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Non Invasive Imaging

THE INCREMENTAL VALUE OF POST-EXERCISE RIGHT VENTRICULAR SYSTOLIC PRESSURE IN PATIENTS WITH UNEXPLAINED DYSPNEA

Poster Contributions

Hall C

Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Non Invasive Imaging: Stress and Contrast Echocardiography

Abstract Category: 15. Non Invasive Imaging: Echo

Presentation Number: 1248-33

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Background: Exercise-induced pulmonary hypertension (PH) measured invasively has been shown to identify early diastolic dysfunction and correlate with exercise performance. We aimed to determine the incremental value of Doppler-derived post-exercise right ventricular systolic pressure (RVSP) over resting RVSP in patients with unexplained dyspnea.

Methods: We reviewed 89 patients with unexplained dyspnea who underwent simultaneous cardiopulmonary exercise testing with resting and post-exercise measurement of RVSP. Peak $\dot{V}O_2 < 70\%$ predicted or VE/VCO_2 nadir ≥ 33 were considered abnormal while cut points of RVSP > 35 mm Hg (rest) and ≥ 50 mm Hg (post-exercise) were considered abnormal by echo. Patients were divided into three groups: (1) normal resting and post-exercise RVSP, (2) normal resting RVSP with abnormal post-exercise RVSP, and (3) elevated resting RVSP.

Results: Mean age was 64 ± 12 years. No patients had significant lung disease, valvular heart disease, depressed ejection fraction, inducible ischemia, or known cause of PH. Gas exchange data stratified by group can be found in table 1.

Conclusion: There was a high rate of cardiac limitation (55%) in our cohort. Additionally, 14% (10/69) with normal resting RVSP had abnormal post-exercise RVSP. These patients had lower peak $\dot{V}O_2$ and 70% had abnormal gas exchange. Non-invasive post-exercise measurement of RVSP appears to further stratify patients with normal resting RVSP and identify those who have a high risk of cardiac limitation.

	n	Mean Peak $\dot{V}O_2$	Mean VE/VCO_2 Nadir	Peak $\dot{V}O_2 < 70\%$ or $VE/VCO_2 \geq 33$ (%)	Peak $\dot{V}O_2 \geq 70\%$ and $VE/VCO_2 < 33$ (%)
All Patients	89	18.5 \pm 6.1	30.9 \pm 4.9	49 (55)	40 (45)
Normal rest/stress RVSP (Group 1)	59	20.4 \pm 6.5	30.1 \pm 4.2	25 (42)†	34 (58)†
Normal rest/abnormal stress RVSP (Group 2)	10	15.5 \pm 2.5*	31.6 \pm 4.5	7 (70)†	3 (30)†
Abnormal rest RVSP (Group 3)	20	14.2 \pm 3.3*	33.6 \pm 6.2*	17 (85)†	3 (15)†

* $p \leq 0.01$ compared to Group 1† $p = 0.003$ by contingency table analysis