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Time needed to complete: 1h 49m

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www.reachmd.com
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Risk Assessment in PAH

Announcer:
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Dr. Saggar:
Hello, I'm Rajan Saggar from University of California, Los Angeles. And I'm going to talk to you briefly about the Risk Assessment in PAH based on the recent ERS/ESC guidelines in pulmonary pretension from 2022.

So first, I'm going to talk about the initial risk assessment for a patient that you're seeing with PAH that's newly diagnosed. This is based on a multiparametric risk assessment using a 3-strata model. And the point here is that the initial therapy for pulmonary arterial hypertension should be based on risk assessment using this multiparametric model. And I'm going to go through the model with you here on the left. You can see that in this table, there are several clinical observations and modifiable variables on the left. And this risk will determine the risk for death in your newly diagnosed PAH patient, 1 year after diagnosis. And you can see the green column is low risk for death, less than 5% at 1 year, intermediate risk for death 5 to 20% risk of death at 1 year, and a high risk for death greater than 20% risk of death at 1 year. The clinical determinants on the left includes signs of right heart failure, whether they're absent or present; the progression or the rate of progression of symptoms and clinical manifestations, whether it's slow, rapid, or non-existent; whether there's evidence for syncope, none, occasional, or repeated episodes; the World Health Organization functional class I to II versus III versus IV; the 6-minute walk distance cutoffs as you can see there; cardiopulmonary exercise testing parameters; biomarkers including brain natriuretic peptide or N-terminal, pro brain natriuretic peptide; parameters based on echocardiography, which now interestingly, include the ratio of TAPSE to the systolic pulmonary artery pressure; parameters from the cardiac MRI; and finally, hemodynamic parameters.

Now, what you should do as a clinician is actually try to determine the answers, if you will, for all of these clinical observations or modifiable variables. And do your best to risk stratify this patient either into low risk, intermediate risk, or high risk.

Based on your assessment, all patients will receive, regardless of their risk, upfront combination therapy, with two oral agents either with both an endothelin receptor antagonist and a phosphodiesterase-5 inhibitor. So regardless of risk, all patients will receive that upfront combination. In addition to this, and specifically for high-risk patients, they will, in addition, receive upfront intravenous or subcutaneous prostacyclin. And you can see this algorithm on the right of your screen.

Again, you're going to use the 3-strata risk classification, classify your patients as either low or intermediate risk versus high risk. All patients will receive combination therapy, but the high-risk patients will receive the addition of either intravenous or subcutaneous prostacyclin. Again, all of this applies to the initial risk assessment for a newly diagnosed PAH patient. Again, the 3-strata model.

In this next slide, we're really talking about how you follow up these patients in terms of risk assessment. And for follow-up, as opposed to the 3-strata model, we use what's called the 4-strata model. This is also based on a multiparametric risk assessment. The rationale for the 4-strata model is that it was recognized that very few patients in the 3-strata model actually were able to get to a low-risk status. In addition, about 60 to 70% of the patients were in the intermediate-risk group. So the concept was perhaps we can break up the

intermediate-risk group into two separate groups. And in fact, using three variables, the functional class, the 6-minute walk distance, and the natriuretic peptide level, it is possible to break up the intermediate group into intermediate-low risk and intermediate-high risk. And it was determined that when you follow up these patients using this 4-strata system allows you to better risk stratify patients in terms of their survival.

So this particular strata model, the 4-strata model, allows you to calculate a numeric risk score. You can see at the top of the red square, you can see points assigned. And you can see, you get 1 point for either of those low risk, 2 points for intermediate-low risk parameters, 3 points for intermediate-high risk, and 4 points for high risk. You add up all of those values for the three different parameters, and you divide by 3, the total number of variables used, if you happen to only have two variables, you would divide by 2, and you actually round up to the nearest integer to determine your quantitative numeric risk, and where you would land in terms of your actual risk classification.

Again, after you determine this in your follow-up of a PAH patient, you would place the patient into low risk, intermediate-low risk, or intermediate-high, or high risk. And as a result, this would determine what you offer the patient in terms of therapeutic modification. For low risk, you would continue initial combination therapy. For the intermediate-low risk, you would either add a prostanoid receptor agonist or you would switch from the phosphodiesterase-5 inhibitor to the cyclic guanylate cyclase stimulator. In an intermediate-high or high risk, you would add intravenous or subcutaneous prostacyclin, and/or evaluate for lung transplantation.

So in conclusion, the 3-strata model is used for the initial assessment of a PAH patient, and the 4-strata model is used in follow-up.

Thank you for listening.

Announcer:
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