

Visceral Adiposity In Primary Aldosteronism: The Association Of Metabolic Syndrome

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OBJECTIVES

Primary aldosteronism (PA), characterized by an excessive production of aldosterone, has excessive cardiovascular events. Visceral adipose tissue, as an endocrine organ, involves in inflammation, insulin resistance and cardiometabolic syndrome. However, little is known about the significance of visceral adiposity in patients with PA despite of prominent metabolic syndrome in this population.

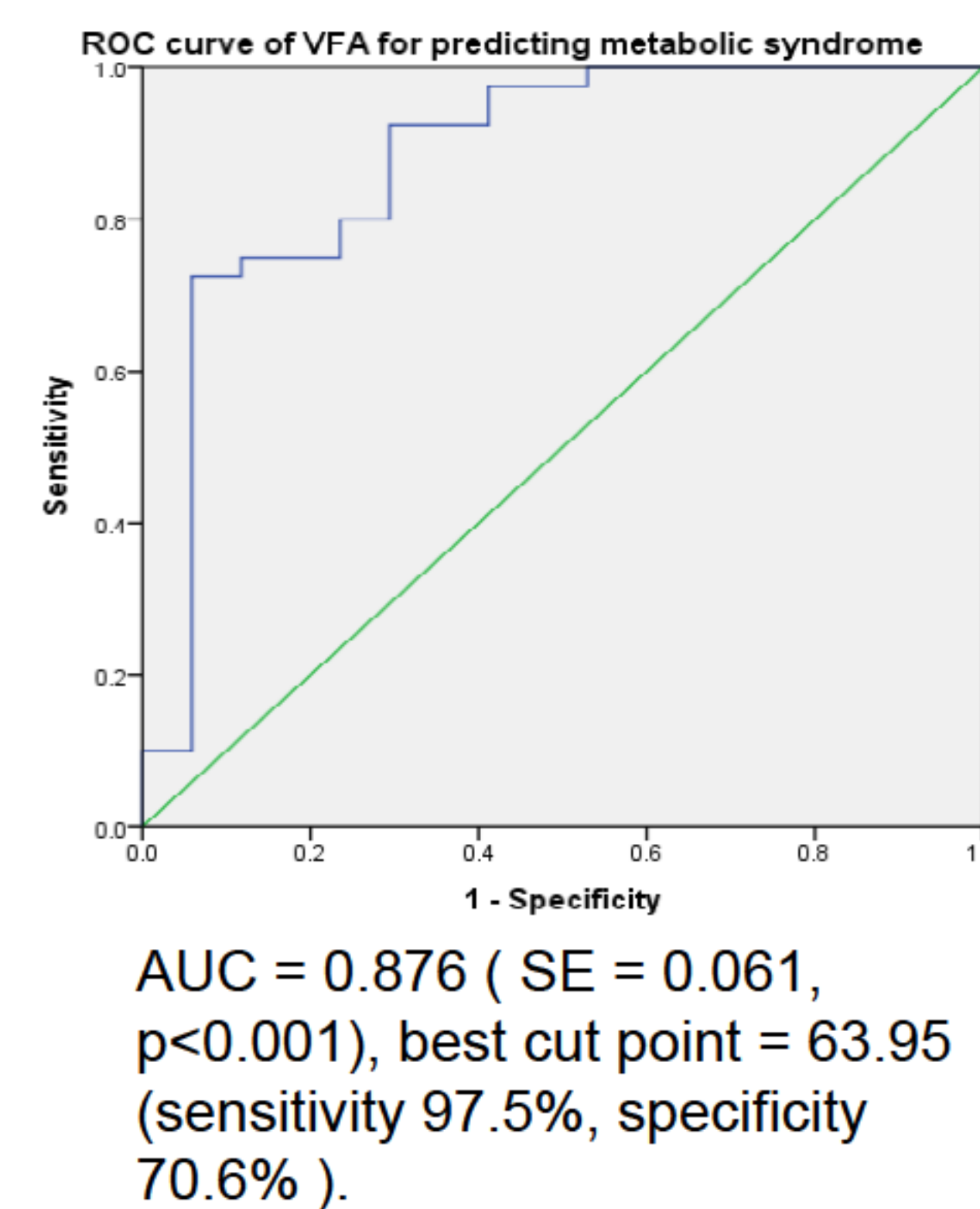
METHODS

Fifty-seven patients (47.4% female) with PA receiving computed tomography (CT) between September 2005 and May 2009 were included. Baseline parameters, including weight, height, waist circumference, blood pressure, serum aldosterone, plasma renin activity (PRA), creatinine, potassium, fasting glucose and lipid profiles were all collected. Visceral fat area (VFA) was calculated from CT. Metabolic syndrome was clarified according to ATP III criteria for Asians.

Table 1, Correlation between VFA and SFA and other clinical characteristics in study populations
VFA: visceral fat area, SFA: subcutaneous fat area

	VFA	p	SFA	p
VFA	-		0.452	<0.001
SFA	0.452	<0.001	-	
Age	0.299	0.024	-0.104	0.444
Weight	0.615	<0.001	0.561	<0.001
Waist circumference	0.708	<0.001	0.536	<0.001
BMI	0.667	<0.001	0.557	<0.001
Systolic blood pressure	0.120	0.372	0.143	0.290
Diastolic blood pressure	0.237	0.076	0.304	0.021
Aldosterone	-0.213	0.112	0.031	0.821
Plasma renin activity	0.045	0.742	0.062	0.645
Aldosterone/renin ratio	-0.200	0.137	0.077	0.570
HDL	-0.413	0.002	-0.243	0.074
LDL	0.191	0.172	0.271	0.050
Total cholesterol	-0.026	0.848	-0.018	0.895
TG	0.106	0.434	-0.096	0.476
Creatinine	0.456	<0.001	0.112	0.405
eGFR	-0.333	0.011	-0.058	0.668
Potassium	0.163	0.224	0.240	0.072
Fasting Glucose	0.190	0.156	-0.075	0.577
Uric acid	0.683	<0.001	0.348	0.009

Figure 1, ROC curve of visceral fat area to predict metabolic syndrome in patients with primary aldosteronism



RESULTS

The prevalence rate of metabolic syndrome in PA population was 70%. The average VFA was 115.1±52.3 cm². The VFA did not correlate to aldosterone levels ($r = -0.213$, $p = 0.112$). In multivariate linear regression model after adjusting age, sex, DM, and BMI, aldosterone levels did not associate with VFA ($B \pm SE = -0.237 \pm 0.136$, $p = 0.088$). The area under the curve of VFA to predict metabolic syndrome was 0.876 (SE = 0.061, $p < 0.001$). The best cut point was 63.95cm² with sensitivity of 97.5%, and specificity of 70.6%.

CONCLUSIONS

Visceral adiposity does not linearly associate to aldosterone levels in patients with PA. The cut point of VFA to predict metabolic syndrome is much lower in PA patients than in general population, indicating that factors other than visceral adiposity aggravate metabolic abnormality in PA.

References

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