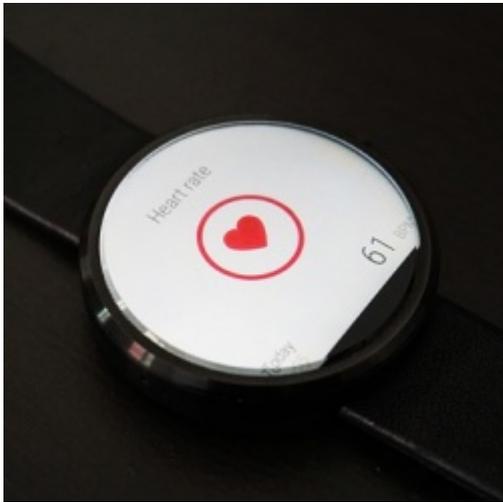


Too Much Information - TMI Comes To Health Care



By *Chuck Dinerstein, MD, MBA* — August 7, 2018



Courtesy of Apichit [1]

The US Preventative Care Task Force (USPCTF) indicated today that an electrocardiogram, an EKG, is not an ineffective screening tool for atrial fibrillation – a disorder of the heart’s rhythm. At the same time, several tech companies are strapping EKG recorders to our wrists, as fitness trackers and smartphones. Patients are becoming more empowered and knowledgeable about their fitness and "health" through their smartphones’ messages. These USPCTF guidelines, formerly only a physicians’ concern, is now vital to those of us receiving health information from our wrists. After all, “with great power, comes great responsibility.”

Background

Atrial fibrillation is a disorder of the upper chambers of the heart that collect the blood from our veins and passing it on, with a little nudge, to the ventricles, the heart’s pump. Fibrillation describes an electrical condition, where a “short” has resulted in the container that is the atrium quivering rather than contracting in an organized way. It is the most common disturbance of the hearts electrical circuits, conduction system.

Atrial fibrillation, a-fib to those in the business, can result in strokes and not infrequently big strokes creating lifetime disability, significantly lowering the quality of life while raising the costs. For many, a stroke is the first indication of the presence of a-fib, too late for preventative care. For those who identified while asymptomatic, treatment with blood thinners while not perfect prevention is quite effective in reducing the incidence of these disabling strokes.

A-fib has long been studied and how it ‘causes’ or is linked to these cardioembolic strokes (cardio for the heart, embolic describing a clot traveling from the heart to the brain) has shifted. The quivering of the atrium, which enhances the likelihood of a clot forming that will subsequent break

free has long been the accepted “cause.” More current research indicates that changes to the atrium’s muscular wall reducing its contractility, even when sent the right signal at the right time, allows the formation of these clots and is another “cause.” As a result, while a-fib was the sure sign of an increased risk of a stroke when I was training, today it is neither necessary or sufficient – it is not a trigger for therapy, it is a trigger for subsequent careful evaluation.

To try and separate out those with a real risk of stroke in the presence of atrial fibrillation a scoring system, taking other factors into account, CHADS-VASc, stratifies individuals into six groups with increasing risk. The tests predictive power is about 60-70%, better than a coin flip but not a guarantee. Even in the groups with the highest risk, the overall one year risk of a stroke is about 9% so treating everyone means we are exposing a lot of people “unnecessarily” to blood thinners, which come with their own complications.

How do we best protect and serve

Atrial fibrillation is most often asymptomatic until it is dramatically not. How you identify the patient’s at risk for a stroke before it occurs while not treating patients with little chance of stroke unnecessarily? Put directly, does the use of an EKG to screen for atrial fibrillation result in better health outcomes for those at high and low risk?

The report by the US Preventative Care Task Force notes that there are no studies that directly answer the question; so they resort to meta-analysis of multiple diagnostic and treatment studies concluding, and I think rightly so, that EKG’s are not a useful screening test. Among the evidence leading to this conclusion were too pertinent conclusions.

- For a-fib “opportunistic screening,” a new way of saying an unprompted physical examination identifies as many patients at risk as a formal screening program. While that may seem counter-intuitive, it is a result of a-fib’s tendency to come and go, and not always be present. Because of this evanescent behavior, covering the most substantial number of patient’s at risk physician’s would require extended monitoring periods, using minimally invasive monitors. Smartwatches serve the same function, at a much lower cost – in fact, screening by smartwatch is solely the patient’s expense.
- Screening tests generate false conclusions, indicating the presence of disease when it is not there or falsely determining that no condition is present. Both these errors come with costs, unnecessary testing in the case of false positives and missed treatment opportunities in the case of false negatives. It seems that smartwatches just like EKGs generate about 10% false positives for atrial fibrillation. Luckily the additional testing to make a definitive identification of atrial fibrillation requires no invasive testing; requiring a good history and physical, a confirming EKG and an ultrasound to look at the heart’s structure and contractility. So screening has little downside, with no screening-related injury or invasion of patient - but it does increase cost.

In our population, the US Preventative Care Task Force states that EKG screening has no current role. And that would carry gravitas clinically in a world without smartwatches. But these watches are continually monitoring with no cost to the health care system. Are they functioning as indicators or alarms? And how will physicians incorporate this new source of clinical information?

Smart Watches

Blood thinners, anticoagulants, are the current best treatment to prevent strokes in patients with atrial fibrillation. Current thinking is that unless we are going to treat patients with anticoagulants, there is no need to search for atrial fibrillation – after all diagnosis will not change our therapeutic choice. It is information that serves no functional purpose and may cause more anxiety than necessary (although a few studies are showing the anxiety level is not great). Smart watches are not aware of these considerations and judgment; if they were, they would be practicing medicine with their warnings; instead they merely let you know and leave the responsibilities with you.

The introduction of smart technology, empowering patients, into this mix may have benefits or harm. We do not know. It will become another factor that shapes our discussion. For the moment it may be too much information for both patients and their physicians; not the sole concern, for the tech companies developing these applications. Nor should it be; it requires active involvement of physicians. Both the empowered patient and their physicians will need a way to understand and frame those messages which increasingly will come from our wrists, rather than from physician offices.

Source: Screening for Atrial Fibrillation with Electrocardiography JAMA DOI:
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