Cardiac function is enhanced by Mineralocorticoid Receptor Antagonists (MRAs) during Continuous Flow Left Ventricular Assist Device Support

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Background: The impact of Mineralocorticoid Receptor Antagonists (MRAs) on cardiac function during Continuous Flow Left Ventricular Assist Device (CF LVAD) support remains unknown.

Methods: A post-hoc analysis of a prospective study conducted at our center to evaluate the effect of combining pharmacological neurohormonal blockade with CF LVAD on cardiac recovery. After CF LVAD placement, subjects received heart failure medications (HFMEDs) and then underwent a CF LVAD weaning study to evaluate changes in native cardiac function by echocardiography. Subjects were categorized into groups that did and did not tolerate MRAs. Changes in LV ejection fraction (EF) pre and post LVAD (weaning study) were compared by a two factor analysis of variance (ANOVA) test.

Results: Fourteen out of twenty-seven (52%) subjects took MRAs. Subjects on MRAs had a greater improvement in LVEF (18±2 to 37±4 vs. 20±3 to 27±4 %, p<0.01) in comparison to those not taking MRA's. For subjects on MRAs, 13/14 (93%) were on beta blockers (BBs) and 12/14 (86%) on angiotensin converting enzyme inhibitors (ACEIs) in comparison to 13/13 (100%) on BBs and 8/13 (62%) on ACEIs for those not on MRAs. There were no significant differences in the duration or etiology of cardiomyopathy, prevalence of diabetes mellitus, and days on CF LVAD support before weaning study in between groups.

Conclusions: In subjects taking MRA's, native LVEF was more improved during CF LVAD support. These data support the addition of MRAs after CF LVAD placement for LV recovery.