

Paper Category:	Basic Science
Paper Title: (Arial Font; 14 Pt Size)	Skeletal muscle mass-to-visceral fat area ratio, mediated by leucine-rich α-2-glycoprotein, is associated with arterial stiffness in a 7-year prospective cohort study in Asians with type 2 diabetes
Abstract Body: (Arial Font; 12Pt Size)	<ul style="list-style-type: none"> • Background • Objectives • Method • Results • Discussions and Conclusions
<p>Background: Arterial stiffness is a marker of vascular aging. Skeletal muscle mass-to-visceral fat area ratio (SVR) is an emerging marker of sarcopenic obesity. Although there are shared pathophysiological mechanisms like insulin resistance, inflammation and oxidative stress for sarcopenic obesity and arterial stiffness, association between SVR and arterial stiffness is unclear. Leucine-rich α-2-glycoprotein(LRG1) has pro-inflammatory and pro-angiogenic properties. Higher plasma LRG1 has been shown to predict arterial stiffness.</p> <p>Objectives: We investigated longitudinal association between SVR and arterial stiffness with possible mediation by LRG1 in Asians with type 2 diabetes(T2D).</p> <p>Methods: This was a prospective cohort study of 1499 patients from SMART2D cohort over a follow-up period of up to 7.1 years. Pulse wave velocity(PWV), an arterial stiffness index, was measured using applanation tonometry method at baseline and follow-ups. SVR was assessed with bio-impedance measurements of muscle mass and visceral fat area. Plasma LRG1 was quantitated using ELISA. Linear mixed model was used to examine association between SVR and follow-up PWV, adjusting for demographics and clinical covariates.</p> <p>Results: The mean age was 58.2 ± 8.4 years. At baseline, SVR was negatively correlated with PWV ($r = -0.104$; $p < 0.001$). Higher SVR at baseline was associated with lower follow-up PWV with coefficients -2.50 (95%CI -4.67 to -0.32; $p = 0.024$) and -3.00 (95%CI -5.28 to -0.71; $p = 0.010$) in unadjusted and fully adjusted analyses. Compared to Quartile(Q) 4 SVR (highest SVR group), the fully adjusted coefficients for Q3, Q2 and Q1 SVR were 0.17 (95%CI -0.44 to 0.79; $p = 0.579$), 0.50 (95%CI -0.19 to 1.20; $p = 0.156$) and 1.04 (95%CI 0.32 to 1.76; $p = 0.005$) respectively. Mediation analysis showed that LRG1 accounted for 13.5% of association between SVR and follow-up PWV($p = 0.025$).</p> <p>Discussions and Conclusions: Our results revealed a previously unobserved longitudinal association between SVR and PWV over time with mediation by LRG1. SVR, which reflects sarcopenic obesity, is a potentially useful biomarker for monitoring and prevention of arterial stiffness in T2D.</p>	

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