A86.E809
JACC March 9, 2010
Volume 55, issue 10A

IMAGING AND DIAGNOSTIC TESTING

RIGHT VENTRICULAR STRAIN PATTERNS IN PATIENTS WITH PULMONARY HYPERTENSION.

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: General Echocardiography: Right Heart Function Evaluation by Strain
Abstract Category: General Echocardiography: TTE
Presentation Number: 1199-199

Authors: *Mangeet Chahal, Steven Bruhl, Samer Khouri, University of Toledo Medical Center, Toledo, OH*

Background: Speckle tracking echocardiography is a non-invasive method that can be used to quantify right ventricular (RV) mechanical properties. Our objective was to assess RV radial and circumferential strain in response to pulmonary hypertension (PHTN).

Methods: The subjects were divided into two groups. Group I consisted of 11 patients with PHTN, right ventricular systolic pressure (RVSP) > 50 mm Hg, and tricuspid regurgitant velocities (TRV) ≥ 3.5 m/s. Group II consisted of 10 controls with RVSP < 35 mm Hg and TRV < 2.8 m/s. Speckle tracking patterns were used in a short axis view at the level of the papillary muscles. The RV was divided into 6 segments: The septum was divided into 2 segments (anteroseptum, inferoseptum) and the free wall was divided into four segments (anterior, anterolateral, inferolateral, inferior). Analysis included radial and circumferential strain and time-to-peak strain.

Results: The study demonstrated that patients with PHTN had significantly decreased radial strain in the anterolateral and inferolateral free walls (Figure1) when compared to the control group (p=0.0197 and 0.0079 respectively). Secondly, the entire lateral wall showed a statistically significant increase of time to peak circumferential strain as compared to the control group (42.00 ± 2.65 vs 52.25 ± 2.70, P= 0.0101).

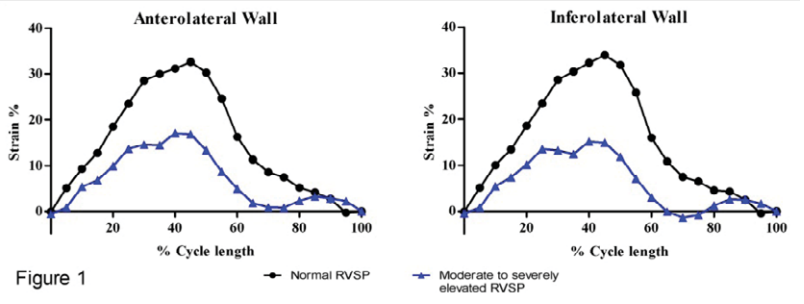

Figure 1

Conclusion: The lateral free wall demonstrated significantly decreased radial strain throughout the cardiac cycle and prolonged time to peak circumferential contraction in PHTN patients.