



Pericardial/Myocardial Disease/Pulmonary Hypertension

MODERN ECHOCARDIOGRAPHIC DIAGNOSIS OF CONSTRICTIVE PERICARDITIS

Poster Contributions

Poster Sessions, Expo North

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Background: Constrictive pericarditis (CP) is a potentially reversible cause of heart failure that can pose a diagnostic challenge. This study provides the first blinded evaluation of the diagnostic accuracy of 5 modern echocardiographic parameters.

Methods: Mayo Clinic patients with surgically-confirmed CP (N=131) in 2008 through 2010 were identified and compared with a group (N=36) of patients with a different cause for right heart failure (restrictive cardiomyopathy or severe tricuspid regurgitation). All underwent a comprehensive echocardiogram with recording of respiration. Blinded review was performed.

Results: There were statistically significant differences in 2-D and Doppler criteria between the two groups (Table). From a multivariable model, the presence of septal shift (p=0.003), increased medial e' velocity (p=0.002), and prominent hepatic vein diastolic flow reversals (p=0.009) corresponded to a significantly increased likelihood of CP.

Table. Echocardiographic Variables in Constriction and Non-Constriction Groups

Variable	Descriptive Statistics†		Test Performance				
	Constr. Pericarditis (N=131)	Other Diagnosis (N=36)	ROC Cutpoint	Sens.	Spec.	PPV	NPV
Ventricular septal shift	92%	31%*	-	92%	69%	92%	71%
% change in mitral E vel.	30.7 ± 20.3	13.7 ± 17.0*	≥ 14.6	84%	73%	92%	55%
Medial e' vel. (cm/sec)	12.9 ± 4.1	7.0 ± 2.6*	≥ 9.0	83%	81%	94%	57%
Medial e' / lateral e'	1.2 ± 0.4	0.8 ± 0.2*	≥ 0.91	75%	85%	95%	50%
HV exp. diast. reversal vel. / forward vel.	1.4 ± 0.7	0.5 ± 0.4*	≥ 0.79	76%	88%	96%	49%

† mean ± standard deviation or % of patients
*P-value<0.001 from logistic regression modeling diagnosis group adjusted for age and sex
E = early diastolic velocity; e' = mitral annular early diastolic velocity; HV exp. diast. reversal vel. = hepatic vein expiratory diastolic reversal velocity

Conclusions: Echocardiography provides a reliable means for differentiating CP from other causes of right heart failure in most patients.

Demonstration of differential ventricular filling with respiration and ventricular interdependence along with preserved or increased septal mitral annular e' velocity in patients with heart failure is strongly associated with the diagnosis of CP.