The role of radiotherapy in the palliation of painful symptomatic bone metastases is well established. Recently, it has been reported that single-fraction radiotherapy is as effective as multifraction radiotherapy (1,2), which is the most widely used regimen. We read the interest the article by Hartsell et al. (3), which compared the ability of a single 8-Gy fraction of radiation therapy with that of 30 Gy delivered in 10 treatment fractions to palliate pain from bone metastasis. We conducted a similar trial in our hospital from July 15, 1999, to December 31, 2001, in which we enrolled a total of 160 patients and randomly assigned them to receive either a single fraction of 8 Gy of radiation therapy or 30 Gy in 10 fractions. The pain intensity was measured on a patient-assessed ordinal pain scale of 0–10. A partial response was defined as a pain reduction of two points or more on this scale, without the increased use of analgesic drugs. A complete response was defined as a pain score of zero at the treated area without increased use of analgesic drugs. Patient follow-up was at 3, 12, 24, 36, and 48 weeks after the onset of treatment.

The two groups did not differ with respect to age, sex, primary tumor type, localization of metastases, or analgesic drug consumption. There were no differences in survival rates between the two arms. The overall response rates were 75.5% in the 8-Gy arm and 86.6% in the 30-Gy arm (difference = 11.1%, 95% confidence interval [CI] = −2.4% to 24.2%). Complete response rates were 15.4% in the 8-Gy arm and 13.4% in the 30-Gy arm (difference = 2.0%, 95% CI = −14.1% to 10.2%). None of these differences were statistically significant.

Our acute toxicity outcomes were similar to those reported by Hartsell et al. Toxicity was higher in our 30-Gy arm (18.2%) than in our 8-Gy arm (12.7%), but these differences were not statistically significant (difference = 5.5%, 95% CI = −7.0% to 17.9%). In addition, as in Hartsell et al., the retreatment rate in our trial was statistically significantly higher in the 8-Gy arm than in the 30-Gy arm (28.2% versus 2.4%) (difference = 25.8%, 95% CI = −37.5% to −14.0%) (Table 1).

Hartsell et al. reported that one of the main limitations of their study was the trial included only patients with metastases from breast or prostate cancer. We enrolled all the patients with a life expectancy of longer than 1 month, regardless of the location of their metastases or their primary cancer. We did not find statistically significant differences between treatment arms, except for patients with lung cancer metastases. In these patients, the response was statistically significantly higher in the 30-Gy arm than in the 8-Gy arm (28.2% versus 2.4%) (difference = 25.8%, 95% CI = −37.5% to −14.0%) (Table 1). Hartsell et al. reported that one of the main limitations of their study was the trial included only patients with metastases from breast or prostate cancer. We enrolled all the patients with a life expectancy of longer than 1 month, regardless of the location of their metastases or their primary cancer. We did not find statistically significant differences between treatment arms, except for patients with lung cancer metastases. In these patients, the response was statistically significantly higher in the 30-Gy arm than in the 8-Gy arm (28.2% versus 2.4%) (difference = 25.8%, 95% CI = −37.5% to −14.0%) (Table 1).

We concluded that the regimen of a single fraction of 8 Gy was as safe and effective as a multifraction regimen for the palliation of painful bone metastases. The 8-Gy single fraction was the treatment of choice for most of the patients, except for patients with lung cancer metastases, for whom additional studies are required.

Table 1. Overall rates of partial and complete response, toxicity, and retreatment

<table>
<thead>
<tr>
<th>Rate</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 Gy</td>
</tr>
<tr>
<td>Partial response, %</td>
<td>86.6</td>
</tr>
<tr>
<td>Complete response, %</td>
<td>13.4</td>
</tr>
<tr>
<td>Toxicity, %</td>
<td>18.2</td>
</tr>
<tr>
<td>Retreatment, %</td>
<td>2.4</td>
</tr>
</tbody>
</table>

References


Notes

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Hartsell et al. (1) reported that twice as many patients in the 8-Gy arm had received retreatment as in the 30-Gy arm. Higher rates of retreatment in single-fraction arms have been reported before by Nielsen et al. (2) and Steenland et al. (3). Hartsell et al. proposed that the retreatment rate difference between treatment arms may be the result of physician bias. However, this difference (18% versus 9%) may not be explained simply by physician bias alone—a conclusion also reached by Kachnic and Berk (4) in an accompanying editorial. Although van der Linden et al. (5) reported no relation between response to initial treatment and occurrence of retreatment and reached the same conclusion about the role of physician bias, many other factors in addition to bias, some of which were analyzed before (5), such as primary site, involvement and treatment of bone metastases, presence or absence of fracture, pain severity, duration of symptoms, and other treatments received, may affect the decision to retreat. Consequently, a group of patients who do not benefit from a single 8-Gy fraction may need retreatment. It may be helpful to analyze patients treated with a single...
8-Gy fraction to define the characteristics of patients who needed retreatment. If any characteristics are statistically significantly associated with retreatment, then the group of patients who need retreatment when treated with a single fraction may be defined and treated with conventional fractionation.

**REFERENCES**


**NOTES**

Editor’s note: Dr. Kachnic declined our invitation to respond.

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