Canadian Audiologist
The Official Publication of the Canadian Academy of Audiology

Is There Evidence for Screening for Vertebral Artery Insufficiency Before Maneuvers That Requires Neck Manipulation Such As The Epley Maneuver?

Published June 10th, 2025

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Research has been conducted to determine the validity of the Vertebral Artery Screening Test (VAST). As with any screening, we would be interested in its sensitivity and 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 calculation method; specificity for the right VA was between 86% and 90%. The test's positive predictive value was 0%, and the negative predictive value ranged from 63 to 97%. The authors concluded that they could not 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 indicates 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".

References

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