

South Africa - Associations of gamma-glutamyl transferase with cardio-metabolic diseases in people living with HIV infection in South Africa

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Overview

Identification

ID NUMBER

GGTandcardio-metabolicdiseases

Overview

ABSTRACT

Background: Gamma-glutamyl transferase (GGT) has recently been reported as a biomarker for cardiovascular (CVD) risk in general populations. We investigated the associations of GGT with cardio-metabolic diseases and CVD risk in South Africans living with HIV.

Methods: In this cross-sectional study, HIV-infected adults were randomly recruited across 17 HIV clinics in the Western Cape Province. Homeostatic model assessment for insulin resistance (HOMA-IR), hypertension, diabetes, metabolic syndrome by Joint Interim Statement criteria (JIS-MS), a =5% and =10% predicted risk for a CVD event within 10 years by the Framingham risk score (10-years-CVD risk) were computed. Associations between GGT and cardio-metabolic trait were explored using linear and binomial logistic regressions adjusted for age, gender, lifestyle behaviours and HIV-related characteristics.

Results: Among 709 participants (561 women, mean age 38.6 years), log-GGT was positively associated with waist circumference ($\beta=2.75$; $p<0.001$), diastolic blood pressure ($\beta=1.65$; $p=0.006$), total cholesterol ($\beta=0.21$; $p<0.001$), low-density lipoprotein-cholesterol ($\beta=0.16$; $p<0.001$), high-density lipoprotein-cholesterol and log-triglycerides (both $\beta=0.12$; $p<0.001$), fasting plasma glucose ($\beta=0.19$; $p=0.031$), 2-hour-post-glucose-load plasma glucose ($\beta=0.26$; $p=0.007$), HOMA-IR ($\beta=0.13$; $p=0.001$), log-high-sensitivity C-reactive-protein ($\beta=0.3$; $p<0.001$) in linear regression analyses; with hypertension [OR=1.41 (95%CI, 1.13-1.75); $p=0.001$], JIS-MS [OR=1.33 (1.05-1.68); $p=0.016$], =5% 10-year-CVD risk [OR=1.55 (1.24-1.9400); $p<0.001$] and =10% 10-year-CVD risk [OR=1.56 (1.08-2.23); $p=0.016$] but not with diabetes [OR=1.24 (0.88-1.71), $p=0.205$] in logistic regression analyses.

Conclusions: In this study, GGT levels were associated with cardio-metabolic variables independent of HIV specific attributes. If confirmed in longitudinal studies, GGT evaluation maybe included in CVD risk monitoring strategies in people living with HIV.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

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Sampling

No content available

Questionnaires

No content available

Data Collection

Data Collection Dates

| Start | End | Cycle |
|--------------|------------|--------------|
| 2015-01-01 | 2015-12-31 | N/A |

Data Processing

No content available

Data Appraisal

No content available

File Description

Variable List

o21_GGT_HIV_plosone

| | |
|--------------|-------------------|
| Content | |
| Cases | 709 |
| Variable(s) | 31 |
| Structure | Type: Keys: () |
| Version | |
| Producer | |
| Missing Data | |

Variables

| ID | Name | Label | Type | Format | Question |
|-----|-------------|-------------|----------|-----------|----------|
| V1 | PTId | PTId | discrete | character | |
| V2 | Gender | Gender | discrete | numeric | |
| V3 | Age | Age | discrete | numeric | |
| V4 | CSMK | CSMK | discrete | numeric | |
| V5 | CALC | CALC | discrete | numeric | |
| V6 | CD4_count | CD4_count | discrete | character | |
| V7 | ART_use | ART_use | discrete | character | |
| V8 | HIVD_yr | HIVD_yr | discrete | character | |
| V9 | HTN_Rx | HTN_Rx | discrete | numeric | |
| V10 | DM_Rx | DM_Rx | discrete | numeric | |
| V11 | Chol_Rx | Chol_Rx | discrete | numeric | |
| V12 | FamHx_CVD | FamHx_CVD | discrete | numeric | |
| V13 | Weight | Weight | discrete | numeric | |
| V14 | Height | Height | discrete | numeric | |
| V15 | BMI | BMI | discrete | numeric | |
| V16 | Waist_C | Waist_C | discrete | numeric | |
| V17 | SBP | SBP | discrete | numeric | |
| V18 | DBP | DBP | discrete | numeric | |
| V19 | GGT | GGT | discrete | numeric | |
| V20 | ALT | ALT | discrete | numeric | |
| V21 | AST | AST | discrete | numeric | |
| V22 | hs.CRP | hs.CRP | discrete | numeric | |
| V23 | CREATININE | CREATININE | discrete | character | |
| V24 | CHOLESTEROL | CHOLESTEROL | discrete | character | |
| V25 | HDL | HDL | discrete | numeric | |
| V26 | LDL | LDL | discrete | numeric | |
| V27 | TG | TG | discrete | numeric | |

| ID | Name | Label | Type | Format | Question |
|-----------|-------------|--------------|-------------|---------------|-----------------|
| V28 | GLUCOSE.2h | GLUCOSE.2h | discrete | character | |
| V29 | GLUCOSE.f | GLUCOSE.f | discrete | numeric | |
| V30 | HbA1c | HbA1c | discrete | numeric | |
| V31 | Insulin.f | Insulin.f | discrete | numeric | |

PTId (PTId)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 3

Valid cases: 709
Invalid: 0

Gender (Gender)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

Age (Age)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 18-72

Valid cases: 709
Invalid: 0

CSMK (CSMK)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

CALC (CALC)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

CD4_count (CD4_count)

File: o21_GGT_HIV_plosone

Overview

CD4_count (CD4_count)

File: o21_GGT_HIV_plosone

Type: Discrete
Format: character
Width: 4

Valid cases: 709
Invalid: 0

ART_use (ART_use)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 2

Valid cases: 709
Invalid: 0

HIVD_yr (HIVD_yr)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 11

Valid cases: 709
Invalid: 0

HTN_Rx (HTN_Rx)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

DM_Rx (DM_Rx)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

Chol_Rx (Chol_Rx)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

FamHx_CVD (FamHx_CVD)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 0-1

Valid cases: 709
Invalid: 0

Weight (Weight)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 37.725-140.75

Valid cases: 709
Invalid: 0

Height (Height)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 137.15-185.5

Valid cases: 709
Invalid: 0

BMI (BMI)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 15.11377156-52.8000621

Valid cases: 709
Invalid: 0

Waist_C (Waist_C)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 62-139.65

Valid cases: 709
Invalid: 0

SBP (SBP)

File: o21_GGT_HIV_plosone

Overview

SBP (SBP)

File: o21_GGT_HIV_plosone

Type: Discrete
Format: numeric
Decimals: 2
Range: 76.5-218

Valid cases: 709
Invalid: 0

DBP (DBP)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 53.5-134.5

Valid cases: 709
Invalid: 0

GGT (GGT)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 8-786

Valid cases: 709
Invalid: 0

ALT (ALT)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 6-380

Valid cases: 709
Invalid: 0

AST (AST)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 0
Range: 11-405

Valid cases: 709
Invalid: 0

hs.CRP (hs.CRP)

File: o21_GGT_HIV_plosone

Overview

hs.CRP (hs.CRP)

File: o21_GGT_HIV_plosone

Type: Discrete
Format: numeric
Decimals: 2
Range: 0.199-199.34

Valid cases: 709
Invalid: 0

CREATININE (CREATININE)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 3

Valid cases: 709
Invalid: 0

CHOLESTEROL (CHOLESTEROL)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 3

Valid cases: 709
Invalid: 0

HDL (HDL)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 0.5-3.27

Valid cases: 709
Invalid: 0

LDL (LDL)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 0.4-5.6

Valid cases: 709
Invalid: 0

TG (TG)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 0.35-4.22

Valid cases: 709
Invalid: 0

GLUCOSE.2h (GLUCOSE.2h)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: character
Width: 4

Valid cases: 709
Invalid: 0

GLUCOSE.f (GLUCOSE.f)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 3.2-21.2

Valid cases: 709
Invalid: 0

HbA1c (HbA1c)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 4.2-13.6

Valid cases: 709
Invalid: 0

Insulin.f (Insulin.f)

File: o21_GGT_HIV_plosone

Overview

Type: Discrete
Format: numeric
Decimals: 2
Range: 0.999-168.9

Valid cases: 709
Invalid: 0

