

LETTERS TO THE EDITOR

Imaging-Based Obesity Assessment for Risk Factor Stratification and Prognostication in Malignancy



We read with interest the paper titled “Association of Cardiometabolic Disease With Cancer in the Community” by Liu et al.¹ We congratulate them on their successful work and wish to add to their findings.

We agree that body mass index (BMI) is standard in providing an accurate measure of obesity given its influence by age, sex, and ethnicity. Liu et al¹ demonstrate the importance of imaging-based obesity assessments in the quantification of both cancer risk and prognosis. In their study, they highlight the “obesity paradox,” in which higher BMI appears to be protective against developing lung cancer and to improve prognosis.^{1,2} However, greater visceral adipose tissue ($P = 0.045$) and pericardial adipose tissue ($P = 0.044$) measured on computed tomography were positively correlated with lung cancer incidence and may reflect a more accurate association between obesity and lung cancer.¹ If so, the obesity paradox seen in lung cancer may equate to similar paradoxes in which increased adiposity is a risk factor for malignancy but of prognostic benefit thereafter (eg, renal cell carcinoma).²

The distinction between obesity as an individual cancer risk factor is particularly important in patients with metabolic syndrome, in which obesity occurs in tandem with other potential risk factors such as diabetes and hypertension. The full extent to which visceral obesity affects cancer incidence rather than as a confounding contributor to BMI and other components of metabolic syndrome remains unclear. Using imaging-based obesity assessments of visceral and pericardial adiposity may provide a more accurate risk profile and could ultimately replace BMI in subspecialty scoring indexes such as fatty liver index, which is associated with hepatocellular carcinoma incidence.³

Beyond diagnostics, imaging-based assessments of obesity may provide additional insight into prognostics. Obesity as a protective factor in cancer survival is well reported, but studies looking retrospectively at site-specific adiposity and overall survival are few. A recent study by Shinohara et al⁴ demonstrated that patients with lower pericardial fat on computed tomography of non-small cell lung cancer had poorer overall survival postoperatively. This may be one of the first insights into how the site-specific nature of excess adipose tissue may affect cancer prognostics.

Overall, imaging-based assessments of adipose tissue may be a window of opportunity into producing more accurate cancer risk stratification tools, more insight into overall survival for specific cancer types, and a chance to further explore the conundrum of the obesity paradox.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

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