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Single-dose and Fractionated Palliative Radiotherapy for Bone Metastases

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RADIOTHERAPY HAS been widely used to control pain and prevent fractures in metastatic bone disease. With localised radiotherapy, partial or complete relief is possible in 73–96% of cases [1–3]. Retrospective trials have demonstrated that short fraction irradiation (5–20 Gy in one to five fractions) appears as effective as more protracted irradiation (30–45 Gy in 2.5–4.5 weeks) [4–6]. The effect on survival is difficult to assess in most studies since the median survival is very short. However, superiority of single fraction [7] and multifraction schedules [8] has also been reported.

52 patients with solitary or multiple bone metastases from various primary sites were treated at our centre, using radiotherapy with a palliative intent. 34 patients with 82 metastatic sites were available for evaluation based on retrospective analysis of case records. The primary sites were breast (4), prostate (4), myeloma (4), lung (4), cervix (3), kidney (3) and others (12). Median age of patients was 51 years (range 17–84). 20 of these were males. The median period of follow-up was 5 months (range 2–19). Metastases in all patients were confirmed by plain radiograph or isotope scans.

In the single fraction schedule, a dose of 6–8 Gy was delivered (54 sites), and in multiple fraction schedule, 30 Gy/10 fraction (28 sites) was delivered by a cobalt teletherapy machine. Single direct field was used for all sites except long bones and the pelvis where two parallel opposed fields were planned. Dose was prescribed as an incident dose for single fields, and as a midplane dose for opposed fields. Evaluation was based on subjective analysis carried out by a single team for all patients. Response was graded as CR (complete pain relief), PR (> 50% pain relief), and MR (< 50% pain relief).

The spine was the commonest site of metastases (48%). The response rates are presented in Table 1. There were no differences in response rates according to metastatic sites. Metastases from lung cancer showed the poorest response. Of 82 treated sites, 7 had to be retreated due to recurrence of pain. The median duration of recurrence was 13 weeks (range 5–28) after initial treatment.

Eight Gy remains the most acceptable single fraction dose [9], but lower doses may be preferred when treating large volumes and/or previously irradiated sites. The limitation of this study is the subjective evaluation of response. Since all responses were graded by a single team, this seems justified. Single fraction treatment is recommended for palliative treatment of bone metastases especially in sick patients.

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Table 1. Response rate

	Single fraction (n=54)	Multiple fraction (n=28)
CR*	32 (59%)	10 (36%)
PR	16 (30%)	14 (50%)
MR	6 (11%)	4 (14%)
CR+PR	48 (89%)	24 (86%)

* $P < 0.005$.

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Intrapericardial Cisplatin Therapy of Malignant Pericardial Effusions

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MALIGNANT PERICARDIAL effusion (MPE) is observed in 12% of all cancer autopsies [1]. Most of these patients are asymptomatic; only 2% develop cardiac tamponade [1].

A total of 5 patients, 4 females, 1 male (age range 49–59 years) with malignant pericardial effusion were studied. The primary malignancy was pulmonary in 3 cases, breast cancer in 1 case

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and adenocarcinoma of unknown primary in the fifth patient. Cisplatin (20 mg/day) was administered via a pigtail catheter for 8–24 h on 5 consecutive days. In all patients, volumes of MPE decreased significantly 24–48 h after administration of cisplatin, intrapericardially. After 5 days of treatment, no further MPE occurred. None of the patients showed haemodynamic relevant relapse of MPE. 1 patient developed mild nausea (WHO grade 1) during treatment. No myelosuppression or renal toxicity occurred, nor were local complications such as arrhythmias, infections or perforations observed. 4 patients died within 10 months after treatment due to progression of their underlying malignancy. 1 patient is asymptomatic 5 months after treatment. The insertion of a permanent catheter [2, 3] is an immediate therapy for pericardial tamponade in the emergency situation. It can also be used to safely and effectively apply an intrapericardial cytotoxic therapy via the inserted pigtail catheter. 5-Fluorouracil [4] and tetracycline [5, 6] have been described previously in larger groups of patients, but to date experiences with cisplatin are limited [7, 8].

Due to the rapid success of therapy with our patients, and the resulting short stay in hospital, together with only minor side-effects and the long lasting remissions, we conclude that the intrapericardial cisplatin therapy in MPE is an effective symptomatic method of treatment. According to our results, the development of a MPE does not seem to decrease the patient's life expectancy if treated with the modalities described above.

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