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Letters

TO THE EDITOR

The Diastolic Pressure Gradient Does Not—and Should Not—Predict Outcomes

TABLE 1 Illustration of DPG in 2 Patients

	Patient #1	Patient #2
PASP, mm Hg	50	50
PADP, mm Hg	30	24
PWP, mm Hg	28	16
DPG, mm Hg	2	8

DPG = diastolic pressure gradient; PADP = pulmonary artery diastolic pressure; PASP = pulmonary artery systolic pressure; PWP = pulmonary wedge pressure.

We read with interest the report by Al-Naamani et al. (1) and the editorial by Borlaug (2) on the prognostic value of the diastolic pressure gradient (DPG) in heart failure patients with preserved ejection fraction. The DPG did not predict mortality, which is in agreement with results from another recent report (3) regarding patients with World Health Organization (WHO) group II pulmonary hypertension (PH).

We offer an interpretation that explains why the DPG does not serve as a prognostic marker in patients with group II PH. The usefulness of the DPG is in identifying patients with pulmonary vascular remodeling in WHO group II PH; its value is not in reporting on disease severity. As the wedge pressure rises in heart failure, the pulmonary systolic and diastolic pressures must also rise, resulting in increased right ventricular (RV) afterload. Because the pulmonary diastolic pressure increases proportionally to the wedge pressure in most patients, the DPG will remain the same despite increasing RV stress. The DPG is unable to be used for prognostication because it may not change despite progressive RV failure. Thus, using the DPG as a continuous variable to predict mortality has no physiological basis.

Because the right heart pumps against pressures, not gradients, the DPG reveals little about RV compensation. The DPG is an inferior prognostic marker compared with pulmonary vascular resistance and capacitance because the latter 2 variables incorporate a measure of RV function (i.e., stroke volume). We present here an example demonstrating the failure of the DPG to predict RV stress.

We considered 2 patients classified as having WHO group II PH (Table 1). Patient #1 has severe diastolic dysfunction with a markedly elevated wedge pressure; the DPG is 2 mm Hg. Patient #2 has less severe diastolic dysfunction but an elevated DPG (8 mm Hg). As an isolated measurement, the DPG identifies distinct hemodynamic phenotypes but offers limited insight into the RV function of either patient. The available data suggest that patient 1 is in decompensated heart failure, and the addition of pulmonary capacitance would provide prognostic value by incorporating a measure of RV function, as reported by Al-Naamani et al. (1).

We agree with the recent letter of Naeije (4) regarding the value of the DPG as a diagnostic, but not a prognostic, variable and hope to have provided some clarity of thought on this topic.

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