Cancer patients with bone metastases undergoing radiation therapy for symptom control have a lower rate of pain flare with steroid use

Results of trial conducted by NCIC Clinical Trials Group

San Antonio, October 18, 2015—The steroid dexamethasone reduces radiation-induced pain flare in cancer patients with painful bone metastases, according to research presented today at the American Society for Radiation Oncology’s (ASTRO’s) 57th Annual Meeting.

Patients with cancer that has spread (metastasized) to their bones can experience debilitating bone pain. While radiation therapy (RT) is commonly used to treat patients with bone metastases to lessen this pain, it can also temporarily cause pain flare, a worsening of the pain, in some patients. According to the U.S. National Cancer Database, between 2005 and 2011, nearly 25,000 patients with breast, lung or prostate cancer were treated with radiation for bone metastases.

This multi-institutional trial, led and conducted by the NCIC Clinical Trials Group was a double-blind study that compared the effectiveness of dexamethasone, a steroid which aids in controlling inflammation, to a placebo in reducing the incidence of pain flare. The study also looked at toxicity (side effects) and the impact on the patients’ quality of life.
A total of 298 patients with bone metastases were enrolled in the study from 23 centers throughout Canada. The patients were to be treated with a single 8 Gy fraction of RT to one or two bone metastases, and were randomized using a web-based system into two groups. One group (148 patients) were to receive 8 mg of oral dexamethasone daily for five days beginning on the first day of radiation and the other group (150 patients) were to receive an oral placebo.

Patients reported their worst pain scores before RT and daily for 10 days after RT. They completed the EORTC QLQ-C15-PAL and the EORTC-QLQ BM22 (both European Organization for Research and Treatment of Cancer Quality of Life Questionnaires), and the Dexamethasone Symptom Questionnaire at baseline, and again at 10 and 42 days after RT. The questionnaire completion rate was high: 99 percent at baseline and 82 percent at days 10 and 42. Pain flare was defined as at least a two-point increase in patient-rated worst pain on a scale of 0-10, with no decrease in analgesic intake; or a 25 percent or greater increase in analgesic intake with no decrease in the worst pain score from days 0-10.

The results showed that patients in the dexamethasone group experienced fewer episodes of pain flare than the placebo group. Additionally, when the dexamethasone group did have pain flare, they reported that their pain was less severe than that of the placebo group. In the intention-to-treat analysis, 39 patients (26.4 percent) in the dexamethasone group had a pain flare, compared to 53 patients (35.3 percent) in the placebo group. In the sensitivity analysis which treated those with missing data as inevaluable, pain flare occurred in 26 patients (17.6 percent) who received dexamethasone, compared to 44 patients (29.3 percent) who received the placebo.

The results also showed that at 10 days post treatment, patients in the dexamethasone arm were statistically significantly improved compared to patients in the placebo group in regards to nausea, functional interference and appetite when compared to their levels at baseline.

“The potential side effects of radiation treatment for bone metastases can be well managed in the majority of people, and therefore pain flare should not be viewed as a barrier to receiving this highly effective therapy for symptom control,” said Alysa Fairchild, MD, a co-author of the study and a radiation oncologist at the Cross Cancer Institute and University of Alberta in Edmonton, Alberta.
“Based on our results, we recommend that patients who are scheduled to receive radiation therapy to control painful bone metastases also receive a short course of dexamethasone to reduce the risk of experiencing an acute pain flare.”

The abstract, “Dexamethasone versus placebo in the prophylaxis of radiation-induced pain flare following palliative radiotherapy for bone metastases: a double-blind randomized, controlled, superiority trial” will be presented in detail during the clinical trials session at ASTRO’s 57th Annual Meeting at 3:15 p.m. Central time on Sunday, October 18, 2015. To speak with Dr. Fairchild, please call Nancy Mayes in ASTRO’s Press Office at the Henry B. González Convention Center, in San Antonio on October 18 – 21, 2015 at 210-258-8104 or 210-258-8105, or email press@astro.org.

ASTRO’s 57th Annual Meeting, being held at the Henry B. González Convention Center in San Antonio, October 18-21, 2015, is the nation’s premier scientific meeting in radiation oncology. The 2015 Annual Meeting is expected to attract more than 11,000 attendees including oncologists from all disciplines, medical physicists, dosimetrists, radiation therapists, radiation oncology nurses and nurse practitioners, biologists, physician assistants, practice administrators, industry representatives and other health care professionals from around the world. Led by ASTRO President Bruce D. Minsky, MD, FASTRO, a radiation oncologist specializing in gastrointestinal cancers, Professor of Radiation Oncology, and the Frank T. McGraw Memorial Chair at The University of Texas MD Anderson Cancer Center, Houston, the theme of the 2015 Meeting is “Technology Meets Patient Care.” Dr. Minsky’s Presidential Symposium, “Multidisciplinary Management of Esophageal and Rectal Cancers,” will feature Leonard L. Gunderson, MD, MS, FASTRO, and Joel E. Tepper, MD, FASTRO, to highlight imaging, staging, genomics and data mining approaches, as well as the latest advances in esophageal and colorectal cancer treatment. ASTRO’s four-day scientific meeting includes presentation of more than 2,100 abstracts: five plenary papers, 351 oral presentations, 1,609 posters and 171 digital posters in more than 53 educational sessions and 26 scientific panels for 20 disease-site tracks. Three keynote speakers will address a range of topics including cancer biology in radiation oncology, the essential roles of a physician, and patient safety: Arul Chinnaiyan, MD, PhD, Professor and Director, Michigan Center for Translational Pathology; Francisco G. Cigarroa, MD, Past
President and Chancellor, University of Texas; and Gerald B. Hickson, MD, Senior Vice President and Assistant Vice Chancellor, Vanderbilt University Medical Center.

ABOUT ASTRO

ASTRO is the premier radiation oncology society in the world, with more than 10,000 members who are physicians, nurses, biologists, physicists, radiation therapists, dosimetrists and other health care professionals who specialize in treating patients with radiation therapies. As the leading organization in radiation oncology, the Society is dedicated to improving patient care through professional education and training, support for clinical practice and health policy standards, advancement of science and research, and advocacy. ASTRO publishes three medical journals, International Journal of Radiation Oncology • Biology • Physics (www.redjournal.org), Practical Radiation Oncology (www.practicalradonc.org) and Advances in Radiation Oncology (www.advancesradonc.org); developed and maintains an extensive patient website, www.rtanswers.org; and created the Radiation Oncology Institute (www.roinstitute.org), a non-profit foundation to support research and education efforts around the world that enhance and confirm the critical role of radiation therapy in improving cancer treatment. To learn more about ASTRO, visit www.astro.org.

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LBA-6663  Dexamethasone versus placebo in the prophylaxis of radiation-induced pain flare following palliative radiotherapy for bone metastases: a double-blind randomized, controlled, superiority trial

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Purpose/Objective(s): Pain flare occurs following palliative radiotherapy and dexamethasone has shown potential for preventing such flare. This double-blind study compared dexamethasone to placebo in reducing the incidence of pain flare with secondary endpoints of toxicity and impact on quality of life.

Materials/Methods: Patients treated with a single 8 Gy to bone metastases were randomized using a web-based system and minimization algorithm to receive either 8 mg dexamethasone or placebo for 5 days. Patients reported their worst pain scores before and daily for 10 days after radiation treatment. They completed the EORTC QLQ-C15-PAL, the BM22 module, and the Dexamethasone Symptom Questionnaire at baseline, and at 10 and 42 days after radiation treatment. Pain flare was defined as at least two-point increase on a scale of 0-10 in the worst pain score with no decrease in analgesic intake, or a 25% or greater increase in analgesic intake with no decrease in the worst pain score from days 0-10. Primary analysis on the incidence of pain flare was by intention-to-treat (patients with missing primary data were classified as “pain flare”). A sensitivity analysis classifying patients with missing data as “not evaluable” was also performed.

Results: 298 patients were enrolled (148 on dexamethasone and 150 on placebo). In the intention-to-treat analysis, 39 (26.4%) in dexamethasone arm and 53 (35.3%) in placebo arm had a pain flare (difference=8.9%, lower 95% CB: 0%, 1-sided p=0.05). In the sensitivity analysis, pain flare occurred in 26 (17.6%) in dexamethasone arm and 44 (29.3%) in placebo arm (difference=11.8%, lower 95% CB: 3.8%, 1-sided p=0.01). There were three grade 3/4 biochemical hyperglycemic events in the dexamethasone arm with none having known clinical consequences. At day 10, patients in dexamethasone arm were statistically significantly improved in nausea, functional interference and appetite compared to baseline.

Conclusion: Dexamethasone is effective in reducing radiation-induced pain flare in the treatment of painful bone metastases.