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Relationship between Obesity Indices Measured with Body Composition Analyzer and Carotid Artery Plaques in Korean Middle-Aged Men

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Abstract

Background: Carotid artery plaques, which can be easily detected using ultrasonography, serve as a risk factor for atherosclerosis. Abdominal fat, which is measured using a body composition analyzer based on bioelectrical impedance analysis, is associated with several diseases that can lead to atherosclerosis. In this study performed in middle-aged men, we investigated the association between carotid artery plaques and obesity indices measured using a body composition analyzer.

Methods: This study performed between January and December 2016 included 327 middle-aged men. Various obesity indices and carotid artery plaques were evaluated in all participants. The Chi-square and t-tests were used to determine differences in carotid artery plaques based on variables. We performed multivariate logistic regression analysis to confirm the effects of obesity indices as independent variables associated with carotid artery plaques.

Results: Patients with hypertension showed a greater number of carotid artery plaques. Carotid artery plaques were positively correlated with age, body weight, the waist-hip ratio, body fat mass, body fat percentage, visceral fat mass, subcutaneous fat mass, fasting blood glucose, serum total cholesterol, low-density lipoprotein, and triglyceride levels, and the carotid intima-media thickness. On multivariate analysis, the visceral fat mass remained independently associated with carotid artery plaques.

Conclusion: Visceral fat mass, which can conveniently be measured using a body composition analyzer, may be a useful predictor of increased carotid artery plaques, which serve as a risk factor for atherosclerosis.

Keywords: atherosclerosis, carotid artery plaques, obesity, visceral fat

Funding and Conflicts of Interest:
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.