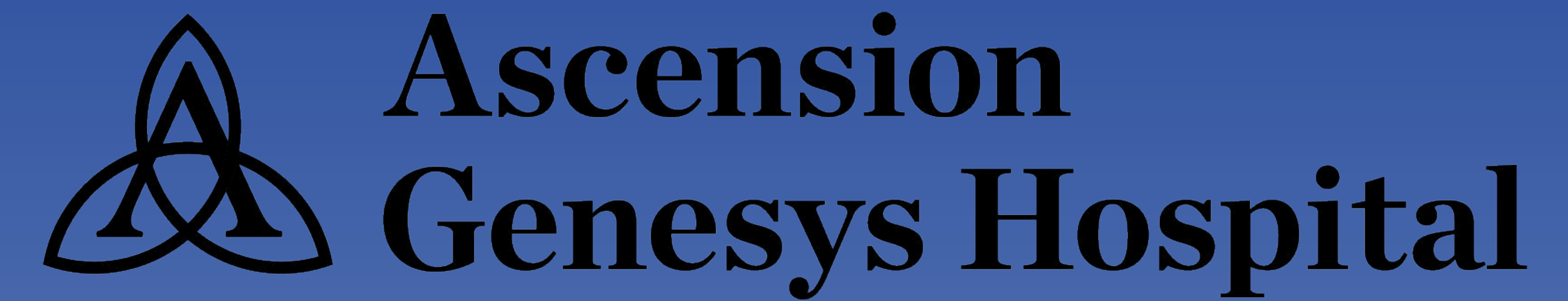


Management of New Onset Atrial Fibrillation with Associated reduced Left Ventricular Ejection Fraction During Index Hospitalization and Clinical Outcomes



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Introduction

- Atrial Fibrillation (AF) can account for up to one-third of hospitalizations for heart rhythm disorders in the United States
- There is a well known association between atrial fibrillation and heart failure (HF), AF carries a three fold risk of developing HF
- AF 10.1% of patients are readmitted in one year and 20% of HF patients are readmitted within 30 days of index hospitalization
- In 2018, the Catheter Ablation for Atrial Fibrillation with heart failure trial (CASTLE-AF) found that patients with NYHA Class II-IV heart failure with LVEF < 35% and symptomatic AF who received catheter ablation versus medical therapy had lower composite outcome of death or HF hospitalization (28.5% vs 44.6% ; p= 0.01)
- This is a retrospective descriptive analysis of patients admitted to a community hospital with new onset atrial fibrillation and impaired left ventricular function (LVEF) < 50%.
- Goal is to better understand current trends in management of new onset AF with low EF in a hospital setting and their association with clinical outcomes and thirty day readmissions

Hypothesis

- We hypothesize that patients who present with new onset atrial fibrillation and have associated LVEF < 50% achieving sinus rhythm prior to discharge will result in less major adverse cardiac events.

Methods

- Inclusion Criteria: Admission for AF, age > 18, on acute telemetry floor, transthoracic echocardiogram performed within 48 hours of admission, LVEF <50%
- Exclusion Criteria: Prior history of AF, new onset AF during the hospitalization, admitted to the intensive care unit, or were pregnant.
- Manuel chart review was performed for detailed echocardiogram review, determination of cardioversion attempts and success
- Primary outcome measures will be major adverse cardiac events (MACE) comprising acute coronary syndromes, ischemic CVA, and all cause mortality.
- Secondary endpoint included all-cause thirty day readmissions
- Chi-square test was used for statistical analysis

Results

- The mean age of was 68.7 (SD 13.4), 56 were white (100%), 42 were male (75%), and mean length of stay was 5.4 days (SD 4.8)
- 28 patients underwent attempted cardioversion (50.0%), 11 had chemical cardioversion (39.3%), 10 underwent electrical cardioversion (35.7%), and 7 underwent both (25.0%)
- Upon discharge 23 were in sinus rhythm (41.1%), 31 were in atrial fibrillation (55.4%), and 2 were in other cardiac rhythms (3.6%).
- Four patients (7.1%) experiences a total of 5 MACE including 2 (3.6%) ACS, 2 (3.6%) ischemic CVA, and 1 (1.8%)CV mortality.
- Of those who were discharged in atrial fibrillation (n=31, 55.4%), three (9.7%) had a MACE (p=0.02)
- No significant relationship was seen between the patients discharged in sinus rhythm versus atrial fibrillation and 30 day readmissions

Table 1: Primary and Secondary Composite Endpoints

Total Patients (n = 56)		Discharge Rhythm No. (%)		
		Sinus (n=23)	Atrial Fibrillation (n=31)	Other (n=2)
MACE	No	23 (100.0)	28 (90.3)	1(50.0)
	Yes	0 (0.0)	3 (9.7)	1(50.0)
30 Day Readmission	No	21 (91.3)	29 (93.5)	2(100.0)
	Yes	2 (8.7)	2 (6.5)	0 (0.0)

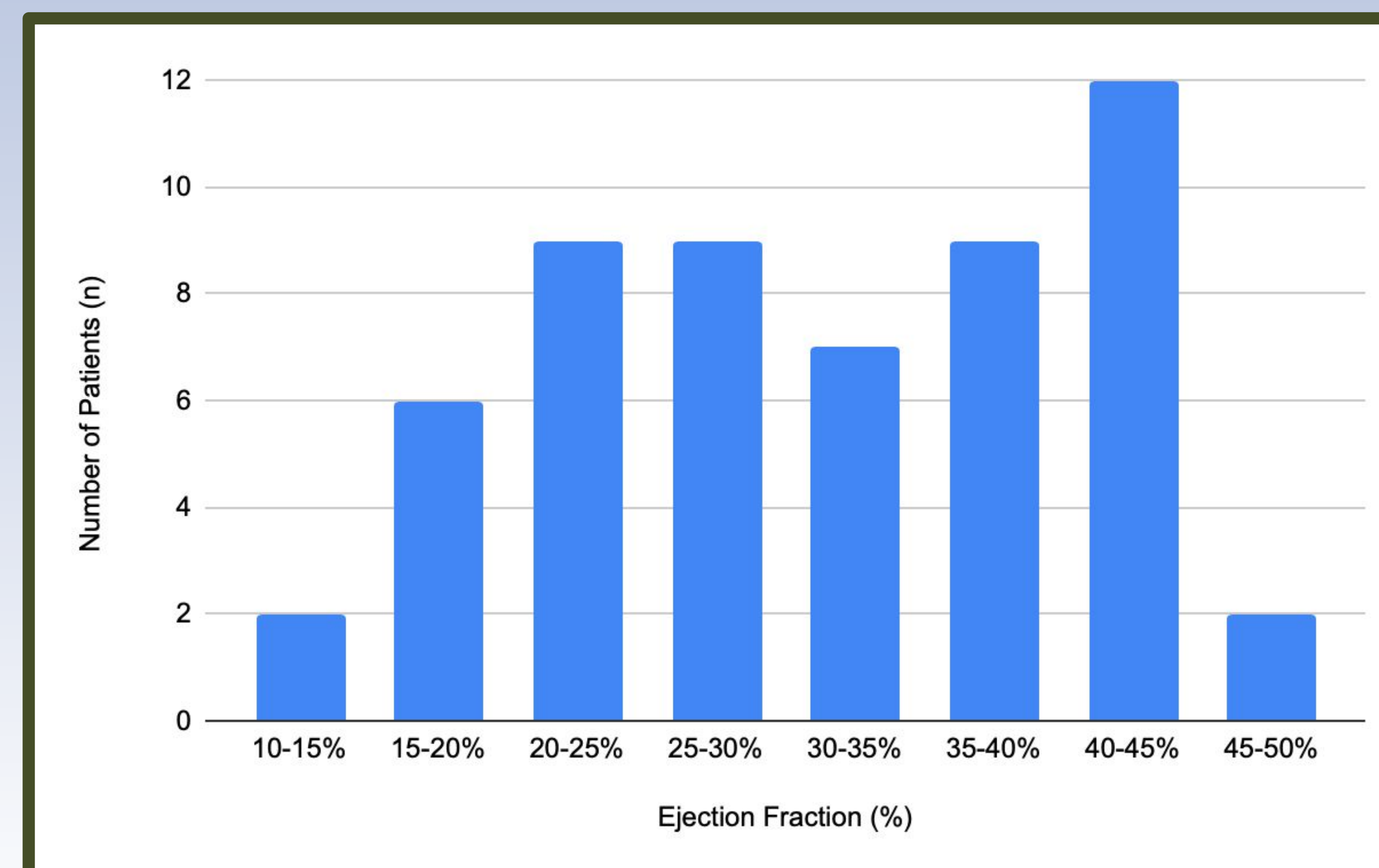


Figure 1: Distribution of Left Ventricular Ejection Fraction on Admission

Discussion

- Prior studies such as CASTLE-AF have demonstrated that patient with symptomatic HF and reduced LVEF (<35%) benefit in terms of mortality and HF hospitalizations from restoration of normal cardiac rhythm by means of catheter directed ablation.
- Comorbid AF and HF is common and both with high rates of hospitalization, readmission, and economic burden
- There was a statistically noticeable difference in the composite MACE in patients discharged in AF (n=31) compared to sinus rhythm (n=23) group. This supports our original hypothesis that patients converted to sinus rhythm prior to discharge would have less events.
- There was no statistically noticeable difference in thirty day readmissions between the atrial fibrillation or sinus rhythm
- There were no readmission for heart failure or atrial fibrillation. The reasons charted include failure to thrive, gastrointestinal bleeding, urinary tract infection, and post-operative complications
- Notable limitations to this study include the retrospective nature. Management practices in terms of use of antiarrhythmics versus electrical cardioversion or both could impact outcomes and long terms success
- Limitation of only following thirty day admission, can not assess quality of life or hospitalizations over one year
- Limited population size, limited ability to generalize

Conclusion

- Restoration of normal sinus rhythm during index hospitalization for new onset atrial fibrillation and associated LVEF < 50% may confer benefit by reducing major adverse cardiac events
- At this time there is no clear benefit to achieving sinus rhythm for purposes of decreasing probability of readmission for AF or HF
- The findings in this study should be replication with larger population size to confirm findings and achieve better power to detect difference in readmission at 30 days

References

