

## Radiotherapy in the treatment of primary osteosarcoma – a single center experience

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### ABSTRACT

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**Purpose.** To analyze our experiences concerning radiation treatment in patients with osteosarcoma.

**Materials and methods.** Since 1981, 40 patients with osteosarcoma have undergone radiotherapy in Heidelberg; 3 of them were immediately lost to follow-up. Twenty patients with metastases were treated palliatively and 17 patients were treated with a curative intent.

**Results.** Interestingly, 14 of the 17 patients treated with a curative intent were referred to our clinic during the last 8 years, whereas the number of patients referred for palliation decreased. The mean dose applied for palliation was 47 Gy (range, 26 Gy to >70 GyE), for cure was 59 Gy (range, 45 Gy to >70 GyE). Local control until death could be achieved in 15 of the 20 palliatively treated patients, with a mean survival of 7 months after radiation. Five patients experienced local failure with symptom recurrence, and 3 of them had received doses >60 Gy. At last follow-up, 3 of the 17 curatively treated patients had experienced local recurrence. Median follow-up was 32 months (range, 3-144). Estimated 5-year overall survival and local control rates were 38% and 68%, respectively. Local disease-free survival was shorter in patients treated for recurrent, inoperable or incompletely resected tumors and doses below 60 Gy.

**Conclusions.** With adequate doses, long-term local control is possible even in inoperable or incompletely resected tumors. Improvements of systemic therapy and modern radiation techniques have begun to bring the possibly curative role of radiation treatment back to the fore. However, in disseminated tumors, even doses beyond 60 Gy do not guarantee local control, suggesting an extremely low radiosensitivity of certain kinds of osteosarcoma. Free full text available at [www.tumorionline.it](http://www.tumorionline.it)

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**Key words:** curative, dose, osteosarcoma, palliative treatment, radiotherapy.

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