

Single fraction RT as effective as multiple fraction RT for bone metastases

September 16 2014

A prospective study that compared patient-reported outcomes of a broad set of cancer patients with bone metastases demonstrates that single fraction radiation therapy (SFRT) is equally as effective as multiple fraction radiation therapy (MFRT) when pain, function and quality of life are considered, according to research presented today at the American Society for Radiation Oncology's (ASTRO's) 56th Annual Meeting. The multi-center study indicates that improvements in patients' pain, function and degree of distress were similar between the SFRT and MFRT patients, including for the type of patients who were excluded from previous clinical trials, thus confirming the validity of prior randomized control trials to real-world practice.

All six centers at The BC Cancer Agency in British Columbia, Canada, participated in the study from May to December 2013. A total of 648 [patients](#) with [bone metastases](#) were evaluated (updated data), including 226 (35 percent) with metastases complicated by fracture or neurological compromise such as spinal cord compression. The mean patient age at diagnosis was 65 years, and 54 percent of the patients were male. Patients received SFRT or MFRT at the discretion of the treating oncologist, with 56 percent (363) receiving SFRT; and 44 percent (285) receiving MFRT. The three most common primary bone metastases sites were genitourinary (31 percent), lung (22 percent) and breast (22 percent), with the spine being the most common site treated (44 percent).

Patients completed both the pre- and post-radiation therapy (RT)

questionnaires. The three-question assessments were standardized and designed to measure patients' perception of pain, function and quality of life using a non-dichotomous, ordinal, five-point scale. Patients were asked to rate, on a 0 to 4-point scale (with zero being "not at all" and four being "very much,") the degree of their bone pain; the degree to which the pain interfered with their ability to care for themselves; and their level of frustration with their bone pain.

A multivariable regression analysis of the patient surveys pre- and post-treatment was performed. Comparisons were made between patients who received SFRT versus MFRT. Whether treated with SFRT or MFRT, patients in the broad clinical practice setting (i.e. not a clinical trial) reported similar pain, function and quality of life. There were no significant differences in changes in mean patient-reported outcome scores for SFRT patients versus MFRT patients—pain: 1.29 vs. 1.17 point improvement, respectively ($p=0.24$); function: 0.80 vs. 0.95 point improvement, ($p=0.17$); or degree of symptom distress: 1.26 vs. 1.26 point improvement, ($p=0.98$). Furthermore, the proportion of patients with a partial pain response was similar for patients who receive SFRT versus MFRT (73% versus 73%; $p = 0.93$) as well as the proportion with a complete pain response (19% versus 22%; $p = 0.31$).

"Previous research has shown that SFRT is equally effective as more costly and inconvenient MFRT courses for patients with painful bone metastases, however, these studies have been generally limited to well-controlled clinical trials, where many patients are excluded, such as those with poor performance status, fractures or neurological damage," said lead study author Robert A. Olson, MD, MSc, the research and clinical trials lead and a radiation oncologist at the BC Cancer Agency Centre for the North. "There is a very low utilization of SFRT for bone metastases worldwide, partially because oncologists are often reluctant to use SFRT for patients who do not meet the criteria of previous [clinical trials](#). We wanted to determine if SFRT is equally effective as MFRT in

the broad clinical practice setting, capturing all types of patients who receive RT for bone metastases. This study is ongoing, and to date, we have collected data from 648 patients who completed questions prior to and after RT. The results support the generalizability of prior randomized controlled trials to real-world practice, thus confirming that SFRT should be the standard management policy for patients with uncomplicated bone metastases. Further research is needed to confirm whether SFRT is also appropriate for complicated bone metastases, though our early results with a modest sample size suggest SFRT may be appropriate in some circumstances. We are hopeful that this will lead to increased use of SFRT for bone metastases throughout the world and improved quality of life for these patients."

More information: The abstract, "Patient Reported Outcomes on the Impact of Single versus Multiple Fraction Palliative Radiotherapy for Uncomplicated Bone Metastases on Pain, Function and Degree of Symptom Distress," will be presented in detail during a scientific session at ASTRO's 56th Annual Meeting at 2:45 p.m. Pacific time on Tuesday, September 16, 2014.

Provided by American Society for Radiation Oncology

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