

IMAGING

FDG-PET predicts neuroendocrine tumor survival

¹⁸F-fluorodeoxyglucose positron emission tomography (FDG-PET) is a strong prognosis predictor for neuroendocrine tumors, according to new research from scientists at the Rigshospitalet, Copenhagen. “It was not known previously whether FDG-PET was useful in patients with neuroendocrine tumors,” says corresponding author, Andreas Kjaer.

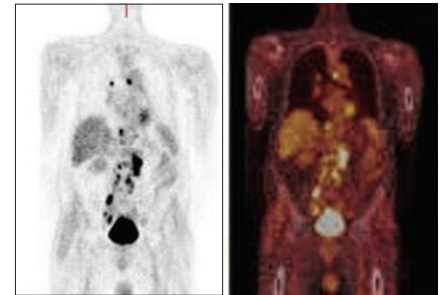
The treatment and clinical outcome of patients with neuroendocrine tumors varies considerably depending on the aggressiveness of the disease and whether surgical resection is possible. Prognostic factors are crucial to the early selection of patients who will benefit most from certain treatments, and better diagnostic techniques are needed for accurate staging and treatment of the tumor. Current markers include plasma levels of chromogranin A, tumor metastases and Ki67 staining to determine the tumor proliferation rate. Previous studies have shown that FDG-PET for neuroendocrine tumors can have a low sensitivity and

FDG-PET is not used routinely for neuroendocrine tumor imaging.

Tina Binderup and colleagues recruited 98 patients with neuroendocrine tumors and used FDG-PET to measure tracer uptake (SUV_{max}) in these tumors, as well as assessing traditional prognostic markers such as tumor proliferation index (Ki67) and chromogranin A.

The investigators observed that 14 patients died during the 1 year follow-up period and, of the 98 patients analyzed, more than half were FDG-PET positive, as seen in the accompanying image. The researchers found that this positive result correlated with a significantly higher risk of death; 23% of FDG-PET positive patients died during follow-up compared with only 2% of FDG-PET negative patients. Furthermore, the researchers used univariate and multivariate analyses to show that FDG-PET could be used to predict survival in patients with neuroendocrine tumors.

“As a rare type of cancer it is rather unique to be able to perform a study on



FDG-PET (left) and FDG-PET/CT (right) in male patient with neuroendocrine colon carcinoma. Image provided by Tina Binderup and colleagues.

almost 100 patients,” adds Binderup and Kjaer who plan to investigate whether FDG-PET can be used to monitor the response to therapy in patients with neuroendocrine tumors.

Katrina Ray

Original article Binderup, T. *et al.* ¹⁸F-Fluorodeoxyglucose positron emission tomography predicts survival of patients with neuroendocrine tumors. *Clin. Cancer Res.* **16**, 978–985 (2010)