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Fatty kidney is associated with the severity of metabolic dysfunction

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Objectives : Metabolic syndrome severity score (MSSS) is an indicator for assessing severity of metabolic dysfunction. This study aimed to investigate the correlation between MSSS and attenuation of abdominal fats, and ectopic fat depots measured by computed tomography.
Methods : This study analyzed the data of medication-naïve 358 participants (men, 70.9%) who underwent abdomino-pelvic computed tomography (APCT) imaging. MSSS was calculated based on metabolic parameters and divided into 3 groups according to the severity. We measured the attenuation of abdominal fats and ectopic fat depots including intramuscular, perivascular using APCT. Additionally. liver and kidney fat contents were assessed APCT attenuation.
Results : Higher MSSS was significantly associated with increased body fat percentage ($p<0.05$). MSSS was significantly higher in female ($p=0.0024$). There was no relationship between aging and MSSS ($p=0.654$). APCT based analysis revealed that increasing MSSS was significantly associated with decreasing attenuation of visceral peritoneal fat and kidney ($p<0.05$). In multiple regression analysis, visceral peritoneal fat attenuation ($\beta=-0.2547$, $p<0.001$) and kidney attenuation ($\beta=-0.1529$, $p=0.0274$) remained independently associated with MSSS.
Conclusions : MSSS is strongly correlated with low attenuation in visceral peritoneal fat and kidney. These findings suggest that the quality of visceral fat and kidney fat infiltration is associated with increased metabolic abnormality in treatment naïve individuals.

table 1.JPG

	MSSS = 1		MSSS = 2	
	β	p	β	p
Age (yrs)	0.0282	0.2195	0.0529	0.0654
Sex (Female)	1.4852	0.0156	2.3242	0.0024
Body fat percentage (%)	0.1642	0.0032	0.3760	<0.001
Visceral fat attenuation (HU)	-0.0903	0.0252	-0.2547	<0.001
Kidney attenuation (HU)	-0.1570	0.0036	-0.1529	0.0274