OHIO
CHAPTER

Cardioversion for Atrial Fibrillation in Hypertrophic Cardiomyopathy, Insight from National Inpatient Sample

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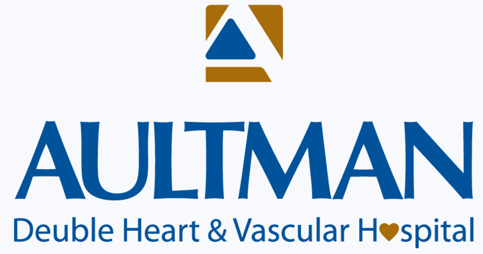


Background

- Anticoagulation for stroke prevention in atrial fibrillation (AF) is indicated in all hypertrophic cardiomyopathy (HCM) patients, regardless of $CHA2DS_2$-$VASc_2$ score.
- HCM patients have a higher prevalence of intracardiac thrombi, non-left atrial appendage (LAA) location of thrombi, and higher stroke risk.
- AF is poorly tolerated in the setting of HCM, due to its impact on left ventricular filling and cardiac output. Hence, HCM patients in AF, often undergo direct current cardioversion (DCCV), sometimes without transesophageal echocardiography (TEE) guidance.
- Utilization of preprocedural TEE in HCM patients undergoing DCCV for AF, has not been well studied.

Objective

Examine utilization of DCCV, TEE guidance and outcomes in hospitalized AF patients with and without HCM.

Methods

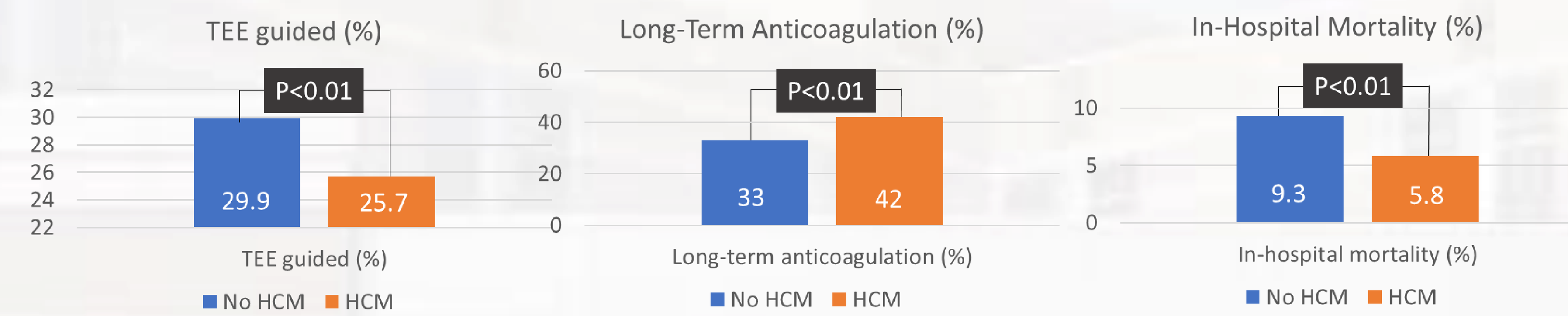
- National Inpatient Sample (NIS) database for years 2016-2018 was analyzed using STATA MP 14.
- Uni- and multivariate regression models were used to find predictors of outcome.
- Interaction analysis was carried out to delineate the effect of TEE guidance on outcome in each group (HCM vs non-HCM).

Discussion

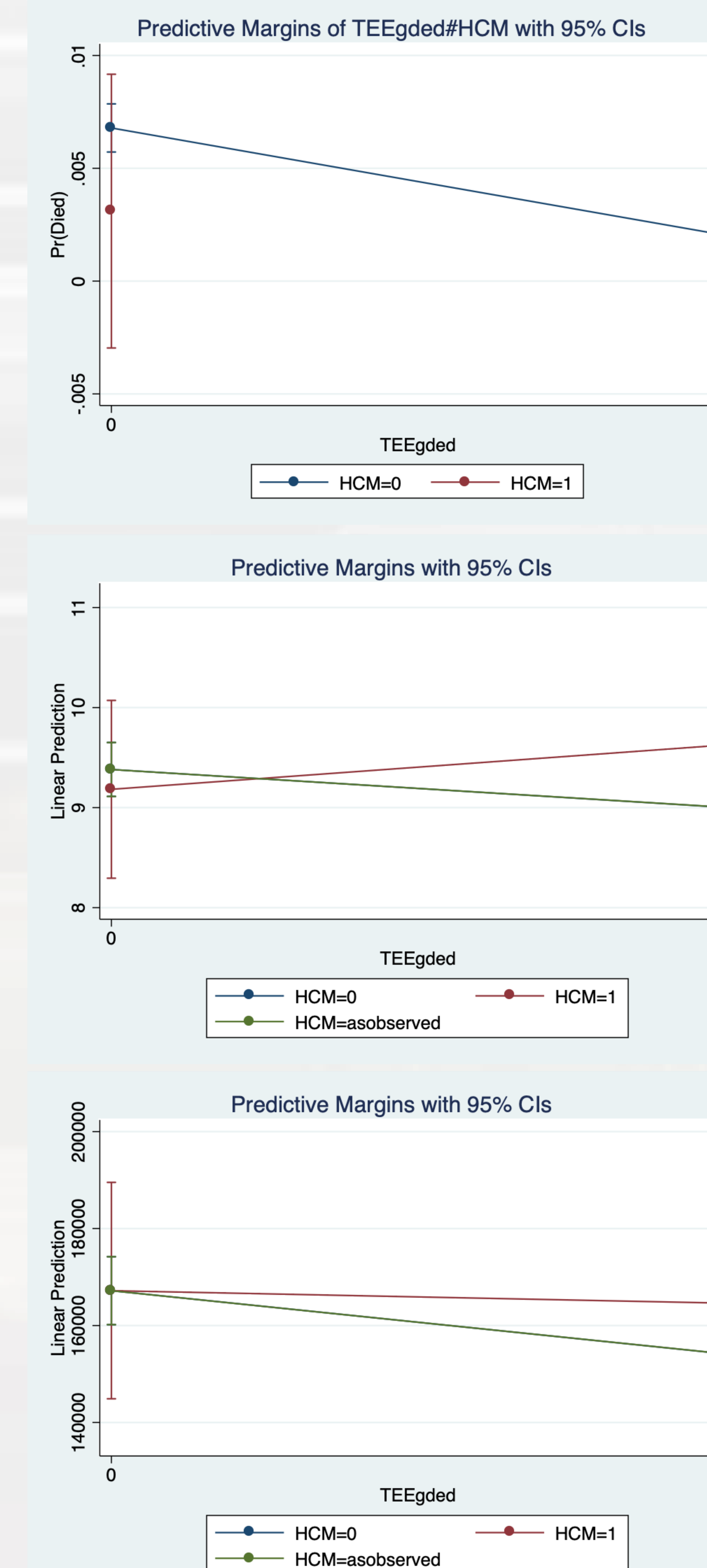
- Most baseline characteristics are consistent with known epidemiology of HCM (younger, more females, fewer co-morbidities).
- The rate of ICT was similar in both groups. Among patients whose primary discharge diagnosis was AF, HCM patients had a slightly higher prevalence of ICT, but the difference was not statistically significant (0.68% vs 0.37%, p=0.22).

Results

# Discharges	# AF	# HCM	# DCCV	# DCCV in HCM
~21M	~1.26M	148,490	292,420	2,980



	No HCM (n=289,440)	HCM (n=2,980)	p
Age (yr)	69	64.9	<0.01
Female (%)	37.4	49.2	<0.01
In-hospital mortality (%)	9.3	5.8	<0.01
TEE guided (%)	29.9	25.7	<0.01
Long-term anticoagulation (%)	33	42	<0.01
Intracardiac thrombus (%)	0.57	0.5	0.84
Comorbid CVA (%)	0.28	0.17	0.61
Mean LOS (day)	8	8.2	0.62
Total Hospital Charges ($)	124,722	134,937	0.29
Elective admission (%)	16.2	19	0.34
Race (%)			
White	81.1	77.7	0.44
Black	9.5	11.5	
Hispanic	5.4	5.9	
Asian or Pacific Islander	1.7	1.9	
Native American	0.3	0.5	
Other	2	2.4	
Median household income national quartile for zip code (%)			
0-25th	26.5	18.9	<0.01
26th -50th	26.9	29.2	
51st -75th	25.4	28.9	
76th-100th	21.3	23.1	
Location/teaching status of hospital (%)			
Rural	6.1	3.9	<0.01
Urban nonteaching	20.3	14.9	
Urban Teaching	73.6	81.2	
Bed size of hospital (%)			
Small	14.9	13.8	0.1
Medium	27.3	23.8	
Large	57.8	62.4	
Region of hospital (%)			
Northeast	17.4	20.6	<0.01
Midwest	27.1	31.7	
South	39	31.9	
West	16.6	15.8	
Mean Charlson Index of Comorbidities	2.82	2.56	<0.01



Discussion, cont.

- Reported long-term anticoagulation rates were less than expected in both groups. Inclusion of patients with newly diagnosed AF in the cohorts could partially explain this. Available data is limited to use or lack of LTA and does not include individual medications, likely contributing to this apparent under utilization of LTA.
- TEE guidance predicted decreased mortality and LOS in non-HCM patients. In non-HCM patients, despite use of an additional procedure, TEE guidance predicted less total hospital charges (TOTCH)
- A similar effect was not seen among HCM patients.

Limitations

- Analysis of CVA incidence after DCCV was not attempted due to lack of timestamp for diagnoses (including CVA) in NIS database.
- NIS uses hospital discharge rather than patient ID as unique identifiers and patients with AF tend to have readmissions.
- Smaller sample size of HCM patients.

Conclusion

While TEE guidance prior to DCCV for AF predicted better outcomes in Non-HCM patients, it surprisingly did not impact outcomes among HCM patients. Prospective studies on DCCV outcome in HCM patients are needed.

References

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