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## Right ventricular echocardiography predicts targeted therapy outcome in PAH

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By Lucy Piper

Echocardiography re-assessment of right ventricular function after targeted therapy is sufficient to predict subsequent prognosis in patients with pulmonary arterial hypertension (PAH), say researchers.

They found that patients attaining tricuspid annular plane systolic excursion (TAPSE) of at least 15 mm after starting or escalating targeted therapy had a significantly reduced risk of death or clinical worsening.

This association was unrelated to therapy-induced haemodynamic effects indicative of successful treatment, the team, led by Stefano Ghio (Fondazione IRCCS Policlinico San Matteo, Pavia, Italy), points out.

"These results may prove very useful to clinicians given that echocardiography is a less expensive and more readily available imaging technique than cardiac magnetic resonance and radionuclide angiography", they say.

For the 81 patients participating in the study, a TAPSE value at or below 15 mm at baseline was associated with a significant 3.17-fold increase in the risk of death. The proportion of patients falling short of this cutoff was similar between the 33 newly diagnosed patients and the 48 with prevalent disease.

By contrast, neither high pulmonary vascular resistance (PVR) nor a low ratio of TAPSE to Doppler estimate of pulmonary artery systolic pressure was significantly associated with a poor outcome.

After 4 to 12 months of therapy, 55 patients available for TAPSE re-evaluation showed improvements in mean pulmonary artery pressure, PVR and cardiac index, while right arterial pressure remained unchanged.

Obtaining a TAPSE value of 15 mm or above at this time was associated with a significant 80% reduction in the risk of death or clinical worsening and a nonsignificant 70% reduction in the risk of death alone, the team reports in *Open Heart*.

The researchers note that patients who did and did not attain this cutoff were similar in terms of treatment, age and aetiology.

Patients with a deteriorating or persistently low TAPSE had the worst prognosis, regardless of PVR changes.

"[Right ventricular] dysfunction may progress in patients with incident PAH despite treatment-induced decrease in PVR and is associated with high risk despite the haemodynamic changes which would indicate therapy efficacy", the team suggests.

They also comment that "the absolute values of TAPSE at follow-up were found to be prognostically useful, not the relative changes after therapy", which they believe may be because absolute values remain below the high-risk threshold despite therapy-induced changes.

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