

VOLUME 40, NUMBER 9
September 2023

ISSN 0189 - 160X

WAJMJ

WEST AFRICAN JOURNAL OF MEDICINE

ORIGINALITY AND EXCELLENCE IN MEDICINE AND SURGERY



OFFICIAL PUBLICATION OF
THE WEST AFRICAN COLLEGE OF PHYSICIANS *AND*
WEST AFRICAN COLLEGE OF SURGEONS



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Lipoprotein-Associated Phospholipase A2 has Comparable Ability as Anthropometric Indices to Discriminate Cardiovascular Disease Risk: A Cross-Sectional Study

La Phospholipase A2 Associée aux Lipoprotéines a une Capacité Comparable à Celle des Indices Anthropométriques pour Discriminer le Risque de Maladie Cardiovasculaire : une Étude Transversale

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ABSTRACT

BACKGROUND AND AIM: Available evidence suggests that the indices of obesity may serve as good predictors of cardiovascular disease (CVD). This study compared the ability of lipoprotein-associated phospholipase A2 (Lp-PLA2) and anthropometric indices to discriminate CVD risk among the apparently healthy staff of Babcock University in Southwest Nigeria.

METHODS: A descriptive cross-sectional study was conducted among apparently healthy staff. Participants' weight, height, body mass index (BMI), waist circumference (WC), hip circumference (HC), neck circumference (NC), waist-to-hip ratio (WHR), waist-to-height ratio (WHtR), wrist circumference (WrC), and blood pressure were measured. Venous blood was collected for Lp-PLA2, lipid profile, and fasting plasma glucose (FPG) estimation. CVD risk was defined as the presence of either general obesity or abdominal obesity, diabetes mellitus, dyslipidaemia, hypertension or smoking. The receiver operating characteristic curve was used to compare the ability of Lp-PLA2 and the anthropometric indices to discriminate CVD risk in male and female participants.

RESULTS: Results showed that 75.7% (106) of the participants had CVD risk. Anthropometric indices (weight, BMI, WC, HC, NC, WrC, WHR, and WHtR), FPG, lipid profile and Lp-LPA₂ were higher among participants with CVD risk ($p < 0.05$). Among the men, Lp-PLA2 had the largest area under the curve (AUC) (AUC = 0.886, $p < 0.001$), closely followed by BMI (AUC = 0.879, $p < 0.001$), WC (AUC = 0.864, $p < 0.001$), and WHtR (AUC = 0.866, $p < 0.001$). Among the women, WHtR had the largest AUC of 0.995 ($p < 0.001$), followed by WC (AUC = 0.990, $p < 0.001$), BMI (AUC = 0.970, $p < 0.001$), and Lp-PLA2 (AUC = 0.938, $p < 0.001$).

CONCLUSION: The abilities of Lp-PLA2 and anthropometric indices to predict CVD risk are comparable among the male and female apparently healthy staff of a private tertiary university in Southwest Nigeria. **WAJM 2023; 40(9): 902–908.**

Keywords: Lipoprotein-associated phospholipase A2, Anthropometric indices, Cardiovascular risk, Nigeria.

RÉSUMÉ

CONTEXTE ET OBJECTIF: Les données disponibles suggèrent que les indices d'obésité peuvent servir de bons prédicteurs des maladies cardiovasculaires (MCV). Cette étude a comparé la capacité de la phospholipase A2 associée aux lipoprotéines (Lp-PLA2) et des indices anthropométriques à discriminer le risque de MCV parmi le personnel apparemment en bonne santé de l'Université Babcock, dans le sud-ouest du Nigeria.

MÉTHODES: Une étude descriptive transversale a été menée auprès de membres du personnel apparemment en bonne santé. Le poids, la taille, l'indice de masse corporelle (IMC), le tour de taille (WC), le tour de hanches (HC), le tour de cou (NC), le rapport taille-hanche (WHR), le rapport taille-hauteur (WHtR), le tour de poignet (WrC) et la pression artérielle des participants ont été mesurés. Du sang veineux a été prélevé pour mesurer la Lp-PLA2, le profil lipidique et la glycémie à jeun. Le risque de MCV a été défini comme la présence d'une obésité générale ou d'une obésité abdominale, d'un diabète sucré, d'une dyslipidémie, d'une hypertension ou d'un tabagisme. La courbe caractéristique du récepteur a été utilisée pour comparer la capacité de la Lp-PLA2 et des indices anthropométriques à discriminer le risque de MCV chez les hommes et les femmes.

RÉSULTATS: Les résultats ont montré que 75,7 % (106) des participants présentaient un risque de MCV. Les indices anthropométriques (poids, IMC, tour de taille, HC, NC, WrC, WHR et WHtR), la glycémie, le profil lipidique et la Lp-LPA₂ étaient plus élevés chez les participants présentant un risque de MCV ($p < 0,05$). Chez les hommes, la Lp-PLA2 présentait la plus grande aire sous la courbe (AUC) (AUC = 0,886, $p < 0,001$), suivie de près par l'IMC (AUC = 0,879, $p < 0,001$), le tour de taille (AUC = 0,864, $p < 0,001$) et le WHtR (AUC = 0,866, $p < 0,001$). Chez les femmes, le WHtR présentait la plus grande aire sous la courbe de 0,995 ($p < 0,001$), suivi du tour de taille (aire sous la courbe de 0,990, $p < 0,001$), de l'IMC (aire sous la courbe de 0,970, $p < 0,001$) et de la Lp-PLA2 (aire sous la courbe de 0,938, $p < 0,001$).

CONCLUSION: Les capacités de Lp-PLA2 et des indices anthropométriques à prédire le risque de MCV sont comparables parmi le personnel masculin et féminin apparemment en bonne santé d'une université tertiaire privée du sud-ouest du Nigeria. **WAJM 2023; 40(9): 902–908.**

Mots-clés: Phospholipase A2 associée aux lipoprotéines, indices anthropométriques, risque cardiovasculaire, Nigeria.

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Abbreviations: