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Radiosensitivity of bone metastases according to different histogenesis
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Purpose/Objective: The purpose of the current clinical trial was to evaluate efficiency of palliative external beam radiotherapy for symptomatic bone metastases from different primary tumors and to search for optimum treatment schedules.
Materials and Methods: The randomized study included 427 patients treated for 616 sites of bone lesions. Breast was the primary site in 67% of cases, prostate - in 7%, lung - in 8%, renal - in 6%, other tumors, including sarcomas, melanoma, colon cancer and unknown primary site - in 12%. The most frequent treatment site was the spine - 48%, followed by pelvis - 34%, long bones - 14% and other sites - 4%. The main indication for irradiation was pain not alleviated by sistematic drug therapy (chemotherapy, target therapy, bisphosphonates). Radiotherapy protocol included hypofractionation regimes of 2, 3 or 4 fractions of 6.5 Gy daily, every two days or every five days and standard treatment schedule of 23 fractions of 2 Gy daily.
Results: The average follow-up period was 41 months. General pain relief (complete and partial) was observed in 95.8% - 100% of sites and was independent of primary tumor, metastases localization and irradiation schedules. Complete response rate (CRR) was higher for bone metastases from breast and prostate cancer 67% and 64% correspondingly in comparison with lung and renal cancer - 55% and 33% respectively (p<0.05). At small number of observations metastases from melanoma and sarcomas proved high radiosensitivity with CRR 75% and 69% correspondingly. CRR for spine and pelvis localization of metastases was similar - 63.4% and 59.3% respectively. At 14.5-32.8 months, 11.8 (7.9-29.6 months), and 2.7 months respectively. The median OS for patients with PR, SD and PD was 20.6 mo (5.7–35.5 mo) with a significant longer OS compared to those who had SD (see Figure 1). All these differences were statistically significant (p<0.05).
Concerning RECIST criteria, there was no straight separation between patients who responded to RE and those who did not. The median OS for patients with PR, SD and PD was 20.6 mo (14.5-32.8 months), 11.8 (7.9-29.6 months), and 2.7 months (0-15.5 months) respectively. Despite the median response values were separated, the statistical analysis of the survival curves did not reveal any significant difference among the four scores (CR, PR, SD, PD).