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# Report on the 2nd Taiwan Otoneurology Symposium, Dizziness Journal Club, and Otoneurology Continuing Medical Education Conference

## Zpráva o průběhu 2. taiwanského otoneurologického symposia, Dizziness Journal Club-u a Konference postgraduálního vzdělávání v otoneurologii

The Editorial Board declares that the manuscript met the ICMJE "uniform requirements" for biomedical papers.
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Taipei Medical University Xinyi Campus hosted the 2nd Taiwan Otoneurology Symposium from October 18 to 19, 2025. Clinical areas included acute, episodic, chronic, vestibular disease and ataxia. Psychosomatic, cardiovascular vertigo, and vestibular migraine were also discussed, its scope covered all key otoneurology topics forming a kind of contemporary otoneurology textbook. Contemporary trends of AI and technologic advancements in balance disorders were presented.

About 100 hospital and outpatient practitioners attended the meeting, mainly neurologists and ENTs specialists.

In the lecture "Balance and gait problems in neurological disorders," Professor Lin-Fong Lin examines novel treatments for these difficult diseases. He presented the "Quicker" – AI-integrated wearable exoskeleton robot for seniors and disabled persons. AI algorithms analyze walking, standing, stair climbing, and obstacles in the real time, improving lower limb performance and combating sarcopenia. Taiwan's ergonomic design, easy controls, and dynamic responsiveness earned it a spot at Cybathlon 2024 in Zurich after patenting in June 2024. Effect of the non-invasive intermittent theta burst stimulation of the bilateral leg motor area on the post-stroke recovery in a 10-patient pilot study did not outperform sham stimulation. Even if within groups the improvements were noted in the Berg Balance Scale (BBS: +2.6 points), Timed Up and Go (TUG: −2.8 s), and Fugl-Meyer Assessment lower extremity (FMA-LE: +1.0), technical issues has to be considered before further clinical testing.

The groundbreaking Robotic Gait Training System (RGTS) uses non-suspension three-point support (belly, kneecaps, buttock block) AI driven exoskeleton to help stroke patients with leg paresis. A feasibility trial found, that rehabilitation using the RGTS increased the FMA-LE by 6.5 points, the Postural Assessment Scale for Stroke Patients (PASS) by 9.2 points, the BBS by 13.5 points, and the Barthel Index by 19.2 points. Another study on Hybrid robot-assisted gait training (RAGT) enhanced FMA-LE (16.5 vs. 13.2 at 3 months) and BBS (38.6 vs. 34.5) in 40 subacute stroke patients.

Dr. Yan-Hui Liao highlighted vestibular implants and other new treatments for bilateral vestibulopathy (BVP). BVP has a 9.9-fold higher risk of falling than other vestibular pathologies. Main symptoms are movement-induced oscillopsia, impaired vision, unsteadiness, and worsening in darkness. BVP is confirmed by diminished angular vestibulo-ocular reflex (VOR) function (VOR gain < 0.6 by video Head Impulse Test [vHIT]) and bilateral caloric hypofunction (peak slow-phase velocity [SPV] < 6°/s). Dr. Liao reported a mean vHIT gain of 0.17 ± 0.02 (left) and 0.13 ± 0.03 (right), low caloric test response, and Dynamic Visual Acuity (DVA) reductions > 0.2 logMAR as the most sensitive markers. Functional impact of BVP is assessed by examination of postural stability (clinical Romberg and Fukuda test and quantitative stabilometry).

Most cases are idiopathic (30–50%), followed by aminoglycoside ototoxicity, audio-vestibular labyrinthopathy, and cerebellar ataxia with neuropathy. Cerebellar Ataxia, Neuropathy, and Vestibular Areflexia Syndrome (CANVAS) is a hereditary disease pre-

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senting with sensory neuronopathy (100%), cerebellar ataxia (80%), and BVP (53%), starting in the 5th decennium and progressing to a walking stick (~10 years) and wheelchair (~15 years) dependency. MRI shows vermis (lobules VI–VII) and crus I cerebellar atrophy. New treatments such as auditory feedback, galvanic stimulation, and iron-chelating antioxidants seem promising in the treatment of ototoxically conditioned cases of BVP. Implantable vestibular prosthesis proved to be effective in CANVAS cases.

The conference was attended by Dr. Černý and Dr. Balatková, representing Charles University, Second Faculty of Medicine and Motol and Homolka University Hospital. Both participate in the project on the video-HIT analysis in cases of BVP and Meniere's disease organized by the Taipei Medical University in collaboration with the 2nd Faculty of Medicine.

Dr. Rudolf Černý gave an invited lecture on the caloric test's relevance a century after its invention: "Old but good. Caloric test – what is its value today?" The caloric test (CaT) has been a gold standard of vestibular testing for almost a century since each ear is checked independently. The fact, that the caloric nystagmus persists in microgravity disproves thermoconvection currents as the only physiological cause of CT. CaT and the video Head Impulse Test are often used jointly since they probe various frequency domains and may yield different reasons. New CaT physiological principles, the strong ear formula recently introduced as a asymmetry measure, and HIT-CaT inconsistencies were discussed. Dr. Balatková presented "Vestibular rehabilitation using virtual reality in patients after vestibular schwannoma surgery." Immersive virtual reality (VR) stimulation mimicking complex audio-visual stimulation during shopping mall visit was used as an adjunct to standard balance rehabilitation. The control group received only standard rehabilitation. Three months later, the VR group had significantly better Dizziness Handicap Inventory (DHI) and functional scores than the control group. Complex visual and aural information was tolerated better after VR exposure.

In her second lecture, "Juvenile angiofibroma – our experience with the management of juvenile angiofibroma," results of 23 endoscopically treated patients followed for 10 years were presented. Treatment results are comparable with those at other centers treating this rare illness.

Second-day conference topics included otoneurology bedside and lab tests and vestibular anatomy and physiology. The covered topics included acute vestibular syndrome, episodic vertigo (vestibular migraine, benign paroxysmal positional vertigo, Meniere's disease, and PVP), and chronic vertigo (persistent postural-perceptual dizziness, bilateral vestibulopathy, cerebellar ataxia). Dr. Shoou-Jeng Yeh addressed orthostatic dizziness, which elevates the risk of falls, particularly among the elderly population. The principal causes are Postural Orthostatic Tachycardia Syndrome (POTS) and orthostatic hypotension. The differential diagnosis encompasses cardiovascular and neurological conditions, as well as pharmaceutical side effects. Hydration, compression garments, physical countermeasures, and medication constitute the treatment options.

Professor Tzu-Pu Chang presented the diagnostic algorithms of acute vestibular syndrome at emergency: Acute onset of rotational vertigo without central brainstem signs and without hearing loss and/or tinnitus are hallmarks of vestibular neuritis. About 25% of acute vertigo cases are of central origin, and half of them may lack central signs, which makes the diagnosis difficult. A combination of the Head-Impulse–Nystagmus–Test-of-Skew (HINTS) protocol and vascular risk assessment by ABCD2 score yields the best results in the first 24 hours. Observation and MRI clarify diagnosis within 48 hours.

In the section on vestibular migraine, the usefulness of the calcitonin gene-related peptide antibodies in the vestibular migraine prophylaxis was presented.


# Soutěž o nejlepší práci

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V roce 2026, stejně jako v předchozích letech, probíhá soutěž o nejlepší článek v časopise Cesk Slov Neurol N.
Zařazeny budou práce otištěné v číslech 2026/1–6.

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