Metabolic manipulation in Dilated Cardiomyopathy: assessing the role of trimetazidine

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From World Society of Cardiothoracic Surgeons 25th Anniversary Congress, Edinburgh, UK. 19-22 September 2015

Background/Introduction
Altered substrate metabolism plays an important role in pathophysiology of heart failure (HF). Optimization of myocardial energy metabolism with metabolic modulators like trimetazidine (TMZ) allows more efficacious energy production.

Aims/Objectives
Although TMZ has been studied extensively in patients with ischemic HF, more data are needed on its role in dilated cardiomyopathy (DCM).

Method
100 patients of DCM (mean age 47.7 yrs, NYHA class 2.17, LVEF 27.3%) were randomized to TMZ (20 mg tid, n = 50) vs conventional therapy (n = 50). Functional status, BNP & echocardiographic parameters were assessed at 3-6 months.

Results
Baseline characteristics were comparable among the two groups. At three months, patients on TMZ had significant improvement in mean NYHA class (2.25 vs 1.85, p = .001), 6 min walk test (349.7 vs 402 m, p = 0.001), LVD-36 score (25.5 vs 21, p = .001) and fall in BNP (744.7 vs 248.3 pg/ml, p = .001). This was accompanied by significant improvement in indexed LV end-systolic (LVESV, 87.1 ± 27.5 vs 78.5 ± 24.9 ml/m2, p = 0.0001) and LV end-diastolic volumes (LVEDV, 117.6 ± 29.3 vs 110.9 ± 27.4 ml/m2, p = 0.0001) and LVEF (27.3 vs 30.9%, p = .0001) along with reduction in LV wall stress (90.2 ± 18.9 vs 71.1 ± 13.2 dyn/cm2, p = 0.0001). Other echocardiographic parameters also improved after three 3 month of TMZ (E/A ratio, E/A VTI, Myocardial performance index) and TDI parameters (E/e septal, and E/e' lateral).

Patients not on TMZ had no significant change in NYHA Class, LVD-36 scores, LV volumes or LVEF at 3 months although BNP levels & LV wall stress reduced, albeit to a lesser extent than TMZ. Patients on TMZ had further improvement in NYHA Class, 6 min walk test, BNP levels & all echocardiographic parameters at 6 months.

Discussion/Conclusion
Metabolic modulators like trimetazidine have a potential role to play in altering LV remodelling and improving LV function in DCM. In this study, benefit was noted by 3 months with further improvement at 6 months.

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Published: 16 December 2015

doi:10.1186/1749-8090-10-S1-A7
Cite this article as: Kapoor et al. Metabolic manipulation in Dilated Cardiomyopathy: assessing the role of trimetazidine. Journal of Cardiothoracic Surgery 2015 10(Suppl 1):A7.

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