

John D. Hoyle

Overuse of imaging in patients with syncope

Story from the Front Lines

“They checked my thyroid and there’s nothing wrong with it,” she said in Farsi over the interpreter phone as we sat in my office at her first visit with me as her primary physician. I clicked through her chart and verified that, indeed, she had had two thyroid ultrasounds and a fine needle aspiration of a right lobe thyroid nodule over the past year and a half. This nodule was initially discovered about 2 years ago when she presented to the emergency department with a near-syncope episode and received a Head CT and Head and Neck CTA. Vital sign abnormalities on presentation included HR 109 and BP 178/83, which improved to 96 and 136/75 with 1L of fluids. Her physical exam was without neurologic deficits. Workup included a normal BMP, CBC, TSH, and Free T4, an unremarkable echocardiogram, and the head and neck CT/CTA that I mentioned, showing normal vasculature, some cerebellar atrophy, and a 4.3cm thyroid mass - may represent multinodular goiter, neoplasm not excluded. She was ultimately discharged without any obvious cause found for the syncope/presyncope, and to my knowledge it has not recurred. She dutifully received an appropriate workup for the thyroid mass over the intervening time, and now we have confirmation that the mass was benign.

Teachable Moment

This patient was seen in the ED for syncope with possible loss of consciousness and underwent Head and Neck CT/CTA to rule out CVA. This scan resulted in an incidental finding that required additional imaging and a thyroid biopsy of a mass which was asymptomatic and ultimately benign. The direct harms she experienced from this are limited to radiation exposure from the CT scan, discomfort surrounding the thyroid biopsy, and time and resources spent on additional testing. However, she was subjected to other potential harms including exposure to IV contrast, complications from the biopsy, and the possible need for thyroid surgery, not to mention the psychological impact of a possible malignancy on an already anxious person. These harms could have been avoided by forgoing her head and neck CT scan and opting for no further testing. The American College of Emergency Physicians and the choosing wisely campaign recommend against Head CT in the workup of syncope provided the patient has no significant trauma and a normal neurologic exam (1). These recommendations are supported by evidence including: a large retrospective study of patients hospitalized for syncope who underwent head CT showing that head CT yielded a diagnosis in only 5/283 (2%) of patients (all of whom had history consistent with CVA) (2), and a smaller retrospective study of syncope in a community ED with 128 patients, 44 undergoing head CT, with only 1 identified to have a posterior CVA (3). Another study at Beth-Israel hospital of patients undergoing head CT for loss of consciousness showed only 2/113 (2%) to have CVA findings despite a normal neurologic exam (4). Overall, given the low diagnostic yield of head CT in this clinical situation, I believe this patient could have avoided harm by not undergoing this test. I would add that the need for a telephone interpreter for patients who speak a different language may make it challenging to obtain as thorough and reliable history as one otherwise might, especially regarding a subjective event such as syncope. This likely increases clinicians’ uncertainty and urges us to rely on more “objective” findings such as labs and imaging. I argue that in these cases we must be especially cognizant of the possible harms of overtesting.

References

1. Avoid CT of the head in asymptomatic adult patients in the emergency department with syncope, insignificant trauma and a normal neurological evaluation. American College of Emergency Physicians. Choosing Wisely, ABIM Foundation. 2014 Oct 27.
2. Pires LA, Ganji JR, Jarandila R, Steele R. Diagnostic patterns and temporal trends in the evaluation of adult patients hospitalized with syncope. *Arch Intern Med*. 2001Aug 13-27;161:1889-95.
3. Giglio P, Bednarczyk EM, Weiss K, Bakshi R. Syncope and head CT scans in the emergency department. *Emerg Radiol*. 2005 Dec;12(1-2):44-6.
4. Grossman SA, Fischer C, Bar JL, Lipsitz LA, Mottley L, Sands K, Thompson S, Zimetbaum P, Shapiro NI. The yield of head CT in syncope: a pilot study. *Intern Emerg Med*. 2007 Mar;2(1):46-9.