



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

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UCI Health

Salie Lee¹, Bassam Yaghmour¹, Soshin Kye*²

¹ Department of Pulmonary, Critical Care and Sleep, School of Medicine at UCI, Irvine, CA, USA. ² Department of Family Medicine, National Police Hospital, Seoul, Korea.

BACKGROUND

- Carotid artery plaques 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 Korean middle-aged men, we investigated the association between carotid artery plaques and obesity indices measured with body composition analyzer.

METHODS

- We retrospectively analyzed the data of 327 middle-aged patients from electronic medical records.
- 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.

Table 4. Multivariate logistic regression analysis for carotid plaques in obesity indices

Variable		Odds ratio (95% confidence interval)	p-value*
BMI	Model1	1.147 (1.041-1.263)	0.005
	Model2	1.090 (0.983-1.208)	0.101
Waist Circumference	Model1	1.027 (0.993-1.063)	0.122
	Model2	1.007 (0.971-1.044)	0.707
Waist to Height Ratio	Model1	58.755 (0.155-22291.517)	0.179
	Model2	2.013 (0.004-1148.266)	0.829
Waist to Hip Ratio †	Model1	1.089 (1.018-1.165)	0.014
	Model2	1.053 (0.982-1.130)	0.149
Body fat mass	Model1	1.095 (1.032-1.163)	0.003
	Model2	1.062 (0.997-1.131)	0.062
Body fat percentage	Model1	1.081 (1.016-1.190)	0.013
	Model2	1.049 (0.985-1.119)	0.138
Skeletal muscle mass	Model1	1.017 (0.974-1.062)	0.451
	Model2	1.003 (0.959-1.049)	0.896
Visceral fat mass	Model1	1.631 (1.184-2.247)	0.003
	Model2	1.406 (1.006-1.963)	0.046
Subcutaneous fat mass	Model1	1.117 (1.039-1.202)	0.003
	Model2	1.075 (0.995-1.162)	0.068

*Calculated by multivariate logistic regression analysis

†Calculated by 100 times

Model 1: adjusted by age

Model 2: adjusted by age, hypertension, FBG, TC, TG

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.

DISCUSSION

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.

Contact Info: saliel@hs.uci.edu
 LinkedIn: Salie Lee