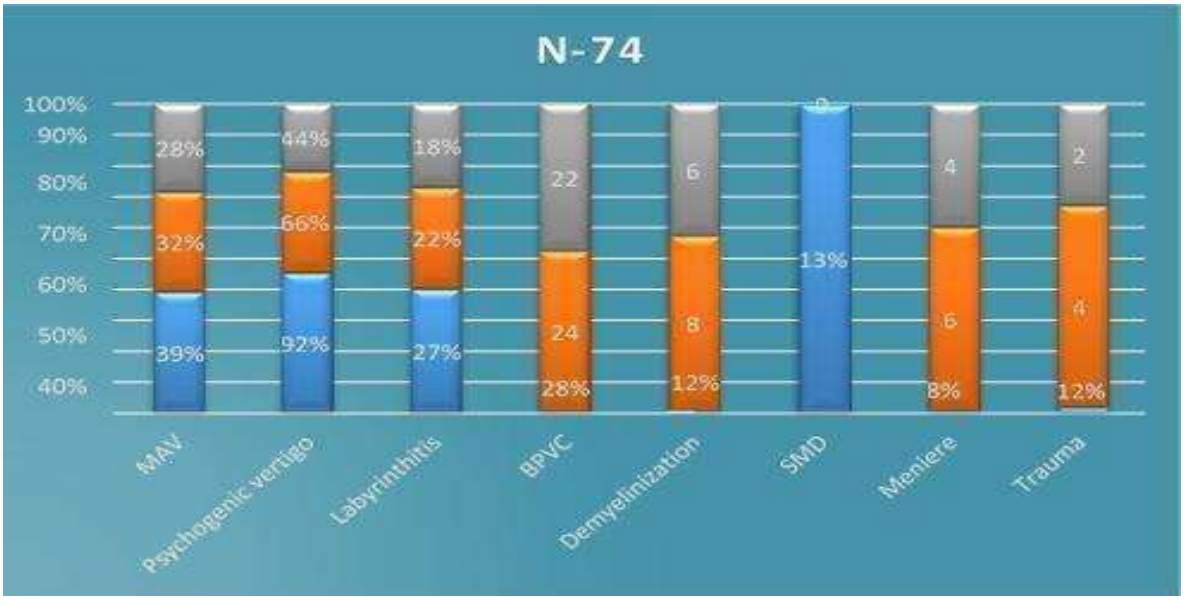


**Table 1: Characteristics Of The Patient At The Time Of Presentation.**

| | | |
|---|---|---|
| Total number of patients | | 74 |
| Male/female | | 40/34 |
| Age (years) at presentation (Mean ±SD) | | 13 ± 3.3 |
| Age range (years) | | 8–18 |
| | Headache | 21 (48%) |
| | Vomiting | 13 (23%) |
| | Nausea | 20 (44%) |
| | Hearing loss | 04 (18%) |
| | Tinnitus | 8 (19%) |
| | Spontaneous nystagmus | 20 (30%) |
| | Positive post-head-shaking nystagmus | 5 ( 14%) |
| Positive head-impulse test | 10 (12%) | |
| Positional nystagmus | 4 (4%) | |
| Pathological ENG findings in the 54 completed tests | | 26 (70%) |

Positional nystagmus 4 (4%)
Pathological ENG findings in the 54 completed tests 26 (70%)

**Table 2: The Outcome Of The Three Major Etiologic Subgroups After AYear Of Follow-Up.N=74**

| | Migraine-associated vertigo | Psychogenic vertigo | Vestibular neuritis or labyrinthitis |
|---|---|---|---|
| Numberof patients | 26 | 22 | 26 |
| Completedquestionnaire | 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%) |
| Ongoingmedical follow-up due to vertigo | 15/18 (68%) | 1/2 (50%) | 4/6 (0%) |
| Currentpharmacological treatment | 12/15 (66%) | 0/1 (0%) | 2/4 (50% ) |
| Satisfied with the medical care provided | 10/15 (70%) | 6/6 (82%) | 7/8 (92%) |

the outcome of migraine-associated vertigo n=26 70%, psychogenic vertigo n=22 82%, and vestibular neuritis or labyrinthitisn=26 92% results of table 02

**Table3: Study Studies On Dizziness And Vertigo In Children And Teenagers.**

| | Number ofpatients | Most common etiologies | |
|---|---|---|---|
| O'Reilly et al., 2011 [10] | 144 | Peripheral vestibulopathy | 29% |
| | | M.A.V/BPVC | 24% |
| | | Developmental delay | 11% |
| Szirmai, 2010 [9] | 140 | Labyrinthitis/neuritis | 22% |
| | | M.A.V | 19% |
| | | Panic or anxiety disorder | 17% |
| Wiener-Vacher, 2008 [26] | >2000 | M.A.V | 26% |
| | | BPVC | 20% |
| | | Trauma | 10% |
| Balatsouras et al., 2007 [23] | 54 | Viral infections | 28% |
| | | M.A.V | 20% |
| | | BPVC | 17% |
| Niemensivu et al., 2007 [13] | 24 | BPVC | 21% |
| | | M.A.V | 17% |
| | | Otitis media | 17% |
| Erbek et al., 2006 [6] | 50 | M.A.V | 34% |
| | | BPVC | 12% |
| | | Psychogenic vertigo | 10% |
| Raina et al., 2005 [14] | 119 | BPVC | 19% |
| | | M.A.V | 14% |
| | | Vestibular neuritis | 12% |
| | | Otitis media | 10% |
| | | Psychogenic vertigo | 5% |
| Chong et al. 2003 [12] | 55 | M.A.V | 31% |
| | | BPVC | 26% |
| | | Trauma | 7% |
| Bower and Cotton, 1995 [15] | 34 | Otitis media | 15% |
| | | BPVC | 15% |
| | | M.A.V | 12% |

Migraine-associated vertigo (M.A.V.) is a type of vertigo caused by migraines. BPVC stands for benign paroxysmal vertigo in children.

**DISCUSSION:**

In Recent Years, Statistics And Studies Have Highlighted The Importance Of Pediatric Vestibular Disorders. This Study Found A Broad Spectrum Of Vertigo Etiologies In Children13. Detailed Anamnesis For Patient Cooperation These Steps Are Usually Sufficient To Arrive At The Proper Diagnosis And Suggested Treatment Approach14. Publications Confirm Our Experience. Table 3) Reveals That Migraine Is A Common Cause Of Vertigo. Migraines May Accompany Vertigo But Frequently Dominate The Clinical Picture Years Later. The M.A.V. Is Far More Frequent In Children Than In Adults. M.A.V. Was Identified In Up To 39% Of Juvenile Vertigo Cases, But Only 8% Of Adults 15,16. Recent Findings Show That M.A.V. In Children May Be Underdiagnosed. 30% Of Children With Migraines Have Vertigo In Children. Most Papers Did Not Mention It (Table 3). Recent Study On Unexplained Neurological Problems In Children Found That Over 92 Percent Of Patients Had At Least One Psychological Condition 19. Benign Paroxysmal Vertigo (BPVC), Observed In Only 10 Children In Our Study, Is A Prevalent Cause Of Childhood Vertigo (Table 3). Some BPVC Patients In Develop Headaches And M.A.V. Later In Their Clinical Course 20. Differences In Study Design, Inclusion, And Exclusion Criteria May Explain Differences In Reported Incidence Of Different Etiologies. Some Earlier Studies Included Patients With Dizziness Or Vertigo, Whereas Others Focused On Vertigo While Excluding Patients With Acute Or Chronic Otitis Media And Serous Otitis Media. Study21 Excluded Children With Recognized Vestibular

Symptoms, Neurological Impairments. The According To The International Headache Significance Of Imaging And Society. All Ten M.A.V. Patients In Our Neurophysiological Laboratory Testing Sample Who Completed The Follow-Up Should Be Carefully Examined While Questionnaire Reported Persistent Considering Possible Long-Term Vestibular Discomfort Affecting Daily Irradiation Effects And The Child's Low Activities. This Grouping Of Patients Was Compliance To Imaging, Vestibule-Lar, Least Happy With Their Care. Few And Evoked Potential Tests22. Our Utilized Adequate Acute Or Prophylactic Experience Reveals Head C.T.'S Limited Antimigraine Medications18. This Study Utility In Evaluating Dizzy Children. Head Underscores The Necessity For Proactive CT Scans Did Not Help Diagnose Or Treat Multidisciplinary Follow-Up Of These Any 13 Patients. Current Requirements For Patients To Prevent Undertreatment And Ionizing Radiation Risk Management In Quality-Of-Life Decline. While Pediatrics, Along With The Much-Increased Vestibular Neuritis Sensitivity Of Brain M.R.I. When Posterior And Labyrinthitis Are Typical Causes Of Fossa And Inner Ear Structures Are Childhood And Adolescent Vertigo, 82% Addressed, Justify Using M.R.I. When Brain Of Our Patients Had Psychogenic Vertigo. Imaging Is Necessary 23. Vertigo Caused Only Three Study (7–24) Indicated To Posterior Fossa Tumor Is Rare In Psychogenic Dizziness As A Cause Of Children And Adolescents, Affecting Fewer

Than 4%. 26 Children With Vertigo Who AUnderwent Neuroimaging Had Novel Discoveries. But 20 Individuals Experienced Further Neurological Issues, And 6 Had Severe Headaches. The Authors Found That Neuroimaging Won't Help Diagnose Merely Presenting Symptoms.

Vertigo 24. ENG Is A Vital Otoneurologist-Tool; However, Pediatric Compliance May Be Below. Szirmai Et Al. Reported 70 Dizzy Or Vertigo Patients. Our Patients' Work-Up Included ENG

Testing. Compared To The Current Study, 70% Of Participants Completed The ENG Exam Battery. 70% Of Our Cohort Had Pathogenic Findings. Valente's Latest Update On Vestibular Examination In Pediatric Patients Said That Although The Underlying Causes Of Vertigo And Dizziness May Be Recognized Based On Patient History And Clinical Bedside Testing, Laboratory Vestibular Tests Play A Significant Role In Making The Final Diagnosis25. ENG May Help With Diagnostic Assessment When The Clinical Picture Is Unclear. Remember That Getting Trustworthy Information From Youngster Is Difficult. Thus Objective Examinations May Be More Important In Clinical Situations. The Computerized Rotatory Chair Exam May Replace The ENG. The Sitting Patient Is Subjected To Sinusoidal Angular Accelerations That Directly Stimulate Horizontal Semicircular Canals While The Vestibule-Ocular Reflex Response Is Monitored. This Test Uses A Less Aggressive Stimulus While Correctly Recording The Vestibular Response To Numerous Graded Stimuli Compared To The ENG Caloric. Mild Stimulation And The Ability To Take The Exam On A Parent's Lap Improve Pediatric Patient Compliance 26. High Cost And Limited Clinical Availability Are Major Drawbacks. While Our Patient's Initial Treatment Was Identical To Other Study, The Follow-Up Findings Were Not Previously Published.
Meticulous Follow-Up Is The Only Method To Acquire Critical Insights On The Natural History Of Pediatric Vertigo And Treatment Effectiveness, And Patient Compliance With Health-Provider Recommendations. Only 70% Of The Retrospective Trial Participants Were Successfully Followed Up. We Feel A Big Prospective Trial With Long-Term Follow-Up Is Required27.

**FOLLOW-UP QUESTIONNAIRE:**

#Initialsdate (Y-Mm-)
N=74 \Sqq QQQ QQQQ-QQ-QQ
Is The Patient Getting Dizzy Treatment? No Q
Remarks (Ii) Is The Patient Using Drugs? No Q
Remarks
(Iii) Has The Patient Had Drug Therapy? Q No Q
(Iv) Remarks Was Pharmacology Helpful? Yes Q No Q Comments Yes Q No Q Remarks (Vi) Was Physiotherapy Helpful? True
No Q Remarks (Vii) How Pleased Is The Patient With Therapy Overall(0–10)?(Viii) Is The Patient Still Dizzy? True No Q
Does It Affect His Regular Activities? Yes/No Q Comments

## CONCLUSIONS:

Various Etiologies Of Vertigo In Juvenile Patients May Appear With Identical Symptoms And Indications. However, Various Hospitals And Clinical Results Might Be Predicted Depending On The Etiology. Depending On The Diagnosis, Therapy And Follow-Up Should Be Customized To Each Instance. Close Coordination With Various Medical Specialties Is Essential To Arrive At The Correct Diagnosis And Therapy While Avoiding Superfluous Laboratory Testing.

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