STAMINA SEED GRANT PROGRESS REPORT

Burden and Outcomes of co-morbid Cardiovascular diseases in HIV-infected Adults

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AFREHEALTH SYMPOSIUM 2018

Durban, South Africa

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PROJECT DETAILS

- GRANT AWARD: STAMINA
- YEAR OF GRANT AWARD: 2017 (year 2)
- DATE PROJECT COMMENCED: 13/11/2017
- PERIOD OF REPORT: Nov 2017– July 2018

Cardiovascular risk factors and co-morbidities in HIV-infected Adults - An Epidemic within the AIDS Pandemic: Prevalence, Associated factors and Assessment of Risk using the Framingham Risk Score

AFREHEALTH SYMPOSIUM 2018,
DURBAN, South AFRICA

INTRODUCTION

- HIV/AIDS is a global pandemic
- High morbidity/mortality with devastating socio-economic consequences especially in Africa.
- >20 million deaths, 75%i n SSA.
- ~10% of PLWA lives in Nigeria – mainly young productive age group. 2nd largest in the World.
- CVD increasingly common in PLWA especially with the advent of ART
- CVD HIV+ >>> CVD HIV- (~50-75% after accounting for traditional risk factors). At same FRS, 50% more risk of MI

INTRODUCTION

- CVD epidemic within the AIDS pandemic (mostly western studies)
- CVD responsible for at least 30% of mortality in PLWA. 50% increase in all cause mortality.
- CVD in PLWA is a spectrum - ranges from endocardial – valvular- myocardial – pericardial disease – vascular disease – arrhythmias
- Multiple mechanisms – HIV, ART, Opportunistic Infections, Nutritional deficiencies, smoking etc

AIMS AND OBJECTIVES

- To determine the 10 year predicted CV disease risk score using the Framingham's risk score.
- To determine the prevalence of specific cardiovascular diseases (electrocardiographic/echocardiographic abnormalities) found in HIV infected persons.
- To determine health related outcomes (hospitalizations, mortality, FRS) in adults with HIV with and without CVD over a period of 12 months

METHODS

- Study site: APIN clinic, JUTH
- Cohort study
- Two hundred and Sixty HIV+ recruited (estimated minimum sample size 204)
- History, Physical Exam, FBS, LIPIDS, U/Cr, Uric acid. FRS calculated. (baseline and end of follow-up). CD4, viral load.
- Electrocardiography, Echocardiography
- Follow-up for health related outcomes (hospitalization and mortality) for 12months- phone calls and clinic visits.

STUDY CRITERIA

- HIV+ Adults
- Stable without acute illness

STATISTICAL ANALYSIS

- Epi info 7 and Stata version 13
- Simple descriptive statistics
- Multivariate logistic regression
- Kaplan Meier’s Analysis
- Cox proportional hazard analysis

PROJECT TIMELINE

- First stage completed - Completed labs, ECG, ECHO.
- Study is 85% completed, currently ahead of schedule – remaining 2 follow-ups and repeat labs at end of 1 year
- Initial analysis on-going

RESULTS - preliminary

- 260 HIV+ (60 ART-)
- 50 HIV- (as at the time of report)
- 61.5% Females
- 78% ~at least 1 CVRF, 20% at least 4 ($p < 0.01$)
- FRS
  - 8.5% high risk
  - 19.6% moderate risk
  - 71.9% low risk
- 66.2% had co-morbid CVD ($p < 0.01$) – endocardial, valvular, myocardial, pericardial, vascular and arrhythmias.

Table 1: Prevalence of associated Cardiovascular Disease Risk Factors in HIV+

Variable	HIV+ N=260(%)	HIV- N=50(%)	P-value
Inadequate Physical Exercise	248(95.4%)	43(86.0%)	<0.01[x]
Low Socio-economic Class	193(74.2%)	34(68.0%)	0.36
Hypertension[1]	86(33.1%)	5(10.0%)	<0.01[x+]
Dyslipidaemia[1]	79(30.4%)	3(6.0%)	<0.01[x+]
Significant Alcohol Intake	77(29.6%)	6(12.0%)	0.01[x]
Increased Waist Circumference	68(26.2%)	15(30.0%)	0.57
Overweight/Obesity	53(20.4%)	18(36.0%)	0.02 [x]
Smoking[1]	46(17.7%)	2(4.0%)	<0.01[x+]
Diabetes Mellitus[1]	42(16.2%)	2(4.0%)	0.03[x+]
Metabolic syndrome	41(15.8%)	1(2.0%)	<0.01[x]
Increased Waist/Hip Ratio	34(13.1%)	3(6.0%)	0.23[+]
Chronic Kidney disease	30(11.5%)	0(0%)	<0.01 [x+]
Hyperuricaemia	22(8.5%)	0(0%)	0.03 [x+]
Stroke	6(2.3%)	0(0%)	0.59[+]
[2]FRS (mean±SD)	7.05±1.6	2.5±1.0	0.02 [x]

Table 2: Prevalence of Cardiovascular co-morbidities in HIV+ Adults

Electrocardiographic Abnormalities[x]	N=260(%)
Abnormal Electrocardiogram	155(59.6%)
Atrial ectopics	69(26.5%)
Ventricular ectopics	64(24.6%)
Sinus tarchycardia	50(19.2%)
Left ventricular hypertrophy	48(18.5%)
Left atrial enlargement	45(17.3%)
T wave inversion	39(15.0%)
Non-Specific intraventricular conduction defect	30(11.5%)
Poor R wave progression	30(20.0%)
Left axis deviation	24(9.2%)
Incomplete right bundle branch block	16(6.1%)
Right atrial enlargement	16(6.2%)
Generalised low voltages	13(5.0%)
Atrial fibrillation	10(3.9%)
Right ventricular hypertrophy	11(4.2%)
Atrial flutter	7(2.7%)

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Table 2: Prevalence of Cardiovascular co-morbidities in HIV+ Adults

Echocardiographic Abnormalities[x]	N=260(%)
Abnormal Echocardiogram	161(61.9%)
Pericardial disease	75(28.9%)
Left ventricular diastolic dysfunction	61(23.5%)
Left ventricular systolic dysfunction	55(21.2%)
Pericardial effusion (small-moderate)	39(15.0%)
Left ventricular hypertrophy (concentric)	47(18.1%)
Mitral valve regurgitation (moderate)	32(12.3%)
Tricuspid valve regurgitation	28(10.8%)
Septal wall dyskinesia	20(7.7%)
Pulmonary hypertension	18(6.9%)
Left ventricular hypertrophy (eccentric)	17(6.5%)
Left ventricular posterior wall dyskinesia	13(5.0%)
Dilated cardiomyopathy	13(5.0%)
Pericardial constriction	6(2.3%)
Vegetations (Endocarditis)	11(4.2%)
Isolated right ventricular dilatation	2(0.8%)
Rheumatic Mitral Valve disease	1(0.4%)

Results

- ART use associated with higher levels of
    - Hypertension
    - Dyslipidaemia
    - Overweight/Obesity
    - Cardiometabloic syndrome
    - FRS (8.8±1.9 vs 5.3±1.3), $p<0.01$.
- PI – ass inc FRS 9.9±2.0 vs 5.2±0.7, $p<0.01$
- Viral load > 200copies/ml independent predictor of Arrhythmias/AF (p=0.03, OR 3.72, 95%CI 1.18-11.69)
- CD4 < 200/ml independent predictor of Pericardial disease (±effusion) (p=0.04, OR 2.76, 95%CI 1.07-7.08)

CONCLUSION

- CVD risk factors and co-morbidities are common in our local HIV+ population
- Strong need to include early and periodic CVD risk assessment, ECG and ECHO as part of care in our local HIV+ population
- This will improve care and reduce morbidity/mortality
- Will also help to develop quality database and an appropriate CVD risk score for our patients

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Thank you