Simone Vanni
Augusto Pietro Casani

VIS
Vestibology • Italian Society
Società Italiana di Vestibologia

XIII congresso nazionale
simeu
GENOVA 30 MAG - 1 GIU 2024

Se ti gira la testa…

Progetto Vertigo-EU

- Patients with acute **VERTIGO** and **DIZZINESS** account for about 4% of all visits and 20% of neurological consultations in the emergency department (ED)

Newman-Toker DE, Hsieh YH, Camargo CA Jr, *et al.* Spectrum of dizziness visits to US emergency departments: cross-sectional analysis from a nationally representative sample. Mayo Clin Proc 2008; 83:765–775.

- About 10% of strokes are missed at first contact in the ED

Tarnutzer AA, Lee SH, Robinson KA, *et al.* ED misdiagnosis of cerebrovascular events in the era of modern neuroimaging: a meta-analysis. Neurology 2017; 88:1468–1477.

- In a population-based registry study, 90% of transient ischemic attacks (TIAs) in the posterior circulation (with vestibular symptoms in half of patients), were not recognized at first medical assessment

Atzema CL, Grewal K, Lu H, *et al.* Outcomes among patients discharged from the emergency department with a diagnosis of peripheral vertigo. Ann Neurol 2016; 79:32–41.

- Up to 25% of patients have a potentially life-threatening disease, including cerebrovascular and cardiovascular events, systemic metabolic, toxic, and inflammatory disorders

Royl G, Ploner CJ, Leithner C. Dizziness in the emergency room: diagnoses and misdiagnoses. Eur Neurol 2011; 66:256–263.

- The most frequent lesion localization is the cerebellum, followed by the pontomedullary brainstem

Saber Tehrani AS, Coughlan D, Hsieh YH, *et al.* Rising annual costs of dizziness presentations to U.S. emergency departments. Acad Emerg Med 2013; 20:689–696.

- In US EDs, about 40% of patients presenting with acute vestibular disorders undergo

Journal of Neurology (2019) 266:3076–3086
https://doi.org/10.1007/s00415-019-09525-4

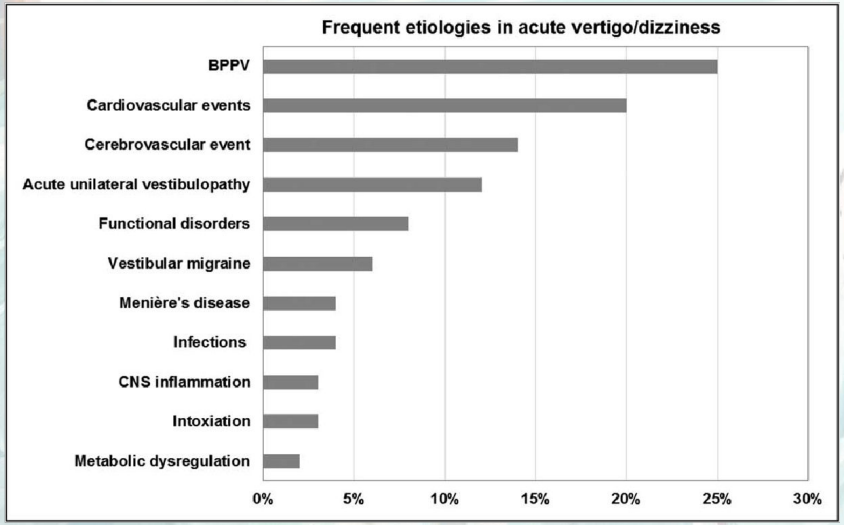
ORIGINAL COMMUNICATION

Frequency, aetiology, and impact of vestibular symptoms in the emergency department: a neglected red flag

Martina Goeldlin[1,2] · Janika Gaschen[1] · Christoph Kammer[1] · Lukas Comolli[3] · Corrado A. Bernasconi[1] · Rainer Spiegel[5] · Claudio L. Bassetti[1] · Aristomenis K. Exadaktylos[4] · Beat Lehmann[4] · Georgios Mantokoudis[3] · Roger Kalla[1] · Urs Fischer[1]

Received: 23 April 2019 / Revised: 26 July 2019 / Accepted: 3 September 2019 / Published online: 17 September 2019

Results We identified a total of 2596 visits by 2464 patients (11% of ED visits) who reported at least one vestibular symptom. In 1677/2596 visits (64.6%), vestibular symptoms were the main reason for the ED consultation. Vestibular symptoms were classified as dizziness (43.8%), vertigo (33.9%), postural symptoms (6.5%), or more than one symptom (15.8%). In 324/2596 visits (12.5%), cerebrovascular events were the aetiology of vestibular symptoms, and in 355/2596 visits (13.7%), no diagnosis could be established. In 23.8% of visits with vestibular symptoms as the main complaint, the underlying condition was life-threatening.



Central vertigo	
Ischemic stroke	27 (7.6%)
Hemorrhagic stroke	1 (0.3%)
Cerebral tumors	10 (2.8%)
Hydrocephalus	1 (0.3%)
Demyelinating disease	1 (0.3%)
Other diagnoses	
Benign positional paroxysmal vertigo	176 (50%)
Acute peripheral vestibulopathy[a]	56 (15.9%)
Migraine	19 (5.4%)
Vertebro-basilar insufficiency[b]	19 (5.4%)
Meniere's disease	4 (1.1%)
Miscellaneous	14 (4%)
Undetermined	24 (6.8%)

[a]Acute peripheral vestibulopathy included both vestibular neuritis and labyrinthitis. Miscellaneous: included toxic or traumatic injury of the inner ear, pseudovertigo due to hyperventilation in anxiety disorders, superior semicircular canal dehiscence.
[b]Vertebro-basilar insufficiency was diagnosed when an ischemic etiology was clinically suspected but no new acute lesions were found at neuroimaging. As stated in Section "Materials and Methods," we included in the central vertigo group only patients with an acute cerebral process detected by head imaging.

CURRENT OPINION

Vertigo and dizziness in the emergency room

Andreas Zwergal[a,b] and Marianne Dieterich[a,b,c]

XIII congresso nazionale
simeu
GENOVA 30 MAG - 1 GIU 2024

VIS
Vestibology • Italian Society
Società Italiana di Vestibologia

SOCIETÀ ITALIANA MEDICINA D'EMERGENZA URGENZA
Em
SIMEU

Journal of Neurology (2022) 269:294–306
https://doi.org/10.1007/s00415-021-10627-1

ORIGINAL COMMUNICATION

Capturing vertigo in the emergency room: three tools to double the rate of diagnosis

Benjamin Nham[1,2] · Nicole Reid[1] · Kendall Bein[2,3] · Andrew P. Bradshaw[1,2] · Leigh A. McGarvie[1] · Emma C. Argaet[2] · Allison S. Young[2] · Shaun R. Watson[4] · G. Michael Halmagyi[1,2] · Deborah A. Black[5] · Miriam S. Welgampola[1,2]

- whether it was a **first-ever vertigo** episode
- vertigo **duration** (seconds/minutes/hours/days or longer)
- **spontaneous or positional** vertigo,
- **migraine** symptoms: headache, visual aura, photo or phonophobia,
- **aural symptoms** (tinnitus/fullness/hearing loss),
- **neurological** symptoms e.g. diplopia, dysarthria, numbness,

- the **head-impulse test**,
- primary-position spontaneous, gaze-evoked, and positional **nystagmus**,
- test of **skew,**
- pursuit and saccades,
- limb and gait examination for weakness or **ataxia**

- **vHIT**
- pure tone **audiometry** if hearing loss was reported

VIS
Vestibology • Italian Society
Società Italiana di Vestibologia

GRACE
Guidelines for Reasonable and Appropriate Care in the Emergency Department

GRACE-3: Acute Dizziness and Vertigo in the Emergency Department

Received: 14 March 2023 | Accepted: 14 March 2023
DOI: 10.1111/acem.14728

CME

GRACE CLINICAL PRACTICE GUIDELINE

Guidelines for reasonable and appropriate care in the emergency department 3 (GRACE-3): Acute dizziness and vertigo in the emergency department

Jonathan A. Edlow FACEP, MD[1,2] | Christopher Carpenter MD, MSC[3,4] | Murtaza Akhter MD[5,6] | Danya Khoujah MD[7,8] | Evie Marcolini MD[9,10] | William J. Meurer MD[11] | David Morrill[12] | James G. Naples MD[1,13] | Robert Ohle MBBCh, MA, MSc[14,15,16] | Rodney Omron MD, MPH[17,18] | Sameer Sharif MD, BMSc (Hon.)[19] | Matt Siket MD[20,21] | Suneel Upadhye MD, MSc[22,23] | Lucas Oliveira J. e Silva MD, MS[24,25] | Etta Sundberg[26] | Karen Tartt[27,28] | Simone Vanni MD[29,30] | David E. Newman-Toker MD, PhD[31] | Fernanda Bellolio MD, MS[32,33]

XIII congresso nazionale
simeu
GENOVA 30 MAG - 1 GIU 2024

Stroke
Volume 40, Issue 11, 1 November 2009; Pages 3504-3510
https://doi.org/10.1161/STROKEAHA.109.551234

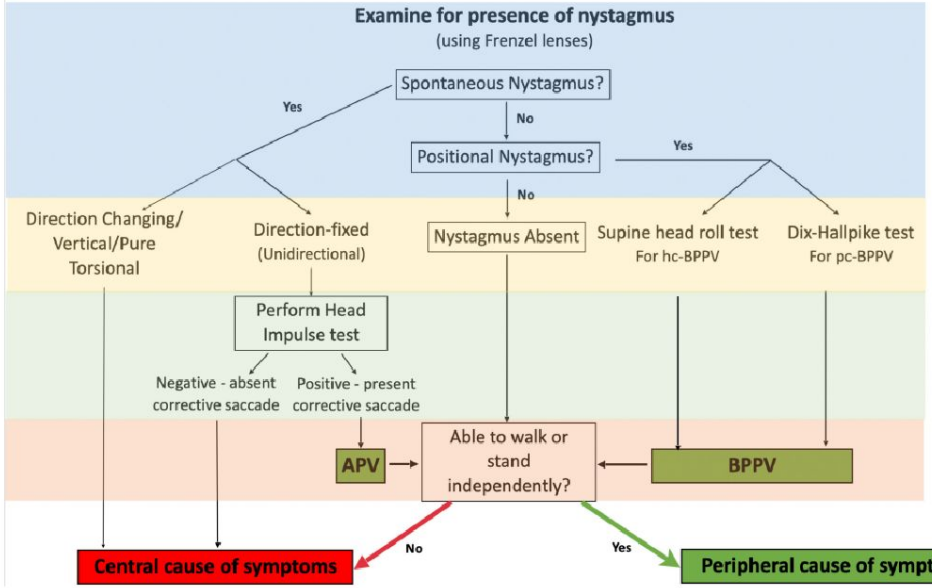
HINTs

ORIGINAL CONTRIBUTIONS

HINTS to Diagnose Stroke in the Acute Vestibular Syndrome

Three-Step Bedside Oculomotor Examination More Sensitive Than Early MRI Diffusion-Weighted Imaging

STANDING algorithm for patients with dizziness, vertigo, or instability



CONSENSUS DOCUMENT SIMEU-VIS

DOCUMENTO DI CONSENSO SULLA GESTIONE DEI PAZIENTI CON VERTIGINE ACUTA NEL DIPARTIMENTO DI EMERGENZA

Simone Vanni[1], Paolo Vannucchi[2], Rudi Pecci[3], Giuseppe Pepe[4], Maurizio Paciaroni[5], Andrea Pavellini[6], Mattia Ronchetti[6], Maurizio Bartolucci[7], MD, Angela Konze[8], Andrea Castellucci[9], Marco Manfrin[10], Augusto Pietro Casani[11]

www.simeu.it

https://www.simeu.it/w/articoli/leggiArticolo/287/dir

SIMEU
società italiana medicina d'emergenza-urgenza

6 ottobre 2023

VIS
Vestibology • Italian Society
Società Italiana di Vestibologia

24 Novembre 2023

CONSENSUS DOCUMENT ON THE MANAGEMENT OF ACUTE ISOLATED VERTIGO IN THE EMERGENCY DEPARTMENT

Società Italiana di Medicina di Emergenza Urgenza (SIMEU)

Società Italiana di Vestibologia (VIS)

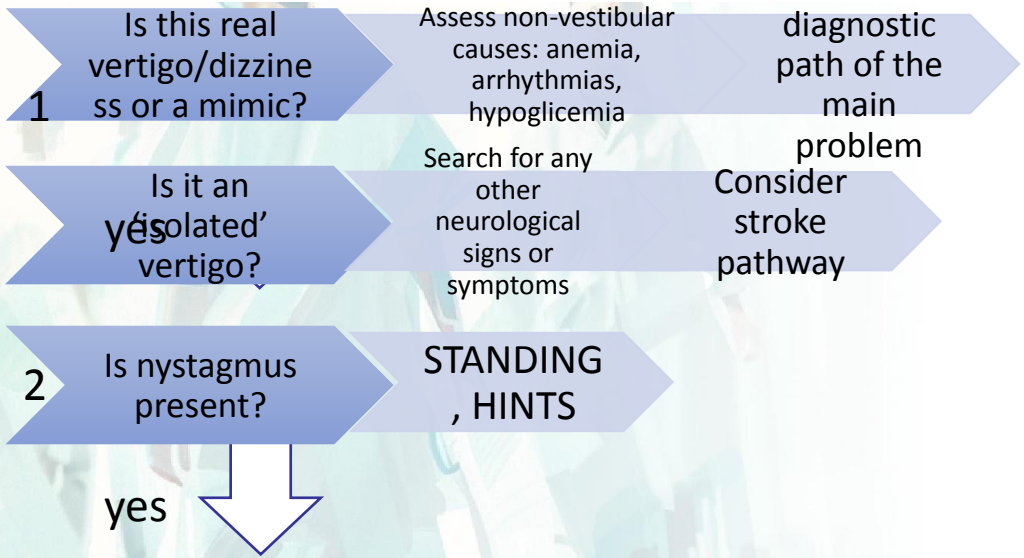
Simone Vanni[1], Paolo Vannucchi[2], Rudi Pecci[3], Giuseppe Pepe[4], Maurizio Paciaroni[5], Andrea Pavellini[6], Mattia Ronchetti[6], Lorenzo Pelagatti[6], Maurizio Bartolucci[7], Angela Konze[8], Andrea Castellucci[9], Marco Manfrin[10], Andrea Fabbri[11], Fabio de Iaco[12], Augusto Pietro Casani[13]

XIII congresso nazionale simeu GENOVA 30 MAG - 1 GIU 2024

VIS Vestibology • Italian Society Società Italiana di Vestibologia

Internal and Emergency Medicine,
28-5-2024 accepted for pubblication

Key questions for a correct clinical approach



VIS Vestibology • Italian Society Società Italiana di Vestibologia

XIII congresso nazionale simeu GENOVA 30 MAG - 1 GIU 2024

Key messages

- In diagnostic algorithms, the anamnesis relies on the "timing" and "triggers" of vertigo.
- The HINTS algorithm (Head Impulse Test, Nystagmus direction, Test of Skew) should be applied to patients with acute vertiginous syndrome and spontaneous nystagmus.
- The STANDING algorithm can be beneficial also for patients reporting vertigo without spontaneous nystagmus.
- The STANDING algorithm recommends evaluating upright stance in all patients. Those unable to stand or walk unassisted have a high likelihood of central forms.

Key messages

- The initiation of emergency neuroimaging should consistently follow a meticulous objective assessment, preferably utilizing validated diagnostic algorithms such as HINTS and STANDING.
- The routine application of non-contrast head CT for distinguishing central (stroke) from peripheral forms is not recommended, and it should not replace clinical evaluation. Always be mindful of the potential for "false negatives" in neuroimaging tests.
- In instances where acute central vertigo is suspected due to ischemia in the posterior circulation, prompt activation of the "stroke code" pathway is advised.

Multiprofessional evaluation path of the patient with acute vertigo in ED