Sounding Out Pulmonary Embolism

At the bedside, several pieces of data can increase or decrease the probability of pulmonary embolism. These include facts the patient says, such as "I have had a prior pulmonary embolism," and observations such as a swollen leg (increases) or wheezing (decreases). Vital signs help as well, with faster heart rate and lower pulse oximetry being consistent predictors of increased probability of pulmonary embolism. For years, the question has been asked about the diagnostic value of bedside cardiac ultrasound for pulmonary embolism. And sure, for years, we have said, if the patient is dying, and cardiac ultrasound reveals a huge right ventricle, this is good evidence to initiate anticoagulation, and maybe fibrinolytic treatment for probable catastrophic pulmonary embolism. In a sense, that method was taking advantage of spectrum bias, meaning that more severe forms of disease are easier to pick up on diagnostic testing. Now, with data from Daley and colleagues, we have more evidence that severe, but not catastrophic, pulmonary embolism (i.e., producing a heart rate over 110 beats/min), reveals itself as decreased longitudinal shortening of the right ventricle. This measurement is called TAPSE, and if you are not familiar with it, I will refer you to the paper to read about it on pages 1214-15. As a researcher interested in pulmonary embolism, I would like to endorse TAPSE as the bellwether ahead of other super-fancy indices of right ventricular function that can be obtained from Doppler-echocardiography (RIMP, FAC, Speckle). The reason, as I know well, is that many of these indices are limited by lack of acoustic window, especially in patients with pulmonary embolism(1). In contrast, TAPSE is available, reliable, and with a heart rate over 110, accurate enough (likelihood ratio positive 3-6, depending upon the cutoff of abnormal) to drive the decision to administer anticoagulation in patients with non-high bleeding risk. And this, I think, represents a change in standard of care.

Best wishes,
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