

## EDITOR'S PAGE



# The Stethoscope's Prognosis

## Very Much Alive and Very Necessary



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From the first few weeks in my tenure as Editor-in-Chief of the *Journal*, I have been writing about the indispensable integration of technology and clinical decision-making in the contemporary practice of cardiovascular medicine (1,2). Although advanced technologies have become part of our daily lives as clinicians, we need to make a clear delineation between wielding these tools to help us determine the best pathway for our patients and relying upon them alone to make these decisions, especially in the formation of medical students and fellows. As clinicians, we need to continue to interact with our patients and listen to their histories, their lifestyles, and their bodies—the last of which is where auscultation continues to play a dynamic role in our daily practices. Stethoscopes, which are often disregarded for newer and flashier technologies such as the echocardiogram, remain so important in evaluating and diagnosing our patients because they allow us to physically listen to the sounds of the body. Plus, they are essential in training aspiring physicians.

*Mosby's Medical and Nursing Dictionary* defines the physical examination as: “[An] investigation of the body to determine its state of health using any or all of the techniques of inspection, palpation, percussion, auscultation, and olfaction. The physical examination, medical history, and initial laboratory tests constitute the data base on which a diagnosis is made and on which a plan of treatment is developed” (3). Thus, a physical examination is a study of the patient using one's senses, often with the aid of an instrument (4), such as a stethoscope. The uniquely personal relationship between a physician and a patient stems from the physician's reliance upon physical touch to diagnose and interact with patients.

Currently, there are many circumstances wherein the stethoscope remains essential. While I will not consume this Editor's Page with multiple detailed examples, here are a few clinical cases that demonstrate the necessity of auscultation that I have just encountered *in the last 48 h* during outpatient visits with a fellow or in teaching rounds with the house staff:

- In a patient with acute chest pain and fever, auscultation revealed a clear pericardial rub, whereas the echocardiographic images did not even show pericardial effusion—probably because it was in the early stages of pericarditis.
- In a patient with clear pulmonary hypertension, auscultation revealed a loud P<sub>2</sub> of the second heart sound, when an echocardiogram was unable to detect it, because there was not enough regurgitant flow through the tricuspid valve.
- In a patient with a questionable degree of mitral regurgitation on the basis of an echocardiogram, auscultation revealed a third heart sound at the apex as well as a short mid-diastolic murmur—both indicating that mitral regurgitation was significant.
- In a patient with right-sided chest pain following orthopedic surgery, auscultation revealed a right-sided pleural rub, whereas the echocardiogram showed a normal right ventricle function. As predicted, this patient had a small pulmonary embolism/infarction as assessed by VQ scanning.
- In a patient who was referred to me, an outside echo Doppler report indicated mild to moderate aortic valve regurgitation, as a result of an incompetent bicuspid valve. On auscultation, however, there was an apical S<sub>3</sub> sound, as well as an Austin Flint mid-diastolic murmur, clearly demonstrating that the aortic regurgitation was significant.
- In a patient age 80 years who was referred for mitral intervention (surgical or catheter-based), an outlook echo Doppler test was reported as showing

significant rheumatic mitral valve disease. The lack of 3 auscultatory features, aortic valve disease, an opening snap, and a prominent P<sub>2</sub>, were of sufficient evidence to make the diagnosis of a calcified mitral ring causing mild mitral stenosis, which would not require the need for intervention. After this case, I told the fellows: “My friends, the stethoscope is not dead, but you may be if you throw it in the basket.”

The evidence of these 6 cases in the last 48 h of my practice alone leads to the following question: should we train the fellows and house staff just on echocardiography, or should we enhance the present training on auscultation and pathophysiology? The answer is obvious. Claims that the “stethoscope is dead” (5) are entirely false. In fact, with its new digital capabilities, the stethoscope is healthier than ever.

Although there is no doubt that point-of-care ultrasound training is on the rise among fellows and medical school students, those advances come with caveats. In a *New England Journal of Medicine* commentary, advocating for point-of-care ultrasound in medical education, Drs. Solomon and Saldana acknowledged: “The risk of misdiagnosis is high when diagnostic ultrasound is used by inexperienced practitioners. The amount of training required to perform a competent ultrasound examination is not trivial...Although medical students trained in ultrasonography may be able to make relatively crude diagnoses—determining whether ventricular function is normal or reduced, assessing vena cava size, or detecting gallstones—more sophisticated anatomical

assessment will require substantially more training” (6). In addition, Solomon and Saldana (6) note that false positive findings may lead to additional and often unnecessary testing, and false negatives may provide unwarranted reassurance and result in underdiagnosis. This also leads to unnecessary costs to the health care system. Last, and of greatest concern, these “devices can distract students from the core principles of physical diagnosis, especially if introduced early in training, and will interpose another layer of technology between doctor and patient” (6).

In my view, practically and economically, echocardiography systems are not—and will never be—poised to totally eradicate the stethoscope, as it is not possible for every clinician to possess a handheld echocardiography within and outside of the United States. Thus, we cannot discontinue the important training that takes place during physical examination, which can be aided through the amplified sounds of a stethoscope. Let me ask you a question: what if a physician comes upon a sick person in the street and has not received the proper training for a physical examination? Does she or he have to abandon that sick individual? We cannot teach our medical students to become reliant upon advanced technologies without which they become useless.

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