Canadian Audiologist
The Official Publication of the Canadian Academy of Audiology

Letter to the Editor

Published June 10th, 2025

Erica Zaia, MSc

Comment on "Screening for Vertebral Artery Compromise in Patients with Benign Paroxysmal Positional Vertigo (BPPV)". CanadianAudiologist.ca, 12(3), April 2025 by Jaffer, Kermali, and Sheriff.

From: Erica Zaia, MSc, Registered Audiologist

Certified in Vestibular Assessment and Management
Clinical Assistant Professor – School of Audiology and Speech Sciences – UBC

Dear Editor:

This article, which appeared in CanadianAudiologist.ca (12(3), April 2025, only presented one side of a major controversy in the field, without mentioning the science disproving some of their statements. It does not capture the complexity of screening for vertebral artery insufficiency prior to maneuvers that require neck manipulation such as the Epley Maneuver.

Many other healthcare professional deal with neck rotation- some of whom with more force, such as our Chiropractor and Physiotherapist colleagues. As a result, research has been conducted to determine the validity of the Vertebral Artery Screening Test (VAST). As with any screening, we would be interested in both its sensitivity and its specificity. Here is what research says.

Cote, Kreitz, Cassidy, and Thiel (1996) used Doppler ultrasound examination of the vertebral arteries (VA) of 12 subjects with positive extension rotation tests and 30 healthy control subjects. Estimates of sensitivity and specificity for the extension rotation tests were calculated: sensitivity to increased impedance to blood flow was 0%; specificity for the left VA was between 67% and 71% depending on the method of calculation; specificity for the right VA was between 86% and 90%. The positive predictive value of the test was 0%, and the negative predictive value ranged from 63% to 97%. The authors concluded that they were unable to demonstrate the extension-rotation test as a valid screening procedure in detecting decreased VA flow.

If a clinician indeed wants to determine the risk for a spontaneous artery dissection or marked risk of reduced blood flow to the central nervous system, Harper and Heldman (2016) state that the pre-manipulation exam should include blood pressure, heart rate, cranial nerve examination, general eye examination, auscultation of bruits, and laboratory testing for elevated amino acid homocysteine. The authors also add that the current pre-manipulative tests have not been validated

as hemodynamic patency assessments, thus, these blood flow dynamic assessments do not identify cervical artery dysfunction or VBI risk. This statement of theirs is the most important for Audiologists, in my point of view: “If symptoms are associated with a spontaneous event, then mechanical tests have little value; in fact, they may provoke a vascular event.” They conclude by saying that these tests may identify people who could have benign adverse events after neck manipulation such as post manipulation headache, neck stiffness/soreness. Keeping in mind that both the Dix-Hallpike and Epley maneuvers are significantly gentler on the neck, these pre-maneuver tests have in fact very little validity for the Audiologist, who is indeed, already at risk of provoking an event **while** they perform the VAST as a screening!

Harper, and Heldman (2016) and Licht, Christensen, and Høilund-Carlsen (2000) summarize the controversy extremely well. They again state that these tests are neither sensitive nor specific and that “test should not always be considered an absolute contraindication to cervical manipulation. The literature appears to indicate that a test may be negative in the presence of vertebral artery occlusion and that vascular accidents may occur despite a negative test. In addition, considering that the incidence of cerebrovascular accidents with cervical manipulation is extremely low, why does this test have a role in identifying patients at risk? We suggest that a positive test should lead to re-examination after 1 or 2 months and, if reproducible, a duplex ultrasound evaluation of vertebral artery flow during pre-manipulative testing should be considered”.

There is significant research that extensively examines this issue from peer reviewed publications in the allied health profession literature, that shows:

1. That this screening has 0% sensitivity to identify risk of VBI and artery deficiencies.
2. The focus for the clinician should be on case history and identifying the people who have a strong cardio-vascular risk so that they can contact their doctors to seek valid measures of blood flow if necessary.
3. That the clinician who then identifies someone at risk should repeat this test in a month’s time and then specifically refer these patients out for Doppler assessment. If these tests are normal, these patients can and should be assessed and treated for BPPV as well as to assess the risk of falling.

References:

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Response to Letter to the Editor: Screening for Vertebral Artery Compromise in Patients with BPPV

By S. Jaffer, K. Kermali, and F. Sheriff

We thank Clinical Assistant Professor Erica Zaia for her thoughtful and well-supported response to our article, Screening for Vertebral Artery Compromise in Patients with Benign Paroxysmal Positional Vertigo (BPPV). Her critique brings forward important literature that challenges the utility of the Vertebral Artery Screening Test (VAST) in vestibular assessment, and contributes to the ongoing conversation around evidence-based practice in audiology.

We would like to clarify that our intent was not to promote VAST as a mandatory or universally accepted stand-alone tool, but rather to reflect on its continued presence in clinical training and some audiology practices. Specifically, our recommendation to consider VAST was influenced by its inclusion in a prominent document developed by a joint committee of audiologists from the Canadian Academy of Audiology (CAA) and Speech-Language and Audiology Canada (SAC)—Vestibular Assessment and Management for Canadian Audiologists: A Scoping Review (2017). This review was created to provide a framework for vestibular audiologists in Canada and to outline suggested knowledge and clinical practices. “The audiologist should gain …. knowledge and experience in administering and interpreting various vestibular assessment techniques, including but not limited to …. pre-testing screenings, such as vertebral artery screening test and cervical vertigo test.” The scoping review was developed using an evidence-based process that integrated clinical literature, systematic reviews, and the committee’s expertise to guide practice, especially in areas where scientific data remains inconclusive.

That said, we fully acknowledge—and agree with—Erica Zaia’s concerns regarding the limited diagnostic value of VAST. We are aware that studies such as those by Côté et al. (1996) and Harper & Heldman (2016) have shown that VAST has low sensitivity and questionable predictive value, particularly when it comes to vertebrobasilar insufficiency (VBI). As she rightly notes, tests and maneuvers such as Dix-Hallpike and Epley are generally safe and controlled, and should not be conflated with the more forceful cervical manipulations seen in other disciplines. Our article did not intend to equate these, but rather to emphasize the importance of clinical caution in patients who may present with vascular risk.

Importantly, we also highlighted alternative and more robust tools such as the HINTS exam (Head Impulse, Nystagmus, Test of Skew), which offer superior accuracy in differentiating central from peripheral causes of vertigo. We strongly agree that a detailed case history, awareness of cardiovascular risk factors, physical exam (including a cardiovascular, neurological exam and orthostatic vitals) along with appropriate imaging referrals are more effective and evidence-based than sole reliance on mechanical screening methods like VAST.

Nevertheless, we believe that aspects of the VAST protocol—particularly observing the patient for

symptoms associated with vertebrobasilar insufficiency (e.g., the “5 Ds and 3 Ns”)—can still be useful as part of a broader clinical conversation, especially when integrated safely into the case history. While its stand-alone utility as a diagnostic screen is increasingly questioned, its continued reference in audiology and training programs such as those offered by the American Institute of Balance (founded by Audiologist Dr. Richard Gans) may reflect its role in guiding clinical thinking during case history taking, rather than serving as a diagnostic endpoint.

We sincerely thank Erica Zaia for contributing to this important dialogue. Constructive discussions like this help move our profession forward, encouraging more precise, evidence-informed, and patient-centered approaches in vestibular care. We hope this exchange contributes to the ongoing refinement of audiologic protocols for assessing and managing dizziness.

References

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