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There is no significant correlation between visceral adiposity and high sensitivity C-reactive protein (HS-CRP) in American subjects

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Background: High-sensitivity C-reactive protein (HS-CRP) is an established marker for low-grade inflammation associated with multiple chronic conditions, including cardiovascular diseases. The relationship between HS-CRP and visceral adipose tissue (VAT) has been explored 1, but its relationship with other body composition parameters has not been well-studied. We investigated the associations between HS-CRP and clinical and body composition parameters in ambulatory asymptomatic American subjects.

Method: We performed a cross-sectional analysis of 48 consecutive individuals (M: F 20: 28, age 51 ±11 years) who underwent body composition assessment via DEXA and laboratory testing, including HS-CRP, fasting glucose, and insulin measurements. No subjects had diabetes or any chronic illness. Twenty-nine (60%) were obese based on total fat percentage (TFP).

Results: There is a positive correlation between body weight and HS-CRP levels (r=0.64, p< 0.001). There is a positive correlation between HS-CRP levels and total fat weight (TFW) (r=0.77, p<0.001) and TFP (r=0.65, p<0.001). There is a negative correlation between HS-CRP levels and lean mass percentage (r=-0.66, p<0.001). There is no significant correlation between HS-CRP levels and lean mass weight or VAT. TFW maintained a significant correlation with HS-CRP despite controlling for body weight, fasting glucose, and fasting insulin levels. ROC curve of TFW as a positive criterion for detecting subjects with abnormal HS-CRP (>3 mg/L) was highest at 0.89 (P<0.001). TFW >62.5 lbs as a cutoff had a sensitivity of 89% and specificity of 71% for detecting subjects with abnormal HS-CRP.

Conclusions: Our study shows no correlation between HS-CRP levels and VAT but showed a significant correlation with TFW and TFP. Addressing TFW and TFP may be a better target for reducing chronic inflammation than VAT.

Keywords: Visceral adipose tissue, dual-energy X-ray absorptiometry, DEXA, total fat weight, total fat percentage, lean body mass, fasting glucose, fasting insulin

Biography

Miriam Peters is a pre-medical student working as a research coordinator in the Center for Clinical Epidemiology and Population Health at the Marshfield Clinic Research Institute. She is researching under the tutelage of Dr. Sanjay Kumar of the Department of Cardiology in the Marshfield Clinic Health System. She has a BS in Neurobiology.

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