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**A Comparative Study of Visceral fat and Subcutaneous fat by CT and correlation with BMI, biochemical parameters.**

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**Objectives:** To determine the association of computed tomography (CT) quantified visceral (VAT) and subcutaneous adipose tissue (SAT) with estimated glomerular filtration rate (eGFR) using CKD-EPI formula, diabetes mellitus, body mass index (BMI), proteinuria, lipid profile, and hypertension. Abdominal CT with semi-automated software can quantify adipose tissue and predict the risk for metabolic diseases.

**Methods:** This is a cross-sectional study of 101 individuals (71 M /30 F) with a mean age of  $59.4 \pm 5.2$  years. Axial sections of non-contrast CT abdomen between L4-5 intervertebral disc (10mm) were selected to quantify SAT (Fig 1) and VAT (Fig 2) utilizing GE advanced workstation software. Normal BMI for Indian population is 18.5-22.9 kg/m<sup>2</sup>. Hypertension was defined as per JNC 8 guidelines.

**Results:** The mean eGFR among hypertensives was  $78.1 \pm 38.1$ , compared to  $106 \pm 29.8$  in normotensives ( $p < 0.001$ ). A trend observed towards lower eGFR with higher VAT ( $r = -0.194$ ,  $p = 0.052$ ). The mean eGFR among diabetics ( $82.1 \pm 38$ ) was lower compared with non-diabetics ( $104.7 \pm 31.9$ ,  $p = 0.002$ ). There is a significant increase in the VAT with age ( $p = 0.003$ ). In a sample of 72 individuals' high TGL and low HDL showed a trend towards increased adipose tissue in the subcutaneous and visceral compartment. BMI showed positive association with VAT ( $p < 0.001$ ) and SAT ( $p < 0.001$ )

**Conclusions:**

CT quantification of adipose tissue can be used as a predictive tool to assess risk for metabolic diseases and decline in kidney function. Further, it helps in early implementation of lifestyle modification and pharmacological therapy to improve quality of life.

Figure 1: CT abdomen (Axial Section) showing quantified SAT (between blue lines)

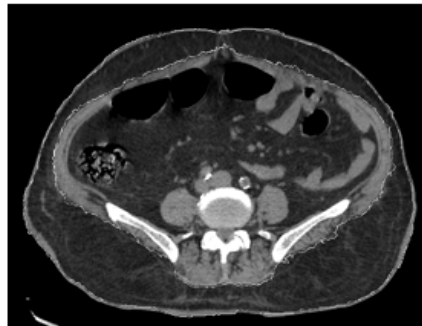


Fig1: CT abdomen(Axial Section) showing quantified SAT( between blue lines)

Figure 2: Fig 2: VAT measured using CT image by workstation, between L4-L5 intervertebral disc(10mm)

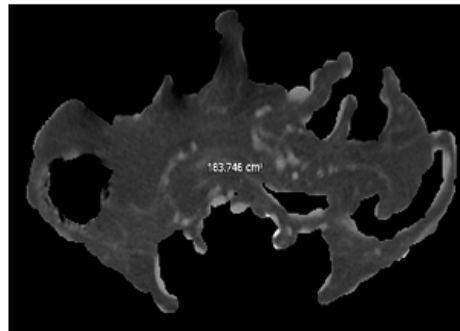


Fig 2: VAT measured using CT image by workstation, between L4-L5 intervertebral disc(10mm)