

Long-term High Level of Insulin Resistance Increase the Prevalence of Coronary Artery Calcification: the CARDIA Study

Running title: Ke et al. long-term IR and CAC

Zezhi Ke, MD^{1, 2†}; Rihua Huang, MD^{3, 4†}; Xinghao Xu, MD^{3, 4†}; Wenbin Liu, MD^{1, 2}; Suisui Wang, MD^{1, 2}; Xu Zhang, MD^{1, 2}; Ye Guo, PhD^{3, 4}; Xiaodong Zhuang, PhD^{3, 4*} and Lizhen Liao, PhD^{1, 2*}

¹ College of Health Science, Guangdong Pharmaceutical University, Guangzhou Guangdong, P.R. China.

² Guangdong Provincial Key Laboratory of Pharmaceutical Bioactive Substances, Guangdong Pharmaceutical University, Guangzhou 510006, P. R. China.

³ Department of Cardiology, the First Affiliated Hospital of Sun Yat-Sen University, 58 Zhongshan 2nd Road, Guangzhou, 510080, P. R. China.

⁴ NHC Key Laboratory of Assisted Circulation (Sun Yat-Sen University), P.R. China.

[†] Zezhi Ke, Rihua Huang, and Xinghao Xu contributed to the manuscript equally.

* Correspondence: Xiaodong Zhuang (E-mail: zhuangxd3@mail.sysu.edu.cn) and Lizhen Liao (E-mail: liaolizhen@gdpu.edu.cn)

Keywords: insulin resistance, HOMA-IR, coronary artery calcification, obesity, time series analysis, observational study

- 22 **Table S1.** Group-based trajectory model fit summary (N= 2777).
- 23 **Table S2.** Sensitivity analysis with CACS >20 and CACS >100 as endpoints
- 24 (categorical variables) in the CARDIA study.

Table S1. Group-based trajectory model fit summary (N= 2777)

Model	AIC	BIC (N=15466)	BIC (N=2777)	Average posterior probability
2	12705.22	12743.45	12734.86	0.95/0.93
3	12123.93	12181.28	12168.40	0.92/0.89/0.90
4	11943.58	12012.40	11996.95	0.89/0.83/0.87/0.91
5	11886.79	11974.73	11954.98	0.83/0.78/0.78/0.81/0.89

AIC Akaike's information criterion, *BIC* Bayesian information criterion.

Table S2. Sensitivity analysis with CACS>20 and CACS>100 as endpoints (categorical variables) in CARDIA.

	Unadjusted		Model 1		Model 2		Model 3	
	OR (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
CACS >20								
Low level	Reference	-	Reference	-	Reference	-	Reference	-
Moderate level	1.31 (1.06-1.62)	.012	1.38 (1.11-1.73)	.004	1.35 (1.04-1.74)	.022	1.24 (0.94-1.64)	.127
High level	2.39 (1.80-3.18)	<.001	2.42 (1.77-3.29)	<.001	2.39 (1.64-3.48)	<.001	1.71 (1.07-2.73)	.024
CACS >100								
Low level	Reference	-	Reference	-	Reference	-	Reference	-
Moderate level	1.57 (1.17-2.11)	.002	1.62 (1.19-2.19)	.002	1.67 (1.18-2.35)	.004	1.64 (1.13-2.38)	.010
High level	2.88 (1.20-4.16)	<.001	2.64 (1.79-3.91)	<.001	2.86 (1.77-4.62)	<.001	1.96 (1.08-3.55)	.026

Model 1, adjusted for age, sex, and race;

Model 2, adjusted for model 1 plus BMI, smoking status, drinking status, and Cr;

Model 3 adjusted for model 2 plus SBP, DBP, TG, LDL-c, HDL-c, HbA1c and CRP, HOMA-IR.

Abbreviations: CACS Coronary artery calcium score, BMI body mass index, WC waist circumference, SBP systolic blood pressure, DBP diastolic blood pressure, TG triglyceride, TC total cholesterol, HDL-c high-density cholesterol, LDL-c low-density cholesterol, Cr Serum creatinine, CRP hypersensitive C-reactive protein.