

# Echocardiographic Recovery of Function and Survival in Patients with Significant Cardiac Dysfunction from Anthracycline Induced Cardiomyopathy

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## BACKGROUND/OBJECTIVES

- Outcomes in patients with anthracycline induced cardiomyopathy (ACM) may vary depending on degree of dysfunction
- Cardiotoxicity from anthracyclines is known to be dose dependent; however, varying degrees of cardiac dysfunction may occur in exposed patients
- Outcomes of pediatric patients with heart failure secondary to ACM have not been well characterized
- We aimed to study the impact of degree of cardiac dysfunction on patient outcomes
- Outcomes of interest included patient survival and evidence of recovery of function on echo

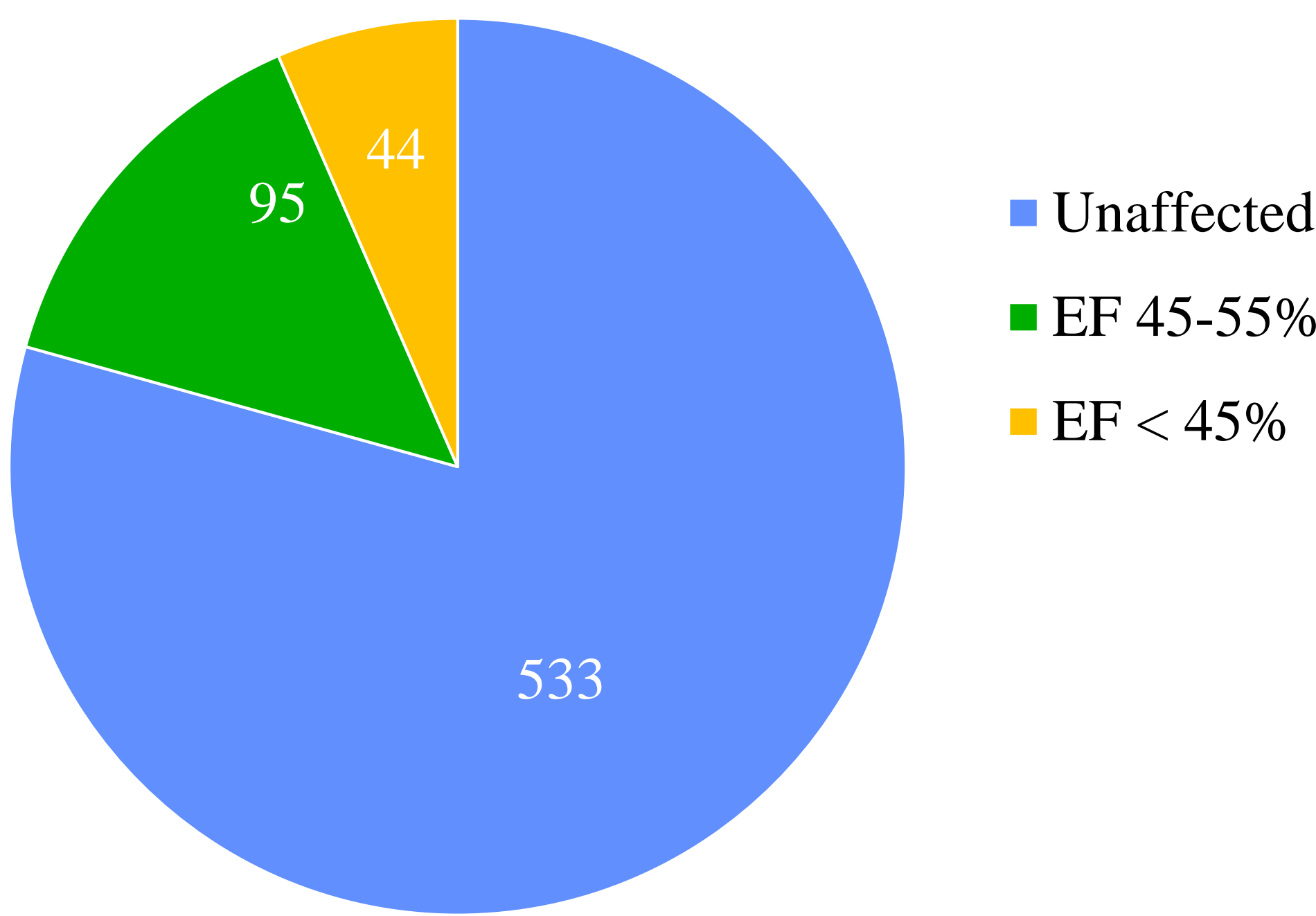
## METHODS

- We performed a retrospective review of pts who received anthracyclines between Jan 2007 and Dec 2014 at a single pediatric center
- All pts with cardiac dysfunction ( EF< 55%) on screening echo after exposure to anthracyclines or with symptoms were included
- Pts with EF 45-55% were considered to have mild dysfunction, and pts with EF<45% to have significantly depressed function
- Statistical Analysis:
- Data was examined using standard descriptive statistics. Baseline characteristics were compared between the groups using the chi-square and Fisher exact tests for categorical and Kruskal-Wallis test for continuous variables
- Logistic and Cox proportional hazards regression analyses were performed to determine if EF<45% was associated with echo recovery or survival

## RESULTS

-During the study period, 672 pts received anthracyclines and 139 (20.6%) of these had echo evidence of cardiac dysfunction

Figure 1. Patients with Anthracycline exposure



### Baseline Characteristics:

- Patients with EF<45% were older at cancer diagnosis than those with EF 45-55% (median 14 yrs; range 2-23 yrs for EF<45% vs median 10yrs, 0-26 yrs for EF 45-55%; p<0.02)
- There were no other significant differences in baseline characteristics

### Patient Outcomes:

- Both groups had similar excellent echo recovery at last follow up in multivariate analyses. EF<45% (vs EF 45-55%) was not associated with poor echo recovery
- EF<45% was found to be independently associated with worse survival (HR 2.16; CI 1.16-4.03; p<0.05) in ACM pts

Figure 2: Cardiac dysfunction and Echo recovery

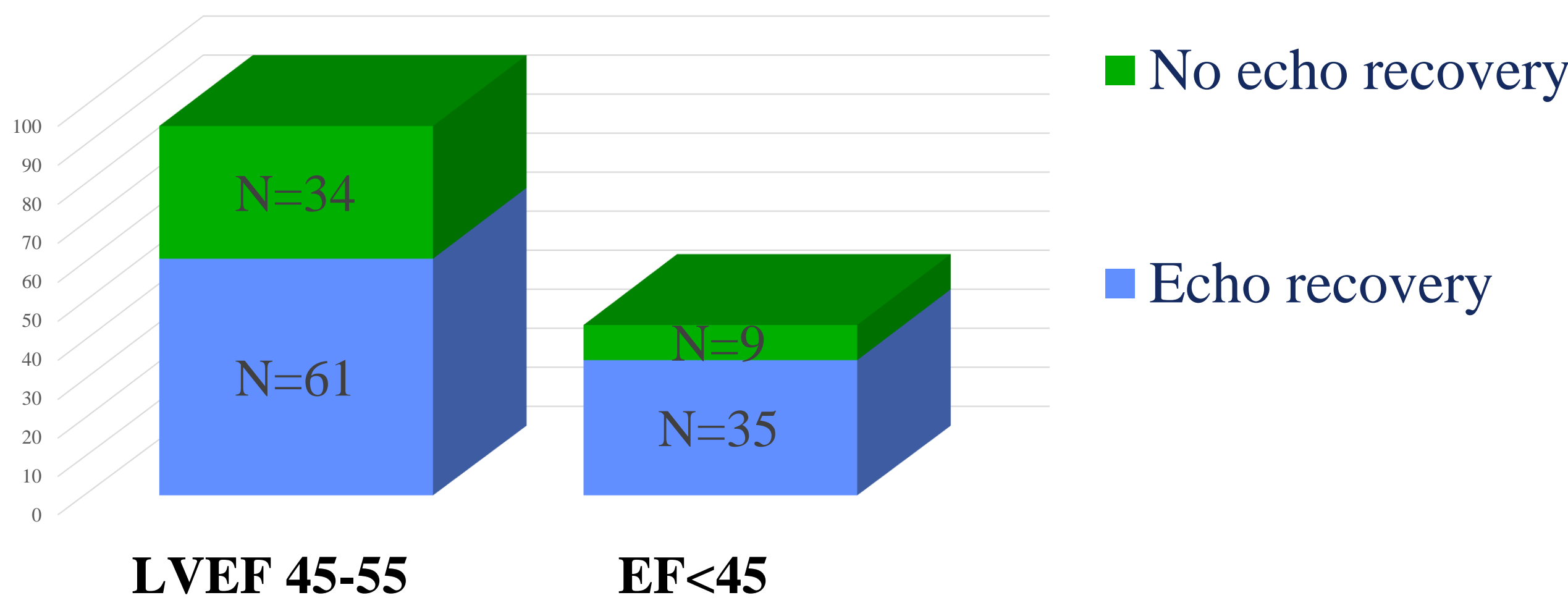


Figure 3: Cause of death in patients with EF<45%

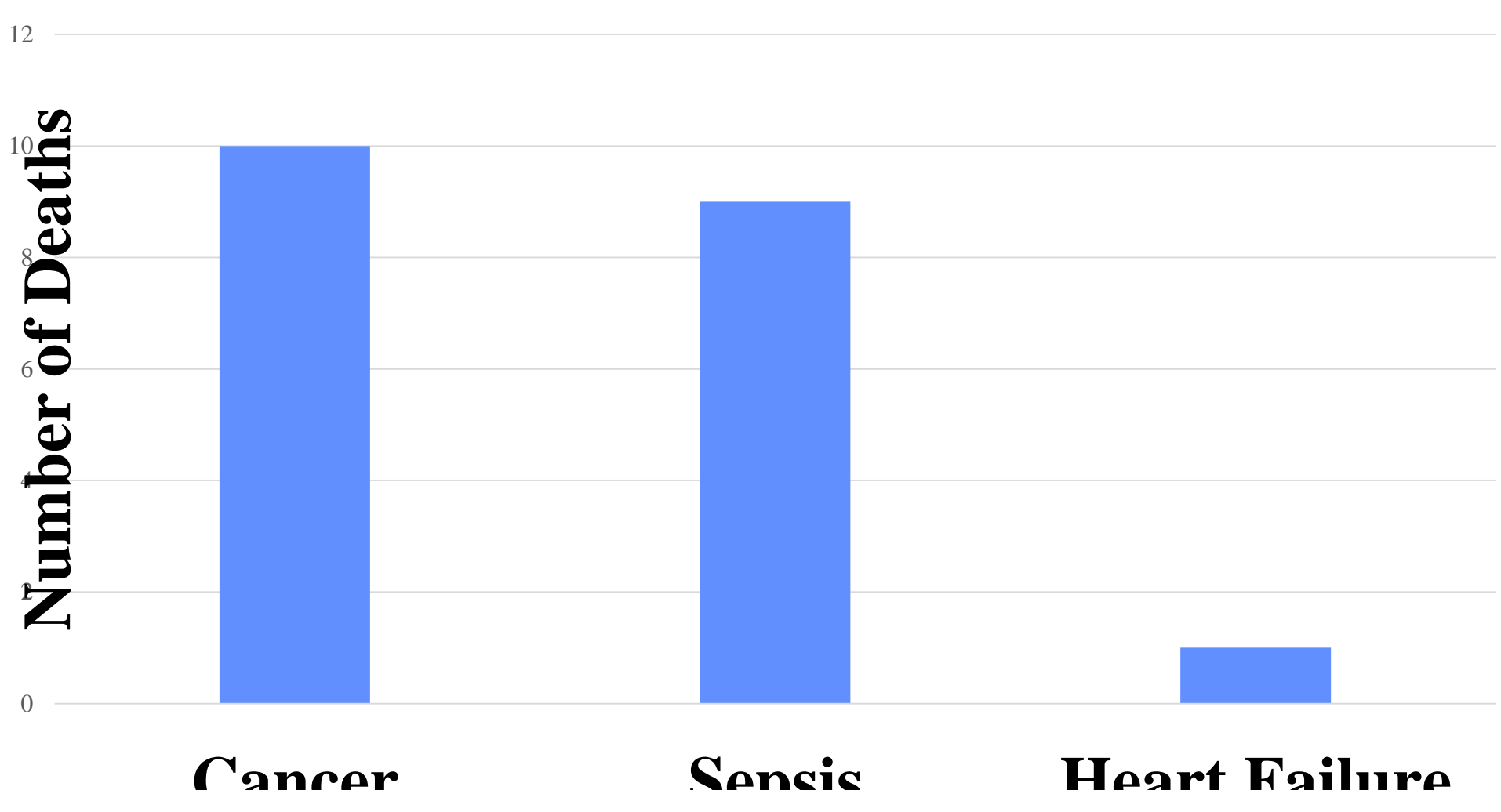


Figure 4: Multivariate model for predictors of poor survival

	Hazard ratio	95% CI	p- value
Low EF <45%	2.16	1.16-4.03	0.01
Female Gender	2.59	1.37-4.91	0<0.05
Solid tumor vs non-solid	1.29	0.67-2.5	0.44
Radiation	1.01	0.56-2.04	0.96
Total AC dose	1.00	0.99-1.00	0.88
Age	1.03	0.98-1.09	0.16
Race	1.67	0.66-4.19	0.27

## CONCLUSIONS

- Patients with ACM can present with varying degrees of cardiac dysfunction
- Despite significantly depressed function, complete recovery of cardiac function on echo was possible on follow-up
- However, EF <45% was found to be an independent predictor of patient mortality, indicating the need for closer surveillance and better understanding of the impact of significant cardiac dysfunction on mortality in ACM pts

## LIMITATIONS

This single center retrospective study carries several important limitations inherent to its design

## REFERENCES

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## DISCLOSURES

No authors have any relevant disclosures