

Stroke Prediction Based on the Spontaneous Nystagmus Suppression Test in Dizzy Patients

A Diagnostic Accuracy Study

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Study Question

Can the nystagmus suppression test discriminate between peripheral and central causes in patients with acute vestibular syndrome (AVS)?

What Is Known and What This Paper Adds

People with vestibular stroke involving the cerebellum or brainstem are often unable to suppress spontaneous nystagmus via visual fixation. This investigation's results show the presence of fixation suppression does not rule out a central lesion. The magnitude of suppression was lower compared to patients with vestibular neuritis. The nystagmus suppression test still predicts accurately vestibular strokes if eye movements are recorded with video-oculography (VOG).

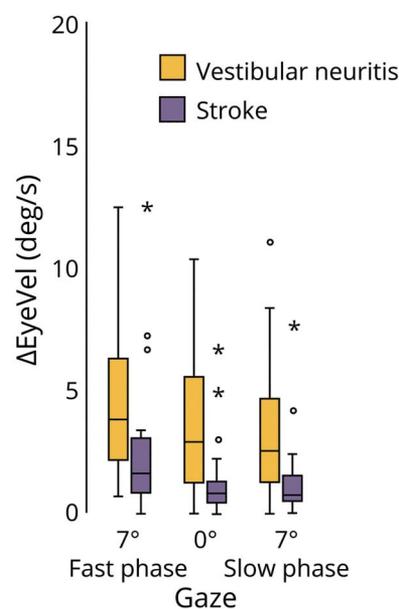
Methods

For this diagnostic test study, the investigators prospectively recruited 84 adults with AVS (56 with vestibular neuritis and 28 with vestibular stroke) who presented to the emergency department of a university hospital in Bern, Switzerland, between July 2015 and April 2020. These patients had no prior history of dizziness, eye movement disorders, or abnormal vision, and all patients received an MRI scan 3–10 days after symptom onset if the initial MRI was non-diagnostic. Fixation suppression was assessed with VOG and the ocular fixation index (OFI) values and spontaneous nystagmus slow velocity reduction were calculated. Diagnostic accuracy metrics were calculated.

Results and Study Limitations

The investigators confirmed the presence of complete nystagmus fixation suppression in 49.5% of the participants, including 40% of the patients with vestibular neuritis and 62.5% of the patients with vestibular stroke. OFI values had no utility for detecting cases of vestibular stroke, but nystagmus reductions of $<2^\circ/s$ achieved an accuracy of 76.9%, a sensitivity of 62.2%, and a specificity of 84.8% at detecting cases of vestibular stroke. This study provides Class II evidence that in patients with an acute vestibular syndrome, decreased fixation

Figure Group-Specific Nystagmus Velocity Reductions



Boxplots for median nystagmus velocity reductions (ΔEyeVel) with visual fixation in the participants with vestibular neuritis (green) and the participants with vestibular stroke (red).

suppression recorded with VOG occurred more often in stroke (76.9%) than in vestibular neuritis (37.8%). The present study's limitations include the possible dependence of fixation suppression effects on viewing conditions and the presence of a flashing target light. Referral and selection biases might have affected the participant sample.

Study Funding and Competing Interests

This study was funded by the Swiss National Science Foundation, and EyeSeeTec loaned the VOG goggles. The authors report no competing interests. Go to Neurology.org/N for full disclosures.

A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The corresponding author(s) of the full-length article and the journal editors edited and approved the final version.

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