Cervical and endometrial cancer patients report fewer side effects and better quality of life with IMRT

Results of international, multi-center trial focus on patient-reported outcomes for bowel and urinary side effects and health-related quality of life

BOSTON, September 26, 2016 -- Patients with cervical and endometrial cancer have fewer gastrointestinal and genitourinary side effects and experience better quality of life when treated with intensity-modulated radiation therapy (IMRT) than with conventional radiation therapy (RT), according to research presented today at the 58th Annual Meeting of the American Society for Radiation Oncology (ASTRO). Women receiving IMRT reported significantly fewer bowel and bladder problems than those receiving conventional radiation treatment.

Many women diagnosed with cervical or endometrial cancer receive RT following surgery to remove their tumors, but questions remain as to which form of pelvic RT delivery can most effectively eliminate the tumor while minimizing the impact of radiation on surrounding healthy tissue. This multi-center, international study assessed this impact by evaluating patient-reported acute toxicities in the gastrointestinal (GI) and genitourinary (GU) systems following IMRT, an advanced form of external beam RT that delivers precise radiation doses highly tailored to patients’ individual tumors, versus standard four-field RT.

“The way that radiation therapy is performed has a major impact on the risk of side effects from treatment,” said Ann H. Klopp, MD, PhD, lead author of the study and an associate professor in the department of radiation oncology at the University of Texas MD Anderson Cancer Center in Houston. “We know that IMRT reduces the amount of normal tissue irradiated, so we suspected that it would have fewer side effects. This was one of the first studies, however, to rigorously ask this question using patient-reported outcomes.”
questionnaires to ensure that the lower doses resulted in meaningful differences in patients’ experiences during treatment.”

A total of 278 patients with cervical or endometrial cancer who received pelvic RT post-operatively at cancer centers in the U.S., Canada, Japan and Korea were evaluated to determine if pelvic IMRT for cervical and endometrial cancer resulted in fewer patient-reported GI and GU side effects and improved patients’ QOL. Patients were stratified based upon RT dose (45 Gy or 50.4 Gy), use of chemotherapy (no chemotherapy or five cycles of weekly cisplatin at 40 mg/m2), and disease site. The patients were then randomly assigned to receive standard RT or IMRT.

Acute GI and GU toxicities and QOL were measured via multiple patient questionnaires. Instruments included the Expanded Prostate Cancer Index Composite (EPIC) to measure bowel and urinary toxicities, the Patient-Reported Outcomes version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE) to assess GI- and GU-related adverse events (e.g., diarrhea), and the Functional Assessment of Cancer Therapy – General with cervix subscale (FACT-Cx) to track health-related QOL. Researchers compared changes in average scores on these instruments from baseline to five weeks following RT start using two-way t-tests.

Patients in the IMRT arm experienced significantly fewer bowel-related toxicities than patients who received standard RT did, as indicated by smaller average declines in their EPIC bowel domain scores (-18.6 vs. -23.6, p = 0.048). Analysis of sub-scales within the EPIC determined that IMRT patients experienced less severe declines in bowel function but not bowel bother.

IMRT patients also experienced fewer high-level adverse events following treatment, including less diarrhea (frequency: 33.7 vs. 51.9 percent, p = 0.01) and fecal incontinence (frequency: 1.1 vs. 9.3, p = 0.01). Moreover, roughly one in five women in the standard RT group (20.4 percent) reported taking four or more anti-diarrheal medications daily, compared to 7.8 percent of women in the IMRT group (p = 0.04).

Urinary side effects at five weeks from treatment start were less prevalent among patients who received IMRT, as indicated by significantly smaller declines in average EPIC urinary domain scores for the IMRT arm (-5.6 vs. -10.4, p = 0.03). Furthermore, IMRT regime negatively impacted patients’ QOL less substantially than the conventional RT regime did. FACT-Cx trial outcome index scores demonstrated less decline in health-related QOL following IMRT compared to standard RT (-8.8 vs. -12.8, p = 0.06). Patients treated with IMRT had less change in physical well-being (-4.2 vs. -6.1, p = 0.03) and addition concerns (-2.7 vs. -4.9, p = 0.01).

“Many radiation oncologists already use IMRT for women undergoing pelvic radiation, but this research provides data that using IMRT, which is a more resource intensive treatment, makes a real
difference to patients receiving radiation therapy to the pelvic area,” said Dr. Klopp. “When performed by an experienced radiation oncology team, IMRT reduces the risk of short-term bowel and bladder side effects for patients with endometrial and cervical cancer.”

The abstract, “A Phase III Randomized Trial Comparing Patient Reported Toxicity and Quality of Life (QOL) During Pelvic IMRT as Compared to Conventional RT,” will be presented in detail during the plenary session at ASTRO’s 58th Annual Meeting at 2:15 p.m. Eastern time on Monday, September 26, 2016. To speak with Dr. Klopp, please contact ASTRO’s media relations team on-site at the Boston Convention and Exhibition Center September 25 through 28, by phone at 703-286-1600 or by email at press@astro.org.

ATTRIBUTION TO THE AMERICAN SOCIETY OF RADIATION ONCOLOGY (ASTRO) ANNUAL MEETING REQUESTED IN ALL COVERAGE.

This news release contains updated data from the study author(s). Full study abstract available on the final page of this release.

ABOUT ASTRO’S ANNUAL MEETING
ASTRO’s 58th Annual Meeting, the nation’s premier scientific meeting in radiation oncology, will be held September 25-28, 2016, at the Boston Convention and Exhibition Center in Boston. The 2016 Annual Meeting is expected to attract more than 11,000 attendees from across the globe, including oncologists from all disciplines and members of the entire radiation oncology team. Led by ASTRO president David C. Beyer, MD, FASTRO, the 2016 meeting will feature keynote addresses from Kathleen Sebelius, former U.S. Secretary of Health and Human Services; Thomas James Lynch Jr., MD, Chair and CEO, Massachusetts General Physicians Organization; and Jason Ragogna, general manager, SMS and Safety Alliances, Corporate Safety, Security, and Compliance, Delta Air Lines, Inc. The Presidential Symposium, “Prostate Cancer: Defining Value and Delivering It,” highlights the meeting’s theme of “Enhancing Value, Improving Outcomes” and will feature recent practice-changing studies and current developments in value-based care for prostate cancer. ASTRO’s four-day scientific meeting will feature a record number of abstracts, including 368 oral presentations, 1,760 posters and 180 digital posters in more than 50 educational sessions and 20 scientific panels for 20 disease-site tracks. For more information about ASTRO’s 58th Annual Meeting, visit www.astro.org/AnnualMeeting. For press registration and news briefing information for ASTRO’s 58th Annual Meeting, visit www.astro.org/AMPress.

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.practicalrad onc.org) and Advances in Radiation Oncology (www.advancesradonc.org); developed and maintains an extensive patient website, RT Answers (www.rtanswers.org); and created the Radiation Oncology Institute (www.roinstitute.org), a nonprofit 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.
A Phase III Randomized Trial Comparing Patient Reported Toxicity and Quality of Life (QOL) During Pelvic IMRT as Compared to Conventional RT

A. H. Klopp1, A. R. Yeung2, S. Deshmukh3, K. M. Gil4, L. Wenzel5, S. N. Westin1, K. Gifford1, D. K. Gaffney6, W. Small Jr7, S. Thompson8, D. E. Doncals9, G. H. C. Cantuaria10, B. Yaremko11, A. Chang12, V. Kundapur13, D. S. Mohan14, M. L. Haas15, Y. B. Kim16, C. L. Ferguson17, and D. W. Bruner18; 1MD Anderson Cancer Center, Houston, TX, 2Department of Radiation Oncology, University of Florida, Gainesville, FL, 3American College of Radiology, Philadelphia, PA, United States, 4Summa Health System, Akron, OH, 5University of California, Irvine, Irvine, CA, 6Huntsman Cancer Institute, University of Utah, Salt Lake City, UT, 7Stritch School of Medicine, Loyola University Chicago, Maywood, IL, 8Stephenson Cancer Center, Oklahoma City, OK, 9SUMMA Akron City Hospital, Akron, OH, 10Northside Hospital, St. Petersburg, FL, 11London Regional Cancer Program, London, ON, Canada, 12Pamela Youde Nethersole Eastern Hospital, Hong Kong, Hong Kong, 13Saskatoon Cancer Centre, Saskatoon, SK, Canada, 14Kaiser Permanente Cancer Treatment Center, San Francisco, CA, 15Reading Hospital, Reading, PA, 16Yonsei University Health System-Severance Hospital, Sinchon-dong, Korea, The Republic of, 17Georgia Regents University, Augusta, GA, 18Nell Hodgson Woodruff School of Nursing, Winship Cancer Institute at Emory University, Atlanta, GA

Purpose/Objective(s): To determine if pelvic intensity modulated radiation therapy (IMRT) results in a significant reduction in patient reported acute toxicity, and better QOL as compared to standard radiation.

Materials/Methods: Patients with cervical and endometrial cancer who received pelvic radiation post-operatively were stratified by dose (45 or 50.4 Gy), use of chemotherapy (none or 5 cycles of weekly cisplatin at 40 mg/m2), and disease site then randomly assigned to standard 4-field radiation or IMRT. The primary endpoint was change in acute gastrointestinal (GI) toxicity from baseline to 5 weeks measured by the bowel domain of Expanded Prostate Cancer Index Composite (EPIC). Change in EPIC score was calculated such that a negative change score indicates a decline in function. With an effect size of 0.4, a t-test with 1 interim look and a 2-sided alpha=0.05, 225 patients were needed for 85% power. Secondary endpoints included a comparison of adverse events, urinary toxicity using EPIC and QOL using the FACT-G with cervix subscale. A Wilcoxon test was used for non-normal data.

Results: There were 289 patients enrolled between November 2012 and August 2015; 11 patients were found to be ineligible, leaving 278 eligible patients. The conventional RT arm had a significantly larger mean decline in EPIC bowel summary score at 5 weeks as compared to the IMRT arm (-23.6 vs. -18.6, p=0.048). The median change in bowel function subscale was -17.9 for the conventional RT arm, as compared to -14.3 for the IMRT arm (p=0.03). For the bother subscale, the median change in score was -21.4 as compared to -21.4 (p=0.18). The conventional arm experienced a significantly larger mean decline in EPIC urinary summary score at 5 weeks as compared to the IMRT arm (-10.4 vs. -5.6, p=0.03). At 5 weeks from the start of RT, the conventional arm experienced more high-level adverse events measured by the PRO-CTCAE for diarrhea (frequency, p=0.01), and fecal incontinence (frequency, p=0.01; interference, p=0.04). In addition, 20.4% of women on the standard RT arm took 4 or more anti-diarrheal medications daily, as compared to 7.8% of women on the IMRT arm (p=0.04). Quality of life measured with the FACT-Cx demonstrated a greater decline in the trial outcome index score in patients treated with conventional radiation as compared to patients receiving IMRT (-12.8 vs. -8.8, p=0.03).

Conclusion: IMRT reduces acute patient reported GI and GU toxicity as compared to standard RT. Furthermore, patients treated with IMRT experienced better QOL during treatment. Longer follow-up will be needed to determine if differences in acute toxicity result in lower rates of chronic toxicity.