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Echocardiographic predictors of new onset tachyarrhythmia induced cardiomyopathy

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Background & Aim: 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, our knowledge of echocardiographic diagnostic criteria for TIC is limited.

Methods: From retrospective chart review, we identified 206 consecutive patients 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%). A total of 21 were confirmed to have TIC based on the evidence of recovery of LV function with successful rate/rhythm management of the tachyarrhythmia. Workup including coronary angiogram was negative for any other underlying etiology. Clinical and electrocardiographic data were compared among TIC, ICM and NICM groups. We compared TIC group with 41 ischemic (ICM) and 37 non-ischemic cardiomyopathy (NICM) subjects; etiology of NICM was tachyarrhythmia such as drug induced.

Results: For the comparison of groups, analysis of variance (ANOVA) and Kruskal-Wallis test were used for continuous variables and Chi-square analysis for dichotomous variables. Obesity was more prevalent (61.9%) in TIC group. Characteristically, LV geometry (mass and size) was normal in TIC with no regional segmental wall motion or thickening abnormality. Specificity and sensitivity of normal LV morphology (size and mass) with no regional WMA in subjects with reduced EF (<40%) was 84% and 58% respectively for TIC. Compared to TIC and ICM, LV was dilated with eccentric hypertrophy in NICM. Regional segmental abnormality was diagnostic echocardiographic marker of ICM.

Conclusion: In newly diagnosed TIC, LV morphologic features including LV mass, size, myocardial segmental thickness and wall motion were noted to be normal compared to ischemic and non-ischemic dilated cardiomyopathy.

Biography

Bhavik Khatri is a 3rd year Cardiovascular Disease fellow at UCSF in Fresno, California. His interests are primarily in the use of non-invasive imaging in diagnoses and management of cardiac patients.

Notes:

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Page 106