

# Acute dizziness and vertigo: The bedside testing is essential

Vertigo and dizziness are among the most common reasons to see a physician, accounting for about 3-5% of medical consultations.<sup>[1]</sup> A large epidemiological study in Germany has yielded a lifetime prevalence of moderate or severe dizziness and vertigo in the general population of about 30%.<sup>[2]</sup> Dizziness and vertigo is mainly due to disorders in the fields of neurology, otology, psychiatry and internal medicine. Thus, the physician facing dizzy patients is best prepared crossing over specialties.

The diagnosis and treatment of dizziness syndromes and vestibular disorders has advanced considerably during the last two decades. Currently, a standardized terminology and diagnostic criteria for various vestibular disorders are being developed as part of the International Classification of Vestibular Disorders (ICVD).<sup>[3]</sup> This initiative will improve the diagnostic reliability and the communication between clinicians and researchers. As most vertigo and dizziness syndromes require specific treatment, the identification of the correct diagnosis is highly important. The most common vestibular disorder, benign paroxysmal positional vertigo, can now be effectively and rapidly resolved with simple positioning maneuvers that can rapidly be learned.<sup>[4]</sup>

How can the physician identify the cause of dizziness and vertigo? Without a doubt, the history is the essential piece of information in the diagnostic puzzle, leading to the correct diagnosis in most patients. Key questions address the quality of symptoms, the duration of episodes, accompanying symptoms and precipitants of vertigo. When facing an individual patient, it is often useful to assign the symptoms to one of the following categories: (1) Spontaneous recurrent vertigo, (2) long-lasting vertigo, (4) positional

vertigo, and (4) imbalance. In the next step, the most common diagnoses can be considered for each category, e.g. Menière’s disease or vestibular migraine in patients presenting with spontaneous recurrent vertigo.

Another important component of the diagnostic process is the bedside examination of the patient.<sup>[5,6]</sup> Signs of vestibular dysfunction frequently observed in dizzy patients are spontaneous or positional nystagmus and transient nystagmus after shaking the head. Furthermore, the examination is very helpful to assess if the central nervous system is affected. The differentiation between peripheral and central vestibular disorders is of particular importance in the acute vestibular syndrome, thus, in patients with long-lasting vertigo (>24 h) with acute onset. In most of these patients the symptoms are caused by an acute imbalance between the afferent activity from the right and left labyrinths due to vestibular neuritis. This monophasic disorder can be treated effectively with steroids and vestibular exercises and has a good prognosis. Some patients with an acute vestibular syndrome, however, harbor an ischemic stroke of the cerebellum or brainstem. In fact, vertebrobasilar ischemia may closely mimic peripheral vestibular dysfunction.<sup>[1]</sup> It has been estimated that about 25% of patients with an acute vestibular syndrome have a stroke in the posterior circulation,<sup>[1]</sup> a condition termed “vestibular pseudoneuritis.” Interestingly, it has been shown that a thorough clinical examination almost always identifies acute vertigo due to stroke, whereas even brain imaging with state-of-the-art MRI is less sensitive in the first few days after onset.<sup>[1,7]</sup>

Which clinical tests are essential for the identification of vestibular pseudoneuritis? A normal general neurologic examination may feel reassuring but is not sufficient to rule out stroke as about half of patients with vestibular pseudoneuritis have no obvious neurologic signs such as limb ataxia, dysarthria or sensory loss.<sup>[1,7]</sup> In contrast, a bedside oculomotor examination (HINTS) involving three simple tests identifies stroke in patients with acute vertigo with high specificity and sensitivity.<sup>[1,7]</sup> HINTS stands for head impulse, nystagmus and torsional skew. The

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head impulse test involves a rapid rotation (high acceleration) of the patient's head to the right and the left and assesses the function of the labyrinth.<sup>[8]</sup> In a patient with an acute vestibular syndrome, a pathologic test indicates peripheral vestibular dysfunction and points to vestibular neuritis. A normal head impulse test in a patient with acute vertigo is highly suspicious of a stroke. Next, spontaneous nystagmus should be assessed, beating always horizontal and unidirectional in vestibular neuritis but may beat predominantly in a vertical or torsional direction or change direction with gaze in vestibular pseudoneuritis. Finally, the cover-test may yield a skew deviation, thus a subtle vertical misalignment of the eyes irrespective of the direction of gaze indicate a central vestibular disorder.

Most sensitive for the detection of vestibular pseudoneuritis is the head impulse test but only the combination of these three tests can exclude stroke in patients with an acute vestibular syndrome.<sup>[1,7]</sup> These bedside tests can also reliably be performed by neurologists without profound experience in neuro-otology<sup>[9]</sup> and their reliability demonstrate beautifully that the physical examination of the patient should not be substituted by laboratory tests.

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