Hautant's Test

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Hautant's test is a neurological procedure that is intended to identify insufficient blood flow through one or both vertebral arteries. The test is performed by instructing the seated patient to elevate both upper extremities in the anterior plane with the shoulders flexed by 90 degrees, the elbows extended, and the hands supinated. The patient is then instructed to rotate and extend the neck and head to one side and close his eyes. This position is held for 15 to 30 seconds. The examiner stands prepared to catch the patient if he becomes unstable and observes the patient's upper extremities. (Fig.1)

A negative (normal) result is achieved when the patient maintains the initial position of the upper extremities throughout the testing period. (Fig.1) The test is then repeated with the head and neck rotated and extended to the opposite side.

A positive (abnormal) result occurs when the patient's hand(s) pronate and/or shoulder flexion is difficult to maintain. (Fig.2) Changes in hand and arm position occur in a slow, drifting manner. The patient's eyes must be closed during the test. If the patient's eyes are open, he may attempt to maintain the starting position when the arm(s) begin to drift. This could result in a false negative. The patient is usually unaware of the position change in the upper extremities during a positive result when the eyes are closed.

Like most tests for vertebral compromise, Hautant's test has low specificity and sensitivity. A positive result does not identify which vertebral artery is the primary culprit, what relationship the result has with the collateral circulation in the carotid arteries, or if the abnormality is congenital or acquired. Rates of false positives and false negatives are not known for Hautant's.

Despite sharing low specificity and sensitivity with other vertebral artery screening tests, Hautant's does have two advantages over many of its counterparts. A positive Hautant's test is based on a physical response, not on the report of subjective symptoms. Also, the test is related to the standard, well-documented neurological test—Drift.

DeKleyns, Barre-Leiou, and George's tests utilize neck/head rotation and extension in a manner similar to Hautant's.[1] Positive results for these tests are said to be dizziness, vertigo, visual burning, nausea, and faintness. Terrett[2] reports that the most common of these subjective complaints is dizziness. Isaacs and Bookhout[3] disagree with this and state that anxiety is the earliest sign of cerebral anoxia. DeKleyns, Barre-Leiou, and George's tests are performed with the patient's eyes open. Another positive result is said to be the observation of nystagmus (oscillating eye movements during testing). However, nystagmus can be a normal finding for some individuals.[4]

The inability to maintain hand supination and arm elevation seen in a positive Hautant's test is also the result in a positive Drift test. The Drift test is for dysfunction in the brainstem and/or motor cortex. It is performed by instructing the seated patient to elevate both upper extremities in the anterior plane with the shoulders flexed by 90 degrees, the elbows extended, and the hands supinated. The patient's eyes are closed with no head/neck rotation or extension. (Fig.3) This position is held for 15 to 30 seconds.

A negative result is achieved when the patient maintains the initial position of the upper extremities throughout the testing period. (Fig.3)

A positive result occurs when the patient's hand(s) pronate and/or shoulder flexion is difficult to maintain. (Fig. 4) Changes in hand position occur in a slow drifting manner. As in Hautant's test, the patient's eyes must be closed to prevent the patient from compensating for changes that occur in upper-extremity positioning.

A positive Drift test indicates a problem in the brain stem or motor cortex, although it does not identify the type of lesion responsible (tumor, stroke, etc.). A negative Hautant's test is essentially a negative Drift test. However, a positive Drift test is not a positive Hautant's test. In practical use, Hautant's is performed first. If it is negative, as stated, Hautant's and Drift are both negative. If Hautant's is positive, then Drift should be performed individually.[5] If Hautant's is positive and Drift is negative, a vascular pathology exacerbated by head/neck rotation and extension is indicated. If both are positive, it is less likely that the primary lesion is vascular. Drift is a standard, well-referenced neurological test. In fact, Drift is part of the Cincinnati Pre-Hospital Stroke Scale. The scale seeks to identify or rule out stroke by noting facial asymmetry or droop, speech abnormalities, and

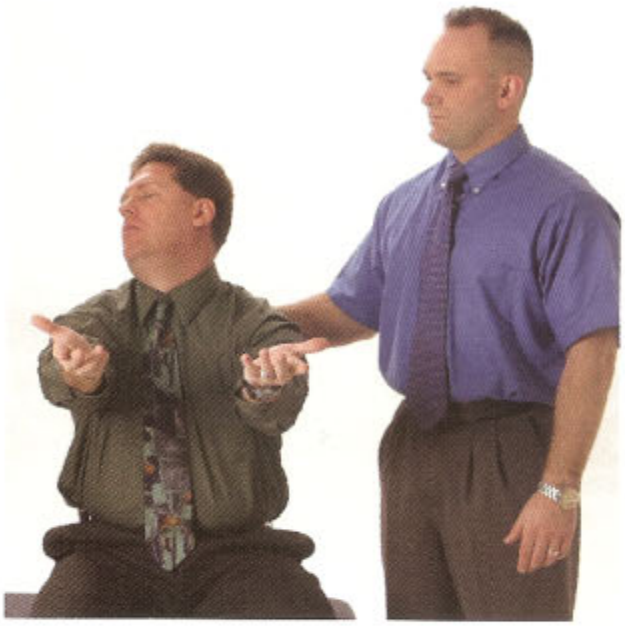

Figure 1. Beginning position and negative (normal) result for Hautant's test.

Figure 2. Positive (abnormal) result for Hautant's test.

Figure 3. Beginning position and negative (normal) result for the Drift test.

Figure 4. Positive (abnormal) result for the Drift test.

upper-extremity drift. The Cincinnati Scale is a part of stroke identification and emergency procedures taught by the American Heart Association in its course, Basic Life Support (BLS) for Health Care Providers.[6]

All health care providers trained in cardiopulmonary resuscitation (CPR) by the American Heart Association receive training in Drift and the Cincinnati Scale. Utilization of Drift testing by health care providers from all schools of healing gives the test legitimacy. Widespread acceptance and use of the Drift

test carry over to Hautant's test since Drift is a part of Hautant's. These facts make Hautant's procedure a good choice for vascular screening prior to cervical adjustment.

Underburg's test for vertebral artery screening utilizes the same upper-extremity, neck, and head positions used in Hautant's for a patient who is standing and marching in place.[1] This test is difficult for patients with lower-extremity and balance problems. And, although it is rare, it is possible for a patient to experience a drop attack (collapsing without losing consciousness) during this and other vertebral artery screening maneuvers. This adds a degree of risk to Underburg's maneuver, as it is difficult to catch a standing patient who begins to fall. It is much easier to catch and stabilize a seated patient if collapse occurs during Hautant's test. If a patient experiences a drop attack during vertebral artery testing, the head or neck should be returned to the neutral position as quickly as possible. A drop attack is a definite positive for any vertebral artery screening test.

Patients with inner-ear dysfunction may experience symptoms similar to those created by altered cerebral blood flow during vertebral artery screening. Differential diagnosis can be aided by using the history and by performing the Dizziness test. The Dizziness test is performed by alternating rotation of the head and shoulders. If symptoms occur with both maneuvers, vertebral artery compromise is indicated. If symptoms occur only during head rotation, inner-ear trouble is suspected.[7] The safest and most accurate route to pursue differential diagnosis, however, is through referral for vascular imaging.

Vertebral artery screening is far from an exact science. All available methods lack specificity and sensitivity. The author agrees with Terrett[2] that failure to perform vertebrobasilar screening prior to cervical adjustment does not imply practitioner negligence. The use of these tests continues due to the hysteria over vascular accidents following cervical manipulation and because they are the only screening tests currently available. In this author's opinion, Hautant's test is the best choice for those who do choose to screen, based on the objectivity of the patient's response during the test and the test's relationship to the neurological sign of Drift. JMCA

References:

1. Cipriano JJ. Photographic Manual of Regional Orthopaedic and Neurological Tests. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 1997.

2 Terrett A. Current Concepts in Vertebrobasilar Complications Following Spinal Manipulation. Des Moines, IA: NCMIC Group, Inc.; 2001.

3. Isaacs ER & Bookhout MR. Bourdillon's Spinal Manipulation. 6th ed. Woburn, MA: Butterworth-Heinemann; 2002.

4. Goldberg S. The Four-Minute Neurologic Exam. Miami, FL: MedMaster, Inc.; 1987.

5. Miller, KJ. Practical Assessment of the Chiropractic Patient. Huntington Beach, CA: MPAmedia; 2002.

6. American Heart Association. BLS for Healthcare Providers. American Heart Association; 2001.

7. Magee D J. Orthopedic Physical Assessment. 4th ed. Philadelphia, PA: Saunders; 2002.