

Journal Club Synopsis  
Block 4, October 2013  
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### **Does my dizzy patient have vertebrobasilar insufficiency or stroke?**

**Clinical Scenario:** You find yourself taking care of a 65 year old female with a past medical history of hypertension who reports dizziness that started today upon awakening. She describes the dizziness as the sensation of “things spinning around the room” which is made worse with sudden movements of her head. She does have associated nausea but denies other symptoms, including ataxia, weakness, slurring of speech or other focal neurologic findings. On presentation she is noted to be hypertensive at 175/90 however the remainder of her vital signs is within acceptable limits. On neurologic exam, there are no focal findings. You perform a CT scan of her head which reveals no acute intracranial abnormality. Labs are unremarkable. The patient has some improvement in her symptoms after being given Antivert and a normal saline bolus. You feel that based on her clinical presentation, the etiology of her vertigo is likely peripheral in nature, but you don’t want to send a patient home with vertebrobasilar insufficiency. Who is at risk for posterior circulation ischemic stroke and how significant is that risk? Is there good literature to help us discern who can be safely discharged home and who needs to be admitted for CVA workup?

#### **Article 1:**

HINTS to Diagnose Stroke in the Acute Vestibular Syndrome: Three Step Bedside Oculomotor Examination More Sensitive Than Early MRI Diffusion-Weighted Imaging. Kattah, Jorge, et al. *Stroke*. 2009 Nov; 40(11): 3504-10.

This is a prospective, cross sectional study of patients at high risk for stroke who presented with acute vestibular syndrome (AVS). 101 patients were evaluated by a neuro-ophthalmologist who performed structured examination of three bedside exam findings, including head impulse test of vestibulo-ocular reflex function, observation of nystagmus in different gaze positions, and prism cross cover test of ocular alignment. All underwent MRI to determine if cause for AVS was peripheral or central. 25 had peripheral lesions and 76 had central lesions. The presence of normal head impulse test, direction changing nystagmus in eccentric gaze and skew deviation was 100% sensitive and 96% sensitive for stroke. Initial MRI diffusion weighted imaging had a 12% false negative rate. While this is a promising study, the largest setback is that the HINTS exam was performed by a neuro-ophthalmologist. It is unclear whether emergency physicians could have similar results, even if trained to perform this exam. Also, this study selected only high risk patients who we would likely admit for MRI regardless, therefore these exam findings may not be as accurate in lower risk patients with vertigo.

**Article 2:**

Risk of vascular events in emergency department patients discharged home with diagnosis of dizziness or vertigo. Kim, Anthony, et al. *Ann Emerg Med*. 2011 Jan; 57(1): 34-41.

A retrospective cohort study was performed on 31,159 adults discharged home from the ED with a diagnosis of dizziness or vertigo. They reviewed patient records to determine if patients had death or hospitalization for cerebrovascular or cardiovascular events, which was the primary outcome. During the 180 days following the patients discharge, the cumulative incidence of vascular event, CVA, or cardiovascular event was 0.93%. The risk was higher in the first month, in older people, and in males. The study advantage is its large sample size. While these statistics are reassuring for those we discharge home, it does not help us determine who is safe for discharge. It would be beneficial to see the data broken down to see how the numbers change based on individual patient risk factors.

**Article 3:**

Application of the ABCD2 score to identify cerebrovascular causes of dizziness in the emergency department. Navi, Babak, et al. *Stroke*. 2012 Jun; 43(6): 1484-9.

A retrospective observational study was performed to assess if the ABCD2 score can accurately stratify risk of CVA in dizzy patients. The ABCD2 score uses 5 clinical factors: Age >60 = 1, BP >140/90 = 1, clinical features (unilateral weakness = 2, speech disturbance = 1), diabetes = 1, and they excluded the duration of symptoms in this study. The rule was applied to 907 patients, 4.1% of which had a cerebrovascular cause for their dizziness. 5/512 (1%) of patients with a score <3 had a cerebrovascular event; however those with a score of 4-5 had a risk of 6.8%. This rule shows promise in developing some easy, objective criteria we can use to determine who is at higher risk for stroke. Of course this data needs to be prospectively validated and the score needs to be modified in regards to the time of onset. This was also performed at one center, therefore needs to be studied more widely to ensure application to all populations.

**Synopsis:**

As with most Journal Clubs, we unanimously agree that we need to see more literature to determine which patients with vertigo can be discharged home safely. The HINTS exam, although promising, is not ready to be relied upon given that it has not been tested by emergency physicians. Go ahead and give the HINTS exam a shot for practice, but don't base decisions on it. The good news is that based on article 2, the patients we determine are safe for discharge home have a <1% risk of stroke across all populations. In some specific populations, the risk may be higher so it would be helpful to see more data regarding specific risk factors. The ABCD2 score essentially uses risk factors to try to risk stratify, however this study has not been prospectively validated therefore cannot be used.

**Bottom Line:** The overall consensus was to use your best clinical judgment and be cautious in those with cerebrovascular/cardiovascular risk factors: elderly, hypertensive, males, diabetics, etc. If they have ataxia or cannot walk, admit them without question!