Sometimes It Hurts to Do No Harm
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Story from the Front Lines:
Shared decision-making and effective patient-physician communication become increasingly vital to ethical patient care as the lines between what we are able to do and what we should do in medicine become blurred. Patients entrust themselves to our care and assume the diagnostic evaluation we perform is to their benefit, and often they may not even consider the risks involved. Frequently we hear, “I don’t know what’s important—you’re the doctor.” The art of medicine pertains to the lack of black or white, the paucity of information in elucidating right or wrong answers. We work in shades of gray, to a degree that may alarm a layperson.

A major concern as physicians is missing a diagnosis that could lead to a very bad outcome. This can compel us toward algorithmic medicine—necessary, perhaps, in some situations, but if taken too far ignores the patient in front of us, so much so that it is little wonder laypeople think medicine can be practiced using an iPhone app.

Ms. P is a 50-year old female with a history of lupus and pulmonary embolism on sub-therapeutic warfarin and exoxaparin who presented to the ED with gross hematuria. She had multiple other vague complaints—one of which was a headache “worse than normal.” Earlier that day a small lightweight cardboard box fell on her head off a garage shelf. She was being admitted for hematuria with symptomatic anemia. However, given her headache and anticoagulation a head CT was ordered—despite a GCS of 15, no laceration, and a non-focal neurologic exam. Unfortunately, the CT revealed a “small hyperdense focus L posterior temporooccipital region,” can’t exclude small hemorrhage.” Subsequently she underwent 2 repeat CTs to exclude hemorrhage—the first showed stability and the second showed resolution.

What was the decision-making process involved in ordering the initial CT? Was it a reflex decision because a patient on anticoagulation complained of a headache? Was it a shared decision between the physician and patient? Were the risks and benefits equally weighed? Was it a time-saver to avoid taking a complete history on a difficult and complicated patient?

This is a situation in which algorithms—if they exist—must be considered in the clinical context. The patient’s chief complaint was not headache—it was hematuria. Does this affect our decision-making? Should it?

Although a head CT seems like a relatively benign test with the potential for excluding a dangerous head bleed, how necessary is it in this case? And when there is an abnormal finding, now one CT has become three. Decision-making tools exist for assisting clinicians in ordering diagnostic tests, but these also must be evaluated within the clinical context—to avoid practicing iPhone medicine. One study compared 2 decision-making tools for evaluating the need for CT imaging in patients
with head injury. Patients enrolled included those on anticoagulation. One of the decision-making tools New Orleans Criteria (NOC) uses headache as one of the criteria for CT scan in patients while the other Canadian CT Head Rule (CCHR) does not. The NOC has a sensitivity of 100% while the CCHR has a sensitivity of 98.4% for identifying patients with traumatic CT findings. Theoretically using the NOC in this patient would lead to a CT scan, but evaluating the clinical context—the patient did not technically have a head injury, nor was headache her chief complaint—and knowing there exists a tool with more stringent criteria makes the need for CT even less compelling (1).

In regards to the risks of CT scans, there clearly exists the risk of radiation exposure as well as a risk of malignancy, albeit small. A study was performed to investigate radiation doses and attributable risk of cancer following various CT scans. Although the amount of radiation varies widely among institutions and individuals, the study estimated the radiation dose for a routine head scan to be 2 mSv, which is estimated to lead to a lifetime risk of malignancy of 1/8100 women, although this risk is likely lower for older females. The study emphasized the increasingly routine use of CT scans and the need to carefully weigh the risks and benefits prior to ordering studies (2).

This case highlights the necessity for being thoughtful about why we are ordering tests, involving the patient in the decision-making process, and evaluating the patient’s complaint within the clinical context. While diagnostic algorithms may be helpful, they must be used as an adjunct. Although potentially a patient with a headache and “head trauma” could undergo CT to maintain 100% sensitivity in ruling in traumatic CT findings, algorithms must not be blindly applied. Utilizing decision-making tools as well as our years of clinical experience and when all else fails talking to the patient will help us avoid practicing medicine with an iPhone. We owe it to our patients.