

exercise-associated increase in PAWP adjusted for the change in cardiac output ($\Delta\text{PAWP}/\Delta\text{CO}$) greater than 2 mmHg/L/min is a clinical predictor for HF outcomes and predicts exercise capacity. Although there is speculation that CMD may play a role in the development of early HFpEF, there is limited evidence that directly links CMD as assessed by an invasive coronary physiology study (ICPS) with HFpEF as measured by an exercise RHC.

METHODS AND RESULTS: This study was an exploratory, retrospective cohort analysis. The study population included patients experiencing unexplained cardiovascular symptoms including chest pain and dyspnea who were referred to our institution for a RHC with exercise who had also undergone an ICPS. Patients were classified hemodynamically based on a $\Delta\text{PAWP}/\Delta\text{CO} \leq$ or > 2 with exercise. Coronary physiology interventions included Doppler flow assessment after administration of intracoronary adenosine and acetylcholine, where coronary flow reserve (CFR) and the index of microvascular resistance (IMR) were quantified during hyperemia. To date, we identified a cohort of 20 patients who met the study's inclusion criteria. Of these, 19 completed a RHC exercise study from which 9/19 (47%) had a $\Delta\text{PAWP}/\Delta\text{CO} > 2$. Characteristics of the patients are shown in Table 1. The mean index of microvascular resistance (IMR) for patients with abnormal exercise hemodynamics was 32.6 versus 20.9 ($p=0.08$).

CONCLUSION: Among patients undergoing an ICPS, a relatively high proportion of these patients exhibit a $\Delta\text{PAWP}/\Delta\text{CO} > 2$ mmHg/L/min. We have also observed that in patients with an abnormal PAWP response, the mean IMR values were higher compared with patients with a normal PAWP response. Our observations support the indication that CMD may play a role in the development of early HFpEF. This relationship needs to be further characterized in a larger cohort.

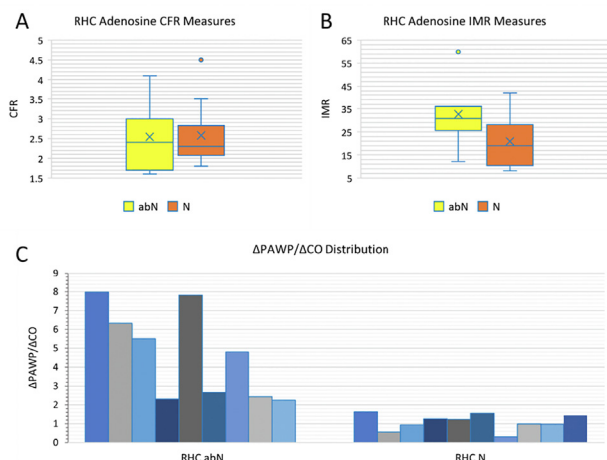


Figure 1. A) The coronary flow reserve (CFR) for patients with abnormal exercise hemodynamics was 2.54 versus 2.58 ($p=0.98$). B) The index of microvascular resistance (IMR) for patients with abnormal exercise hemodynamics was 32.6 versus 20.9 ($p=0.08$). C) 19 patients completed an exRHC study from which 9/19 (47%) had a $\Delta\text{PAWP}/\Delta\text{CO} > 2$.

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ONE-YEAR OUTCOMES IN PATIENTS WHO UNDERWENT CORONARY INTRAVASCULAR SHOCKWAVE LITHOTRIpsy FOR HIGHLY-CALCIFIED CORONARY LESIONS

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BACKGROUND: Intravascular lithotripsy (IVL) has been shown to have excellent angiographic and short-term clinical results in patients with heavily calcified lesions who require percutaneous coronary intervention in both randomized and observational studies. However, there is limited data regarding the long-term outcomes in real-world patients. We conducted a follow up of a high-risk IVL cohort at a tertiary care centre to help better define outcomes over a 1-year period post IVL.

METHODS AND RESULTS: We conducted a retrospective cohort study of 50 consecutive patients who underwent IVL between September 1, 2019 and January 31, 2020. One-year outcomes were available for 47/50 patients; 3 patients who did not survive their index hospitalisation (for reasons unrelated to IVL) were excluded. The primary outcome was need for target vessel revascularization (TVR) at 1 year from index procedure. Secondary outcomes included cardiovascular mortality, myocardial infarction (MI), and freedom from angina. The mean age of the cohort was 71.5 years and 38% of patients were female. Fifty-three percent of patients presented with non-ST elevation ACS as the indication for initial IVL. Twenty-six percent of patients underwent IVL for lesions of the left main coronary artery, and 26% underwent IVL for in-stent restenosis (ISR). Of a total of 47 patients (61 lesions), 4% of patients (3% of lesions) required TVR within 1 year; 96% of patients who underwent IVL remained free from repeat intervention on the same vessel. Two (4%) suffered mortality at one year from non-cardiovascular causes. Eighty-five percent of patients remained free from angina at 1 year. One patient suffered an MI within 1 year; the culprit vessel had not previously been treated with IVL.

CONCLUSION: IVL is associated with favorable results out to 1 year with very low rates of TVR. This suggests that IVL is an effective and durable modality for treatment of highly calcified coronary lesions in high-risk patients, including those requiring IVL for the indication of ACS or ISR.

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USE OF A DIGITAL APPLICATION TO OPTIMIZE THE CLINICAL TRAJECTORY OF PATIENTS IN A TAVI PROGRAM

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