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[Pancreatic Cancer](#)

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**Intensity-Modulated Radiation Therapy Improves the Toxicity Profile of Concurrent Chemoradiation for Upper Abdominal Cancers**

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**Background:** Among patients with upper abdominal malignancies, intensity-modulated radiation therapy (IMRT) can improve dose distributions to critical dose-limiting structures such as the kidneys, bowel, liver, and stomach. We investigated whether these improved dose distributions are correlated with improved toxicity profiles during concurrent chemoradiation (CRT).

**Materials/Methods:** A total of 46 patients with pancreatic/ampullary cancers were treated with concurrent CRT utilizing inverse-planned IMRT. All patients received 5-FU-based concurrent chemotherapy in a schema similar to RTOG 97-04. Rates of acute gastrointestinal (GI) toxicity from this series of IMRT-treated patients were then compared with those of RTOG 97-04, where all patients' plans were generated with conventional 3-D conformal radiation treatment planning techniques. Fisher's exact test was used to determine if there was a statistically significant difference in acute toxicity rates between the two groups of patients.

**Results:** The overall incidence of grade 3-4 acute GI toxicity was low in patients receiving IMRT-based CRT. When compared with patients who had 3-D conformal treatment plans (RTOG 97-04), IMRT significantly reduced the incidence of grade 3-4 nausea and vomiting (0 vs. 11%,  $P = .02$ ) and diarrhea (3% vs. 18%,  $P = .02$ ). There was no significant difference in the incidence of grade 3-4 weight loss between the two groups. Two instances of grade 4 late toxicity (both bowel obstructions) were observed in the IMRT group.

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**Conclusions:** IMRT is associated with a statistically significant decrease in acute upper and lower GI toxicities among patients treated with IMRT for pancreatic/ampullary cancers. Rates of late toxicity remain low. Future trials plan to incorporate the use of IMRT as it remains a subject of active investigation.