Decreased Blood Flow with Increased Metabolic Activity: A Novel Sign of Pancreatic Tumor Aggressiveness

To the Editor: We read with great interest the recent article by Komar et al. (1), in which the authors evaluated blood flow (BF) using oxygen-15-labeled water and standardized uptake values (SUV) using 18F-fluoro-deoxyglucose positron emission tomography in patients with pancreatic tumors, and correlated these findings with patient survival.

Ten patients with pancreatic cancer were divided into two subgroups, using survival at 12 months as the cutoff. Because of the very small sample size (5 patients in each patient subgroup), the unpaired Student's t test applied in the study was inappropriate. Typically, unpaired Student's t test is used for samples with normal distribution. A nonparametric test such as the Mann-Whitney-Wilcoxon test would have been more appropriate because it would not require a normal distribution of the data (2). The P value, however, would have remained statistically significant when using the Mann-Whitney-Wilcoxon test (P = 0.015) instead of the unpaired Student's t test (P = 0.022).

The prognosis in patients with pancreatic cancer depends largely on the extent of disease based on tumor-node-metastasis (TNM) staging. Therefore, it would be important to correlate the TNM staging with the SUV/BF ratio. Of the 10 pancreatic cancer patients evaluated, however, TNM staging was not provided in four of these patients because of insufficient data or other reasons. TNM staging was available in the remaining six patients, which, however, would be limited for a proper statistical analysis. It was not clear how much the SUV/BF ratio would correlate with the TNM staging in this study.

The study contained pancreatic cancer lesions of 2.5 cm and greater. Therefore, it was not clear whether the prognostic marker of increased metabolism and associated decreased blood perfusion could be applicable for pancreatic lesions less than 2.5 cm in size.

The authors suggested that decreased blood flow with associated increased fluorodeoxyglucose metabolism indicated a novel sign of pancreatic tumor aggressiveness. This statement was not convincing because the aforementioned insufficiencies that involved the very small sample size, the lack of lesions less than 2.5 cm in size, and the missing correlation between SUV/BF and TNM staging. Further studies are required to validate these findings.

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No potential conflicts of interest were disclosed.

References


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