Magnetic resonance-guided adaptive radiation therapy may improve survival in pancreatic cancer patients

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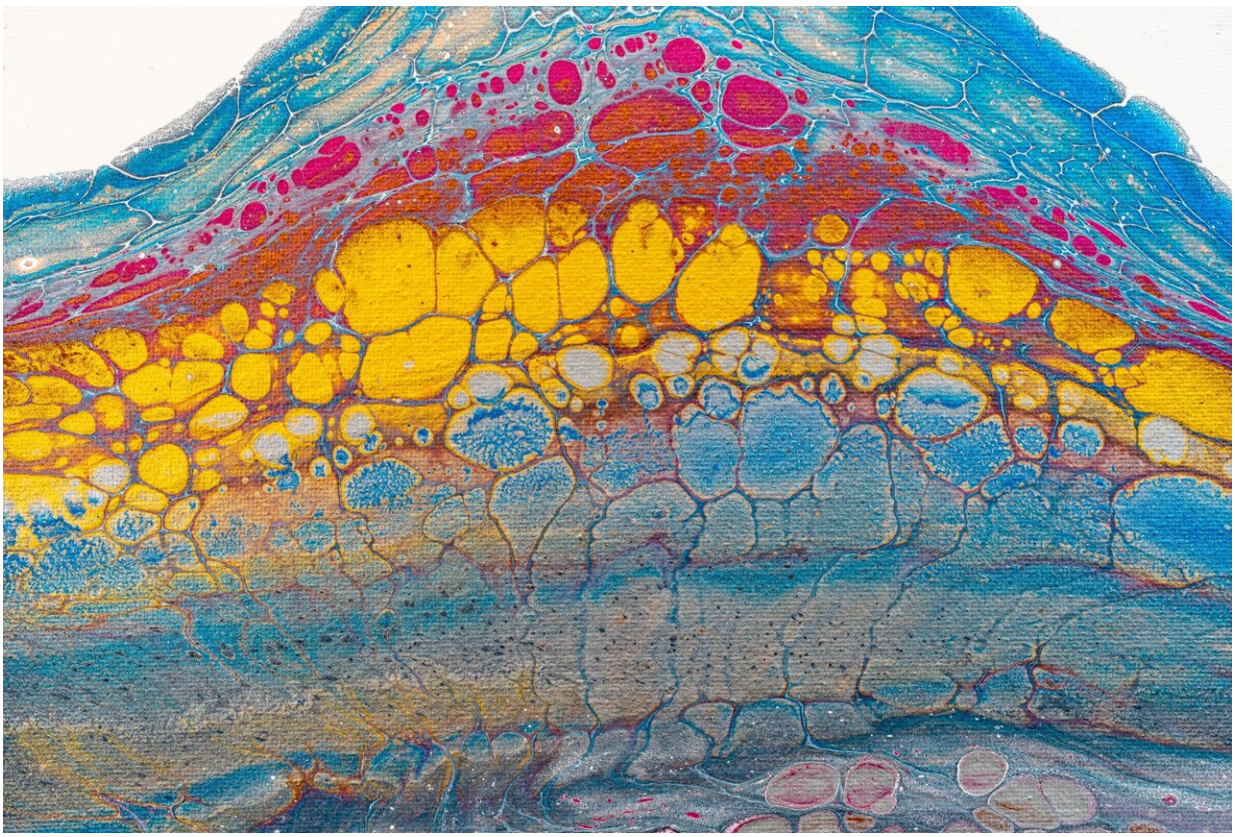

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A study co-led by researchers at Miami Cancer Institute, part of Baptist Health South Florida, has found that ablative stereotactic magnetic

resonance (MR)-guided adaptive radiation therapy may improve local control (LC) and overall survival (OS) in patients with borderline resectable (BRPC) and locally advanced pancreas cancer (LAPC). Long-term outcomes from the Phase 2 SMART trial demonstrate encouraging OS and limited toxicity as published recently in *Radiotherapy and Oncology*.

"Pancreatic ductal adenocarcinoma is a leading cause of cancer death. Surgery is the only known curative treatment, although most newly diagnosed patients are not surgical candidates due to locally extensive and/or distant metastatic disease," said Michael D. Chuong, M.D., vice chair and medical director of proton therapy and photon therapy in the department of radiation oncology at Miami Cancer Institute, and senior author of the study. "Ablative radiation therapy may benefit patients with advanced pancreatic ductal adenocarcinoma by improving LC, reducing pain, and enhancing quality-of-life."

This first prospective, multi-center, single-arm open-label Phase 2 trial enrolled 136 patients at thirteen centers in three countries after ≥3 months of any chemotherapy without distant progression and a serum carbohydrate antigen (CA 19-9) tumor marker level of £500 U/mL.

Stereotactic magnetic resonance (MR)-guided adaptive radiation therapy (SMART) was delivered on a 0.35T MR-guided system prescribed to 50 Gy in 5 fractions. Surgery and chemotherapy were permitted after SMART. Median OS from diagnosis and SMART was 22.8 months and 14.2 months, respectively.

Two-year OS for the entire cohort from diagnosis and SMART was 53.6% and 40.5%, respectively, which is significantly higher than what is expected after chemotherapy +/- standard radiation therapy. Two-year estimated OS for resected vs. unresected patients from SMART was 67% vs. 26% respectively. Two-year LC from diagnosis and SMART for

the entire cohort was 77.7% and 78.2%, respectively, and was higher for resected vs. unresected patients (90% vs. 71%; p = 0.019).

"The SMART trial is the first to prospectively demonstrate the safety of delivering ablative radiation dose for advanced pancreas cancer, which resulted in excellent long-term LC even among patients who did not have surgery," added Dr. Chuong. "We are especially excited by the potential for ablative radiation therapy to also prolong OS. A Phase 3 randomized trial evaluating whether OS is definitely improved with addition of ablative SMART to chemotherapy versus chemotherapy alone for advanced pancreas cancer is warranted," said Dr. Chuong.

More information: Michael D. Chuong et al, Stereotactic MR-guided on-table adaptive radiation therapy (SMART) for borderline resectable and locally advanced pancreatic cancer: A multi-center, open-label phase 2 study, *Radiotherapy and Oncology* (2023). DOI: 10.1016/j.radonc.2023.110064

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