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Heart Failure

SERUM ALBUMIN LEVEL MODIFIES MORTALITY RISK OF LOOP DIURETIC DOSE IN ADVANCED HEART FAILURE

ACC Moderated Poster Contributions
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Session Title: Neurohormonal Blockade in Heart Failure: Challenges and Interactions
Abstract Category: 13. Heart Failure: Therapy
Presentation Number: 1214-105

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Background: High loop diuretic dose portends poorer outcomes in patients with heart failure. Loop diuretics (furosemide, torsemide, and bumetadine) bind heavily to plasma proteins, specifically albumin. Little is known about the relationship between diuretic dose and albumin in this clinical setting.

Methods: We examined 418 consecutive advanced heart failure patients from 2007 to 2011 with recorded diuretic dose and albumin. We performed linear regression of continuous variables was performed to determine significant associations. Survival was assessed by Kaplan-Meier curves and multivariate proportional hazard regression.

Results: The mean and median serum albumin were 3.8 ±0.7 and 3.9(IQR: 3.4, 4.3), respectively. Albumin (Beta: -38.6±15.1; p=0.01) was an independent and strong predictor of diuretic dose whereas renal function, RDW, and right heart pressures were not. Diuretic dose (HR: 1.02 [95%CI 1.01, 1.03]) and albumin (HR: 0.65 [95%CI 0.47, 0.90]) were found to be significant, independent predictors of death. In this model there was a significant interaction with diuretic dose and albumin (p=0.01), indicating that the covariates track. At 3yr follow-up patients with increased diuretic dose had increased mortality (logrank p=0.001).

Conclusions: Increasing dose of loop diuretics portends worse outcomes advanced heart failure patients. Albumin, which binds loop diuretics, was the strongest predictor of diuretic dose, above renal function and other markers of end organ damage.