Reirradiation of Painful Bone Metastases

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Purpose/Objective(s): The aim of this study was to evaluate the effectiveness, prognostic factors and side effects of local field reirradiation in patients with painful bone metastases.

Materials/Methods: In a retrospective analysis the effect of a second course of radiotherapy (RT) for painful bone metastases was evaluated with emphasis of overall response, duration of pain relief, and functional state, acute and late side effects.

Results: From 2000 to 2005 39 patients received a second course of irradiation at the same site for painful bone metastases. The median total dose of the initial radiotherapy course was 36 Gy (range: 20-40 Gy) with single doses of 2-4 Gy. The most common used treatment regimes were 10x3 Gy, 15x2.5 Gy and 5x4 Gy. Patients were reirradiated 2 months to 4 years (median: 27 months) after the first course of radiotherapy. The total doses of the second course were 12-40 Gy (median: 26 Gy) with single doses of 1.8 to 4 Gy. 27/39 (69%) patients showed pain relief after the second course of radiotherapy. Patients with complete pain relief after the initial treatment course showed a better response to the second course (88% vs. 34% pain relief). The median overall survival of reirradiation responders was 15.2 months. Acute side effects were skin reactions and gastrointestinal symptoms (CTC I and II). 20% of patients developed fatigue symptoms. No patient developed a myelopathy. In one patient a soft tissue fibrosis was seen. Prognostic factors for response of reirradiation were time interval after first RT course and total dose of reirradiation.

Conclusions: Reirradiation of painful bone metastases is an effective method. The appropriate indications and the optimal dose and fractionation scheme should be further explored in a prospective study.

Author Disclosure: A. Warszawski, None; M. Baumgartner, None; R. Baumann, None; M. Bremer, None; J. Karstens, None.