Temporal trends and outcomes of heart failure patients between light-chain cardiac amyloidosis and transthyretin cardiac amyloidosis: insights from the national inpatient sample database

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Background: Systemic amyloidosis comprises a family of diseases caused by deposition of misfolded fibrillar proteins in the extracellular space. Cardiac involvement is the leading cause of morbidity and mortality in systemic amyloidosis and a major determinant of survival, regardless of the underlying pathogenesis of amyloid production. Data regarding the clinical outcomes in immunoglobulin light-chain (AL) vs amyloid transthyretin (ATTR) cardiac amyloidosis (CA) is scarce.

Purpose: We aimed to investigate the trends, baseline clinical characteristics, and clinical outcomes of AL CA vs ATTR CA in heart failure (HF) patients.

Methods: Data from United States National Inpatient Sample database from 2017-2020 was used to identify hospitalizations for CA with concurrent cardiomyopathy in HF patients and were further subclassified into AL vs ATTR CA. Outcomes were compared using univariate and multivariate logistic regression analysis.

Results: During 2017-2020, there were 12430 hospitalizations of CA of which 96.3% were ATTR CA and 3.7% were AL CA. Patients with ATTR-CA when compared to AL-CA were older, predominantly male, more blacks, and had a higher prevalence of co-morbidities including atrial arrhythmias, sick sinus syndrome, and aortic stenosis. Patients with AL CA had significantly increased in-hospital mortality, length of stay, total charges, acute heart failure exacerbations, and cardiopulmonary resuscitation. After adjustment for baseline characteristics, AL CA patients had significantly increased odds of in-hospital mortality and HF hospitalizations when compared to ATTR CA cohort. There is an increasing trend in hospitalizations in AL CA from 2017-2019.

Conclusion: AL cardiac amyloidosis had significantly higher odds of in-hospital mortality and HF hospitalizations in comparison to ATTR cardiac amyloidosis cohort. AL CA had lower incidence of stroke, thromboembolism and major bleeding with similar need for cardiac device implantation.

Figure 1
Trends in hospitalization for AL vs ATTR Cardiac Amyloidosis

Trends in Mortality

Figure 2