

# Defining the role of palliative radiotherapy in bone metastasis from primary liver cancer: an analysis of survival and treatment efficacy

Daniel Habermehl, Kristina Haase, Stefan Rieken, Jürgen Debus, and Stephanie E Combs

Department of Radiation Oncology, University Hospital of Heidelberg, Im Neuenheimer Feld, Heidelberg, Germany

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## ABSTRACT

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**Aims and background.** Primary liver cancer is the fourth leading cause of cancer-related death worldwide and is still associated with a poor prognosis. Hepatocellular carcinoma and cholangiocarcinoma are known to cause bone metastasis resulting in pain, neurologic impairment and risk of fracture. Palliative radiotherapy is the treatment of choice in symptomatic bone lesions and is usually performed as percutaneous fractionated radiotherapy.

**Methods and study design.** From June 1987 to December 2009, 41 patients (median age, 64 years) with bone metastasis received radiotherapy in our department. The analyzed patients were treated for 67 sites of bone lesions. We analyzed the applied fractionation schedules and the preferred sites of metastasis and symptoms, evaluated the therapeutic outcome in terms of symptomatic improvement, and described the prognosis of these patients.

**Results.** Main indication for palliative radiotherapy was pain in 94% of all cases. Most frequent radiation protocols were 10 x 3 Gy (20 patients) and 20 x 2 Gy (19 patients). Median applied overall dose was 39 Gy (range, 4-48 Gy) and median single dose was 2.5 Gy (range, 1.8-4 Gy). The median duration of the radiotherapeutic treatment was 15 days (range, 2-24 days) and in 12 cases treatment was discontinued. The overall response rate to palliative radiotherapy in bone metastasis was 77%. Median overall survival in both cholangiocarcinoma and hepatocellular carcinoma patients was 4.2 months after initiation of radiotherapy (range, 0.2-38.9).

**Conclusions.** Considering the poor prognosis of patients with bone metastasis in hepatocellular carcinoma and cholangiocarcinoma, with a poor median survival of 3.7-5.0 months according to our study and existing literature, shorter radiotherapy schedules or even single-fraction irradiation can be considered.

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**Key words:** bone metastasis, cholangiocarcinoma, hepatocellular carcinoma, palliative radiotherapy, primary liver cancer.

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**Correspondence to:** Daniel Habermehl, MD, Department of Radiation Oncology, University Hospital of Heidelberg, Im Neuenheimer Feld 400, 69120 Heidelberg, Germany.  
Tel +49-6221-5637875;  
fax +49-6221-565353;  
e-mail daniel.habermehl@med.uni-heidelberg.de

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