TEE DOPPLER CALCULATION OF LVEDP AND PADP FROM AORTIC AND PULMONARY REGURGITATION FLOW PROFILES

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TEE continuous wave Doppler velocity measurements can allow the clinician to derive absolute values for left ventricular end-diastolic pressure and pulmonary artery diastolic pressure. Calculation involves integrating aortic and pulmonary regurgitation velocity measurements into the simplified Bernoulli pressure gradient equation (P 1 minus P 2 = 4V2). This presentation describes the involved calculations.

AORTIC REGURGITATION-DERIVED LEFT VENTICULAR END-DIASTOLIC PRESSURE (LVEDP)

The pressure gradient is from the systemic circulation into the left ventricle during diastole. Thus, P1 is represented by systemic arterial diastolic blood pressure. The unknown variable, P2, consists of left ventricular end-diastolic pressure.

Principles: The patient must exhibit aortic regurgitation; Measurements to be entered are diastolic measurements; The flow gradient is from the ascending aorta into the left ventricle

Data

P1 = Diastolic systemic arterial blood pressure

P2 = LVEDP, the unknown value

Doppler velocity = Aortic regurgitation flow velocity at end-diastole

PULMONIC REGURGITATION-DERIVED PULMONARY ARTERY DIASTOLIC PRESSURE (PADP)

The pressure gradient is from the pulmonary circulation into the right ventricle during diastole. Thus, P1 consists of pulmonary artery diastolic pressure, the unknown value. P2 consists of right ventricular end-diastolic pressure.

Principles: The patient must exhibit pulmonary regurgitation; The measurements to be entered are diastolic measurements; The flow gradient is from the pulmonary artery into the left ventricle

Data

P1 = PADP, the unknown value

P2 = Right ventricular end-diastolic pressure. This is usually represented by a surrogate. The surrogate for right ventricular pressure is right atrial pressure (CVP)

Doppler velocity = Pulmonary regurgitation flow velocity at end-diastole

DIASTOLIC REGURGITATION DOPPLER TRACING

With diastolic regurgitation, contrast, the initial velocity increase is followed by an asymmetric decay slope. Thus, the velocity at end-diastole is the minimal velocity of the tracing**.**