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ABSTRACTS

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Radiation Therapy for Intrahepatic Cholangiocarcinoma

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Background: Radiation therapy can serve as definitive treatment in patients with intrahepatic cholangiocarcinoma who are not candidates for surgical resection. The goal of this study was to determine the rates of overall survival, local control, and acute and late toxicity in patients treated with radiation therapy for intrahepatic cholangiocarcinoma at a single institute.

Methods: Between November 2002 and December 2008, 33 patients with intrahepatic cholangiocarcinoma who were not candidates for surgical resection were treated with definitive radiation therapy. The T classification was T1 in 1 (3%), T2 in 10 (30%), T3 in 21 (64%), and T4 in 1 (3%) of the patients. The N classification was N0 in 12 (36%) and N1 in 21 (64%) patients. The M classification was M0 in 28 (85%) and M1 in 5 (15%) patients. The median tumor size was 8.8 cm (range, 2.9-14.5 cm). Of the 33 patients, 29 (88%) were previously treated with chemotherapy, including gemcitabine and cisplatin in 19 patients. The median dose of radiation therapy was 50.4 Gy (range, 35-70 Gy). Doses higher than 50.4 Gy were considered if the gastrointestinal mucosa could be avoided. Radiation therapy was delivered using 3D conformal techniques in 13 (39%), intensity modulated radiation therapy (IMRT) in 17 (52%), and proton therapy in 3 (9%) patients. Twenty-six (79%) patients received concurrent capecitabine, 1 (3%) received concurrent bevacizumab, and 6 (18%) received no concurrent therapy.

Results: The 1-year actuarial rate of freedom from local progression was 47%, and the 1-year actuarial overall survival rate was 62%. The 1-year overall survival rate was 100% in patients treated with radiation dose ≥ 60 Gy and 58% in those treated with radiation dose < 60 Gy (*P* =

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0.14). T, N and M classification, tumor size, age, and gender were not significantly associated with the overall survival rate. No patient developed grade 3 or higher acute toxicity during radiotherapy. Late toxicity included grade 2-3 gastritis in 9 patients, with a 1-year actuarial rate of 36%. Moreover, 7 additional patients developed grade 3 anemia but did not have documented gastritis. Radiation dose was not significantly associated with the risk of gastritis and anemia. There were no other episodes of grade 3 or higher late toxicity.

Conclusions: Higher doses of radiation therapy (≥ 60 Gy) appear to result in improved survival, although the difference was not statistically significant. Patients with intrahepatic cholangiocarcinoma have a higher than previously reported risk of developing gastritis after radiation therapy. Hence, efforts such as omitting elective nodal irradiation and the use of IMRT are important to minimize the volume of gastric mucosa exposed to radiation therapy.