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Waist circumference to height ratio and coronary artery calcification

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Background: Many studies have demonstrated that waist-to-height ratio (WHtR) correlates with risk factors of coronary artery disease (CAD) better, than the body mass index (BMI). Coronary artery calcification (CAC) is an independent risk factor of atherosclerotic heart disease. However, the association between WHtR and coronary artery calcification score (CACS) still need to be elucidated.

Objective: The purpose of this study was to investigate the relationship between WHtR and CACS in healthy adults.

Method: A total of 1111 adults without histories of cardiovascular disease who visit the Health Promotion Center at the University Hospital were included in this study. All subjects were measured CACS by multi-detector computed tomography (MDCT).

Results: Participant with a CACS>0 had a greater WHtR than those with a CACS=0 (0.535±0.006 vs. 0.517±0.005, P<0.001). After adjusting for risk factors that affect CAC, WHtR represented an independent predictor of presence of CAC (odd ratio: 1.04, P=0.019, 95% CI: 1.01-1.07). Male sex and systolic blood pressure associated with a 2.53 and a 1.02-fold increase in CAC, respectively (P<0.001, 95% CI: 1.53-4.19; P=0.007, 95% CI: 1.01-1.04).

Conclusion: In this study of adults without heart disease, WHtR was an independent predictor of CAC. These results suggest that WHtR may be useful marker of CAD.

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Genetic variation in CYP4F2 and VKORC1: Pharmacogenomics implications for response to Warfarin

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Background: Warfarin is the most commonly used drug in the management of thromboembolic disease. However, there is a huge variability in the time, number of doses or starting doses for patients to achieve the required international normalized ratio (INR) which is compounded by a narrow therapeutic index. Many genetic-association studies have reported on European and Asian populations which have led to the designing of specific algorithms, these are used to assist in warfarin dosing. However, very few or no studies have looked at the pharmacogenetics of warfarin in African populations.

Objective: We set out to investigate the distribution of 3 SNPs *CYP4F2 c.1347C>T, VKORC1 g.-1639G>A* and *VKORC1 c.1173C>T* among South African Mixed Ancestry (MA) and Black African patients.

Methods: DNA was extracted from 383 participants and genotyped using PCR/RFLP for the *CYP4F2 c.1347* (V433M) (rs2108622), *VKORC1 g.-1639* (rs9923231) and *VKORC1 c.1173* (rs9934438) SNPs.

Results: Comparing the Black and MA groups, significant differences were observed in the distribution of the following genotypes; *CYP4F2 c.1347C/T* (23% vs. 39% p=0.03), all *VKORC1 g.-1639G>A* genotypes (p<0.006) and all *VKORC1 c.1173C>T* genotypes (p<0.007).

Conclusion: *CYP4F2 c.1347T* (V433M) reduces *CYP4F2* protein levels and therefore expected to affect the amount of warfarin needed to block vitamin K recycling. The *VKORC1 g.-1639A* variant alters transcriptional regulation therefore affecting the function of vitamin K epoxide reductase in vitamin K production. The *VKORC1 c.1173T* variant reduces the enzyme activity of VKORC1 consequently enhancing the effectiveness of warfarin. More genetic characterization is required to understand all the genetic determinants affecting how patients respond to warfarin.

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