



Arrhythmias In Acute Heart Failure Patients As Detected By Continuous Cardiac Monitoring

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Introduction

Heart Failure – Zimbabwean Experience

- Heart failure represents the final common pathway of all cardiovascular diseases
- 3-7% medical admissions in Sub-Saharan Africa(1)
- Mortality is high.
 - **SSA:** In hospital and 180day mortality of 4.2% and 17.8% respectively(2)
 - **Munyandu (2013) 180day mortality 40%**
 - **Musemwa (2014) In-hospital mortality of 12% and 180day mortality of 35.1%**

Arrhythmia and Outcomes in AHF

- Rhythm disturbances intimately related to adverse outcomes
- 12 lead ECG and continuous ECG monitoring(telemetry)
- Knowledge gap- No studies that have evaluated the interplay of arrhythmias and short term outcomes in AHF in Zimbabwe utilizing continuous ECG monitoring as a tool.

Objectives

Primary Objectives

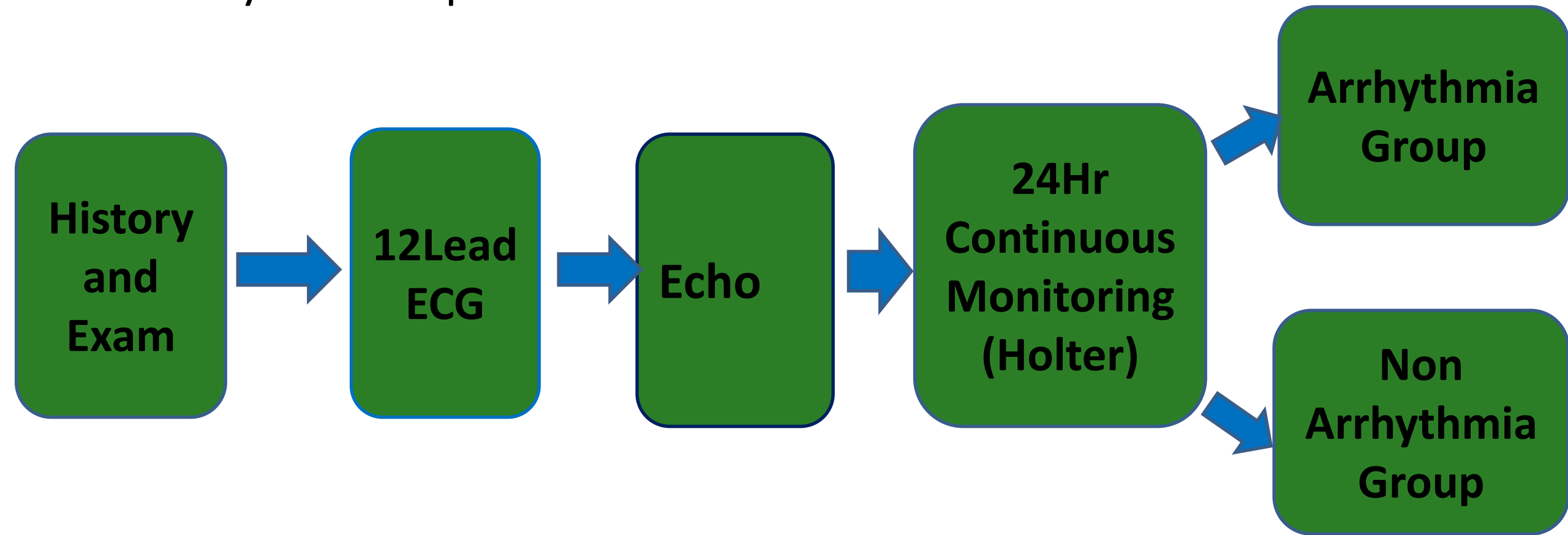
- To determine the clinical significance of arrhythmias in AHF as measured by length of hospitalization, in hospital mortality and 30 day outcomes

Secondary Objectives

- To determine the prevalence of arrhythmias as detected by 24 hour continuous ECG monitoring in AHF patients.
- To describe the pattern of arrhythmic events in acute heart failure patients.

Methods

- Prospective cohort study
- 30day follow up.



RESULTS



Figure 1: Study Flow Chart

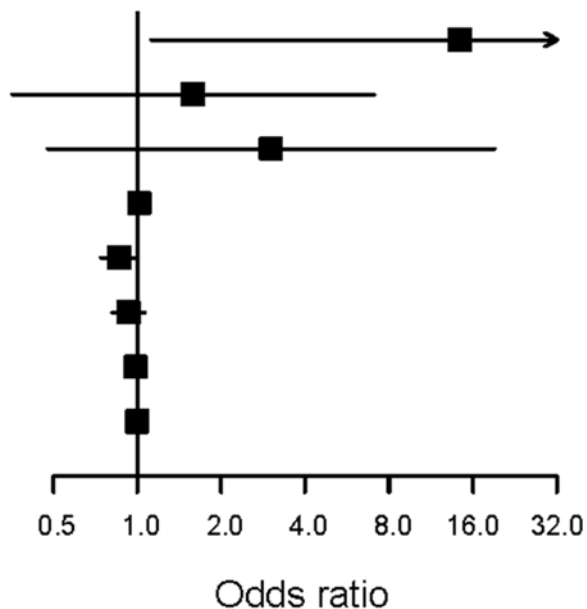
Demographics and Baseline characteristics

Characteristic	Frequency n (%)
Age	54.4±20.2years
Female	54(58.7)
Pre-existing HF	25(27.1)
Hypertension	47(51.1)
Rheumatic Heart Disease	17(18.4)
Pre-existing AF/flutter	6(6.5)
Beta-blocker use	5(6.5%) ; 19(20.6%)on discharge

Clinical Outcomes And Arrhythmic Events

Multivariate odds ratio of in-hospital mortality

Sustained VT
 Atrial fibrillation
 Atrial flutter
 Age/year
 SBP/5 mm Hg
 QTc/10 ms
 LVEF
 Ventricular beats/1000



	No Arrhythmia n=53	P value
	8(5-11)	0.308
	3(5.7)	0.007*

11(70)	
30 day mortality	16
n(%)	

Sustained ventricular tachycardia was the only independent predictor of in-hospital mortality

[OR 18.1,(95% CI 2.1-157.0), p=0.009]

Pattern and prevalence of arrhythmias

An additional 21.6% (p=0.004) of arrhythmias were identified on continuous that were not detected on baseline ECG.

Other SVT

1(1.1)

4(6.2)

Ventricular

0

NSVT 50(54.3)

Sustained VT 8(8.7)

Terminal VF 3(1.1)

Conclusion

- In patients with AHF (regardless of aetiology and baseline clinical characteristics) the prevalence of arrhythmic events is high.
- Arrhythmic events are detected more frequently by continuous ECG monitoring than by 12lead ECG alone.
- Arrhythmic events identify a high risk group of patients with higher in hospital mortality that is likely to benefit from additional therapeutic interventions.

Recommendations

1. Institute measures tailored at identification and treatment of fatal arrhythmias
 - Dedicated cardiac units and continuous ECG (telemetry) services(immediately costly but has potential to save young lives).
 - ACLS training and crash team
2. Protocol based management and discharge criterion with a dedicated HF clinic for early follow up may ameliorate high short term mortality.
3. Beta blocker use cannot be overemphasized.

Acknowledgements

- Participants

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