



Department of Neurology: Spotlight on dizziness and vertigo

In addition to providing expert diagnosis and management of patients with neurological disorders, e.g. Parkinson's disease our department of neurology has a special mandate to patients suffering from dizziness, vertigo and other problems related to balance. The department of neurology at the DKD provides a team approach to the diagnosis, treatment and rehabilitation of dizziness and vertigo. Our patients have access to onsite neurologists, physicians of related specialties (e.g. Oto-HNS, cardiology, orthopaedic surgery), neurophysiologists and physical therapists. Diagnosis and treatment may be accomplished in one location, eliminating the frustrating course of care experienced by most patients with dizziness and balance disorders.

What is vertigo?

Vertigo is either an unpleasant sensation of spatial disorientation or an erroneously perceived movement (spinning/swaying) of the body or the environment. Postural instability and gait unsteadiness are the consequences often accompanied by e.g. nausea or tinnitus (e.g. in Menierès Disease). These symptoms may be mild, lasting only minutes, or severe, resulting in total disability.

Dizziness and vertigo are among the most common symptoms causing patients to visit a physician (as common as back pain and headaches). The overall incidence of dizziness, vertigo, and imbalance is 5-10%, and it reaches 40% in patients older than 60 years. The incidence of falling is 25% in subjects older than 65 years. Falling can be a direct consequence of dizziness in this population, and the risk is even higher in those with other neurologic deficits.

Causes of dizziness and vertigo?

A multitude of medical conditions may cause dizziness and vertigo. Some balance disorders are related to a problem in the inner ear, while others are the result of other health problems or diseases. Furthermore, nervous-system disorders such as peripheral neuropathies (diminished nerve function in the legs or feet) can cause unsteadiness. Seldom, a tumor may affect the brain stem, the cerebellum (the coordination center of the brain), or the part of the cerebral cortex that controls voluntary muscle movements.

Patients suffering from vertigo frequently visit multiple physicians before a diagnosis is made, causing considerable cost and frustration.

Diagnosis of dizziness and vertigo

The diagnosis dizziness and vertigo can be challenging since the normal processes involved in the control of balance and equilibrium are the result of complicated interactions of several senses and systems of the body. These systems include the inner ear, vision, and touch, as well as the parts of the brain. "People who are chronically dizzy average five doctor visits for their condition, often without satisfactory diagnosis or treatment" summarizes Dr. v. Stuckrad-Barre from the department of neurology at the DKD.

Differentiating between vestibular and non vestibular causes is considered the first step in the diagnosis of the dizzy patient. In most cases the patient's history and the clinical examination should allow the physician to differentiate between peripheral vestibular, central vestibular, and non-vestibular forms of vertigo. Sometimes further additional laboratory tests are necessary. Thus, the highly trained personnel at the Department of Neurology of the DKD have a long-standing history of providing state-of-the-art evaluation and management of patients with dizziness and balance disorders for more than 30 years.

The Oto-Neurology section operates the vestibular laboratory with computerized electronystagmography and rotary chair testing for the analysis of eye movements (see picture). These tests provide information regarding the origin (i.e., inner ear vs. elsewhere) and extent (i.e., one ear vs. both ears) of balance system disturbance evident in eye movement reflexes. In addition, dynamic posturography detects the relative contributions of inner ear, visual,

and touch information evident in spinal reflexes in the control and maintenance of balance and posture.

Tests of vestibular (balance) function at the department of neurology:

- Electronystagmography
- Rotation Tests
- Dynamic Posturography
- Auditory brainstem response test

Other diagnostic tests:

- Magnetic resonance imaging (MRI)
- Computerized tomography (CT)
- Tilt-table testing
- Tests of auditory (hearing) function

Therapy of dizziness and vertigo

Most causes of dizziness are treatable and should not be ignored or tolerated. The department of neurology sees patients in a multidisciplinary setting and combines medical care, vestibular diagnostic testing, physical therapy and behavioral therapy. Providing the expertise to facilitate accurate diagnosis, very often is the first crucial step for appropriate treatment. The centralized specialist testing and early therapeutic intervention (e.g. by physiotherapy) offer an answer to managing these difficult problems. Therefore, physicians at the DKD are primarily using physical therapy techniques, medications (e.g. in Menierè Disease), behavioural therapy and only in selected cases (rare) surgery to successfully treat patients with dizziness.

Conclusion

Our overall target is to provide comprehensive evaluation, diagnosis and treatment of dizziness, vertigo and balance disorders using effective state-of-the-art diagnostic equipment and procedures, experienced staff specifically trained in dizziness and imbalance and therapeutic treatment options.