I was interested to read the paper by Yang and colleagues published in the April 2018 issue of the Otolaryngology–Head and Neck Surgery. The authors investigated changes in video head impulse test (vHIT) gains and corrective saccades (CSs) at the acute and follow-up stages of vestibular neuritis to assess the diagnostic value of vHIT. They included 63 patients with vestibular neuritis who underwent vHIT at an initial presentation and an approximately 1-month follow-up. vHIT gains, gain asymmetry, peak velocities of CS, and interaural difference of CS were analyzed. Based on the results, mean vHIT gains increased significantly from the acute stage to the follow-up examination. The mean gain asymmetry, peak velocities of CS, and interaural difference of CS had decreased significantly at the follow-up. The authors also reported that the abnormal rate (87%) regarding both gain and CS value was significantly higher than that (62%) regarding vHIT gain only at the follow-up, although the abnormal rates did not differ at the acute stage (97% vs 87%). The authors concluded that it is advisable to check CS and vHIT gain while performing vHIT to detect vestibular hypofunction.

However, it is crucial to know that diagnostic value can be considered as diagnostic accuracy (validity) and diagnostic precision (reliability). To assess accuracy, validity estimates for qualitative variables include sensitivity, specificity, positive and negative predictive values, positive and negative likelihood ratios, as well as diagnostic accuracy and odds ratios (the ratio of true to false results). Pearson $r$ can be applied to assess accuracy regarding quantitative variables. However, for clinical purposes, the diagnostic added value of a test by reporting the area under the receiver operating characteristic curve should be considered. The reason is that the validity estimate may be excellent, while the diagnostic added value may be clinically negligible. The second methodological point is reliability (precision) as a different issue of diagnostic value, which should be assessed with appropriate tests. For quantitative variables, either the intraclass correlation coefficient or Bland-Altman plot can be applied. For qualitative variables, weighted kappa is suggested.

As a take-home message, accuracy and reliability as 2 issues of diagnostic value should be assessed by applying the aforementioned appropriate tests. Any conclusion regarding diagnostic value should be supported by the presented statistical and methodological issues.

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References

Advantages of Considering Gains and Corrective Saccades by Video Head Impulse for Patients with Vestibular Neuritis

We got a letter regarding methodological issues for our published study. However, the point is that we did not want to get the best abnormal criteria for the video head impulse test using our patient group, but we applied previously reported criteria based on data from normal subjects. We think that it would be easier to understand if we took an example. If 2 men came complaining of right hearing loss, which was severe 1 month ago, and one showed pure tone averages of 15 and 10 dB HL (right and left) and the other 35 and 10 dB HL, we can assume that both might have suffered sudden hearing loss, the former improved with normal hearing, and the latter still had hearing loss (as defined by a pure tone average $>$25 dB HL). We do not consider the former a false negative based on the abnormal criteria and would not change the abnormal criteria based on the data from the patients.

We would like to take this opportunity to discuss the clinical implications of our findings. If 2 men came complaining of
a vertigo attack that occurred 1 month ago and one showed video head impulse test gains of 0.6 and 0.9 (right and left) and the other 0.84 and 0.9, we can assume that the former might have suffered right vestibular impairment (right gain <0.8). Regarding the latter, we cannot localize the lesion side because gains were normal. However, if the velocity of the corrective saccade (CS) was pathologic (Figure 1 of our study), we can localize the lesion side, assume that right vestibular function might have been impaired, and try to find any lesions by evaluating any accompanied symptoms, signs, and further studies. If the patient still feels dizzy, this might be evidence to implement vestibular rehabilitation. We wanted to present how the diagnostic criteria could be used to explore the current status of vestibular dysfunction. In this study, the abnormal rate (87%) regarding gain and CS was significantly higher than that (62%) regarding gain only at the follow-up stage.

We believe that our findings can be extended to explore vestibular hypofunction among dizzy patients with normal caloric results because both tests explore vestibular function at different frequency ranges or correlate the CS parameters with subjective symptoms to provide clinical evidence to implement vestibular rehabilitation, although there are some controversies.

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References