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Oral Communication Abstract
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CT-derived renal sinus fat quality and quantity and cardiometabolic risk

Haekyung Lee[1], Eun Ji Lee[2], Hyoungnae Kim[1], Jin Seok Jeon[1], Hyunjin Noh[1], Dong Cheol Han[1], Soon Hyo Kwon[1]
[1]Department of Internal Medicine-Nephrology, Soonchunhyang University Seoul Hospital, Korea, Republic of
[2]Department of Radiology, Soonchunhyang University Seoul Hospital, Korea, Republic of

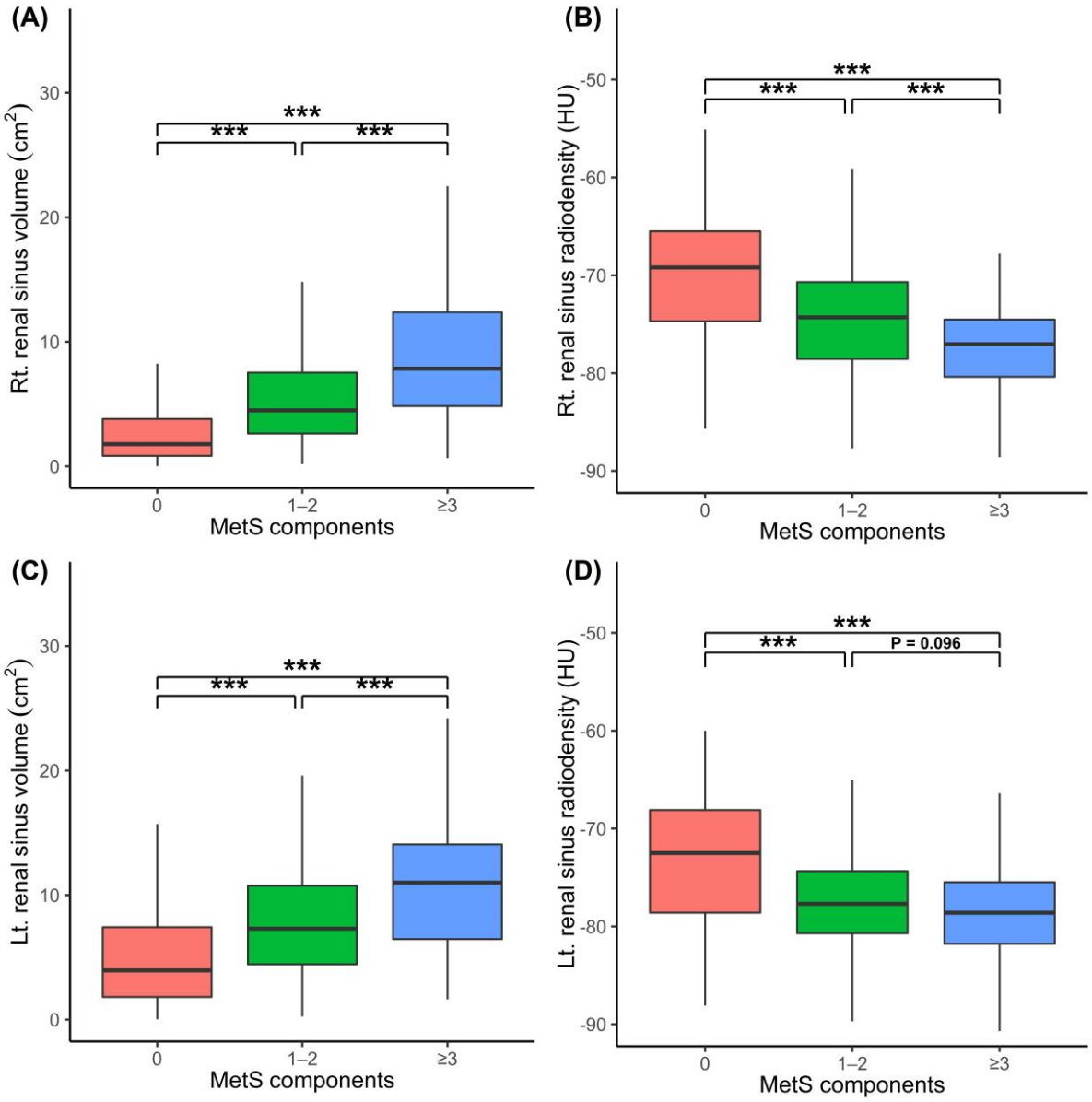
Objectives: Increased renal sinus (RS) fat volume is associated with chronic kidney disease and hypertension. We aimed to investigate whether computed tomography (CT)-derived RS fat quality and quantity are associated with cardiometabolic risk factors.

Methods: A total of 506 subjects (male 72.7%) who underwent general health checkup including multidetector CT were included. Radiodensity was defined as the average Hounsfield units of the measured fat volume. Subjects were categorized into 3 groups according to the number of metabolic syndrome (MetS) risk criteria they met (0, 1–2, and ≥3). MetS was defined by the modified ATP-III criteria.

Results: Male subjects had lower radiodensity and greater fat volume for both RSs than female subjects (p <0.001, all). Moving stepwise from the no MetS risk criteria group to the 1–2 risk criteria group to the ≥3 risk criteria group, fat volume for both RSs increased and right RS radiodensity decreased consistently. However, left RS radiodensity in the no MetS risk criteria group was lower than the groups with any number of risk criteria (Figure 1).

Conclusions: Increased fat volume and lower RS radiodensity, especially in the right RS, are associated with metabolic derangements. Image-based assessment of RS fat depots may be a potential biomarker for cardiometabolic risk.

Figure 1


(A)
Rt. renal sinus volume (cm2)
30
20
10
0
***
***
***
0
1–2
≥3
MetS components
(B)
Rt. renal sinus radiodensity (HU)
-50
-60
-70
-80
-90
***
***
***
0
1–2
≥3
MetS components
(C)
Lt. renal sinus volume (cm2)
30
20
10
0
***
***
***
0
1–2
≥3
MetS components
(D)
Lt. renal sinus radiodensity (HU)
-50
-60
-70
-80
-90
***
***
P = 0.096
0
1–2
≥3
MetS components