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Echocardiography: Not Definitive for PH, but Essential To Determine Need for Referral to PH Center

Announcer:
Welcome to CME on ReachMD. This episode is part of our MinuteCME curriculum and is titled “Echocardiography: Not Definitive for PH, but Essential To Determine Need for Referral to PH Center”.

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Dr. Preston:
Let's talk about echocardiography. It's not definitive for PH, but essential to determine the need for referral to PH center. It's the best screening tool.

From an echocardiogram, one of the most important factors that we can drive is the right ventricular function and size. And that gives us a lot of information about the possibility of the presence of pulmonary hypertension but also, the severity. Because the right ventricle responds to increased resistance in time by becoming thicker or hypertrophied and in the end, the thickness is lost because the RV starts dilating. So, a dilated RV is a sign of severe disease. It's also very important to look in perspective of the left-sided chambers and understand whether the patient has significant left-sided disease whether it's systolic, diastolic, dysfunction, left atrium enlargement, or valvular disease which could explain the abnormalities seen on the right ventricle.

Using echo to uncover PH related changes in heart structure. You absolutely need good images of the right heart. The most common opportunity to spot a new PH patient is either in the echo review or in the echo report. Emphasis of echocardiogram should not be on pressures. Pressures are just estimates and can be can widely vary from the actual pressures but on structural changes associated with the right heart. And that can give you very important information on the possibility of presence of PH and also severity. So, if you look at a multitude of parameters that the echocardiogram can give you there are several that are very important. The right ventricular size, the right atrial size, the interventricular septal function, the IVC diameter fluctuations with respiratory cycle, and then diameter of the pulmonary artery. Now, the last two are a little bit more difficult to obtain but the interventricular septal function for example is easy to spot and to see if there's a D shape of the septum bowing towards the left ventricle, which is an abnormality or not. Also, the right ventricular size and function is very, is crucial to obtain.

Now, there are key considerations. The three parameters put together can increase your suspicion for pulmonary hypertension. And these three parameters are peak tricuspid regurgitation velocity, the presence of other echo signs suggestive of PH that I mentioned, and it gives you the probability of PH. So, if the tricuspid velocities is 2.8 or less and there are no other signs your suspicion will probably be low. If the tricuspid regurgitant velocity is in between 2.9 and 3.4, but there are no other signs the risk is intermediate, probability is intermediate. If it's a normal velocity but there are other signs, again, it's intermediate. And if the TR velocity is over 3.4, regardless of other signs on the echo, your suspicion should be high.

So, the echo signs suggesting PH can be used to assess the probability of PH in addition to TR velocity measurement. So, let's look at the ventricles. The right ventricle/ventricle basal diameter ratio over one, flattening of the interventricular septum. Those are two signs

that should increase your suspicion. Let's look at the pulmonary artery. The right ventricular outflow Doppler acceleration time and or mid-systolic notching or the early diastolic pulmonary regurgitation velocity over 2.2, as well as pulmonary artery diameter over 25 millimeters should increase suspicion. And looking at inferior vena cava and right atrium the IVC diameter over 21 millimeters with decreased inspiratory collapse or right atrial area at end-systole of more than 18 centimeters squared. So, those are other parameters that should be taken into consideration when you assess this clinical the echo suspicion for PH.

Announcer:
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