# Indiana-ACC Poster Competition Abstract

Do **NOT** write outside the boxes. Any text or images outside the boxes **will** be deleted.
Do **NOT** alter this form by deleting parts of it (including this text) or adding new boxes.
Please structure your clinical research abstract using the following headings: * Background * Objective * Methods * Results (if relevant) * Conclusion
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**Title:**

**Assessment of Right Ventricular Strain in Cardiac Amyloid Compared to Normal Controls, Performed in Multiple 2-Dimensional Views**


**Abstract:** (Your abstract must use Normal style and must fit into the box. You may not alter the size of this )

**Background:** Assessment of longitudinal left ventricular (LV) strain by speckle tracking has been shown to have diagnostic and prognostic value in patients with cardiac amyloid. There is limited information on assessment of right ventricular (RV) strain in this population. We have developed a technique of assessing RV strain in multiple views which allows for assessment of both longitudinal and circumferential fiber function.

**Objective**: The purpose of this study is to evaluate relative effects of amyloidosis and on longitudinal versus circumferential fiber function in the right ventricle.

**Methods:** Twelve patients with clinical or biopsy-proven cardiac amyloid and 32 controls with normal ejection fraction, no history of coronary disease, pulmonary hypertension or significant valve disease were included. General Electric Vivid 9 and Vivid Q ultrasound machines were used to acquire images (45 to 70 fps) in 3 views of the RV, the apical 4 chamber (4C), medially angulated long axis (LAX) and basal short axis (SAX) at the aortic valve level. RV strain was processed on the echocardiographs using software that partially automates selection of regions of interest. Average values for RV strain in each of the views were derived (4C with 6 segments, LAX with 6 segments, SAX with 4 segments) and global strain was calculated as the weighted average (16 segments). P values were calculated using the unpaired t-test.

**Results**: RV strain measured in the LAX and 4C views in patients with cardiac amyloid (LAX -14.9 ± 7.6; 4C -13.3 ± 4.4) were significantly lower than the control group (LAX -25.8 ± 4.5; 4C -22.4 ± 3.5) with p-values of <0.001 for both views. Global strain was also similarly reduced in the cardiac amyloid group (-13.4 ± 5.5) as compared to the control group (-22.2 ± 3.2) with a p-value of <0.001. In the SAX view however, RV strain in the cardiac amyloid group (-11.4 ± 5.5) was slightly but not significantly reduced compared to the control group (-15.9 ± 6.1, p = 0.04).

**Conclusion**: Amyloidosis results in a significant reduction in longitudinal fiber function of the right ventricle as evaluated by strain measurement. The modest reduction in RV strain in the SAX view suggests that amyloidosis preferentially affects longitudinal fiber function while circumferential fiber function is relatively preserved.

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