**ECHOCARDIOGRAPHIC PREDICTORS OF NEW ONSET TACHYARRHYTHMIA INDUCED CARDIOMYOPATHY**

**N. Thinda**1, B. Khatri1, C. Katikireddy2

1Internal Medicine, VA CCHS / UCSF Fresno, Fresno, CA, USA

2Cardiology, VA CCHS / UCSF Fresno, Fresno, CA, USA

**Objective:** Identifying the diagnostic markers of new onset tachyarrhythmia induced cardiomyopathy.

**Background:** Tachyarrhythmia induced cardiomyopathy (TIC) is typically diagnosed in a retrospective fashion from the resolution of left ventricular (LV) dysfunction upon recovery from the tachyarrhythmia. At present, objective diagnostic criteria for new onset TIC are limited.

**Methods:** We identified 70 consecutive patients retrospectively, presenting with first known episode of atrial fibrillation with rapid ventricular rate and echocardiographic evidence of moderate to severe left ventricular systolic dysfunction (LV EF <40%). We excluded patients with incomplete data, known history of cardiomyopathy, ischemic cardiomyopathy and a significant valve disease. A total of 24 were confirmed to have TIC based on the evidence of recovery of LV systolic function by echocardiography, at least a month following successful rate/rhythm management of the tachyarrhythmia. Non-ischemic Cardiomyopathy (NICM) from other causes, with no improvement of LV systolic function following successful treatment of tachyarrhythmia were noted as non-ischemic cardiomyopathy (n=21), non-tachyarrhythmia induced (NICM - NTIC). Clinical, laboratory, electrocardiographic and echocardiographic data were compared between the TIC and NICM-NTIC groups.

**Results:** T-test, Chi-square test and ROC curve analysis performed. Obesity was more prevalent (58%) in TIC group, compared to NICM - NTIC. On echocardiography, LV geometry (LV mass, size and myocardial segmental wall thickness in diastole) was normal in TIC, while NICM-NTIC group demonstrated LV dilatation with eccentric hypertrophy (P =0.01). To diagnose, new onset TIC, specificity and sensitivity of normal LV geometry (size and mass) was 76% and 63%with an area under the ROC curve of 0.76.

**Conclusions:** In newly diagnosed TIC, LV geometric features including LV mass and size were noted to be characteristically normal with no LV remodeling, compared to NICM, NTIC. These findings are likely due to relatively acute nature of the myocardial dysfunction with no underlying primary myocardial pathology in TIC.