

## Role of PET/CT in the clinical management of locally advanced pancreatic cancer

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### ABSTRACT

**Aim.** To evaluate the role of 18F-fluorodeoxyglucose (FDG) PET/CT in: a) the selection of patients with locally advanced pancreatic cancer for helical tomotherapy with concurrent chemotherapy (HTT-ChT); b) monitoring HTT-ChT treatment efficacy in comparison with contrast-enhanced CT (c.e.CT).

**Methods.** Forty-two consecutive patients with unresectable locally advanced pancreatic cancer referred for HTT-ChT were enrolled in the study. All patients were pretreated with induction ChT. Before the beginning of HTT-ChT treatment patients underwent diagnostic c.e.CT (CT<sub>0</sub>) and FDG PET/CT (PET/CT<sub>0</sub>) for staging. After staging, patients received HTT-ChT. Three months after the end of HTT-ChT a control c.e.CT (CT<sub>1</sub>) was done. FDG PET/CT (PET/CT<sub>1</sub>) was repeated only in patients with positive PET/CT<sub>0</sub>. PET/CT<sub>1</sub> and CT<sub>1</sub> were compared with baseline imaging results to assess treatment efficacy.

**Results.** In 31/42 cases (74%) PET/CT<sub>0</sub> documented pathological uptake in pancreatic lesions, while in the remaining 11/42 cases it showed no uptake. In 7/42 (17%) patients, PET/CT<sub>0</sub> also detected distant metastases, prompting a change in the therapeutic approach. Compared to PET/CT<sub>0</sub>, PET/CT<sub>1</sub> (n = 18) documented 3 complete metabolic responses, 9 partial metabolic responses, 2 instances of stable metabolic disease, and 4 instances of progressive metabolic disease. In the same group of 18 patients, CT<sub>1</sub> showed 0 complete responses, 3 partial responses, 8 instances of stable disease, and 7 instances of progressive disease compared to CT<sub>0</sub>. Concordance between PET/CT and CT response was seen in 33% of cases. In 50% of cases, PET/CT<sub>1</sub> documented a response to therapy that was not evident on CT.

**Conclusions.** PET/CT influenced the treatment strategy by detecting distant metastases not documented by CT, thus accurately selecting patients for HTT-ChT after induction ChT. In monitoring treatment efficacy, PET/CT can detect a metabolic response to treatment not identified by CT.

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**Key words:** pancreatic cancer, FDG PET/CT, helical tomotherapy, patient management.

*The authors have no potential conflict of interest.*

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