

Travel burden linked with likelihood of receiving radiation therapy to treat rectal cancer

March 21 2016

Increased travel distance to a cancer treatment facility negatively impacts the likelihood that patients with stage II/III rectal cancer will receive radiation therapy (RT) to treat their disease, according to a study analyzing 26,845 patient records from the National Cancer Data Base (NCDB) that was published in the March 2016 issue of *International Journal of Radiation Oncology * Biology * Physics (Red Journal)*, the official scientific journal of the American Society for Radiation Oncology (ASTRO). While travel burden was associated with receipt of RT, physician availability related to the geographic concentration of radiation oncologists was not.

Standard [treatment](#) for stage II/III rectal cancer, as outlined in National Comprehensive Cancer Network (NCCN) guidelines, includes RT, chemotherapy and surgery (i.e., trimodality therapy), yet as this retrospective study of NCDB patient records indicates, many eligible patients do not receive RT to treat their cancer. Approximately 30 percent of the rectal cancer patients in this national study did not receive RT within the time frame recommended by NCCN or at all.

In total, 69 percent of patients in the study cohort received RT within 180 days of their diagnosis or within 90 days of surgery, with median times of 38 days from diagnosis to RT start and 84 days between RT start and surgery. The reasons patients did not receive radiation included RT not being "part of first course of treatment," according to the NCDB

records (86 percent); patients receiving RT outside of the specified time frame (7 percent); patient refusal (6 percent); physician refusal due to risk factors (3 percent); and incomplete data (4 percent).

After controlling for patient sociodemographics in multivariate analyses, travel distance for treatment but not density of [radiation oncologists](#) geographically near the patient was associated with likelihood of receiving RT. The influence of travel burden differed, however, for patients who were diagnosed and treated at the same facility than for those who received their diagnosis and surgical treatment from different facilities. Among patients who were diagnosed and received surgical treatment at the same facility, individuals who traveled 50 miles or more were less likely to receive RT than those traveling fewer than 12.5 miles. Among patients diagnosed and treated surgically at different facilities (i.e., those who obtained a referral to a different facility), conversely, travel distance did not significantly impact probability of receiving RT.

"Travel burden clearly creates a barrier to radiation therapy access for rectal cancer patients, but this barrier is far from absolute," said lead author Chun Chieh "Anna" Lin, PhD, MBA, director of health services research at the American Cancer Society. "When patients seek a referral and travel to a different location for their treatment than the facility where they were diagnosed, they are more likely to be treated and to follow through with their treatment. In this sense, patients' treatment intentions seem to mediate the influence of factors such as travel burden and physician availability."

Travel distance for cancer treatment was determined by measuring the distance from the center of each patient's postal area to the facility where she or he received treatment. Travel distances were grouped into four categories based on previous scientific literature: 0 to 12.49 miles (46 percent of the study cohort), 12.5 to 49.9 miles (40 percent), 50 to 249 miles (13 percent), and 250 miles or more (1 percent).

Density level, an indicator of physician availability, was determined by calculating the number of radiation oncologists for every 100,000 residents in each of the 3,436 hospital service areas (HSA) delineated by the Dartmouth Atlas of Health Care. The average density level across the nation was 1.28 radiation oncologists per 100,000 residents. Density level was matched to each patient depending on her or his residential HSA at time of diagnosis.

More than one fourth of patients (28 percent) resided in HSAs with no radiation oncologist. Compared to patients in areas with a density level greater than zero, these patients traveled nearly three times as far for treatment. They also were more likely to travel to receive RT at an NCI-designated or comprehensive academic facility. The influence of density level was not significant in multivariate analyses controlling for patient characteristics such as age, race and insurance status, however, indicating that, unlike travel distance, physician availability does not directly impact likelihood of receiving RT to treat stage II/III rectal cancer.

"We were surprised that so many areas across the country do not have practicing radiation oncologists," said Christine Olsen, MD, MS, a radiation oncologist at Massachusetts General Hospital, and former chair of ASTRO's Workforce Subcommittee. "That this availability did not significantly impact whether patients received radiation signifies the strength of the referral system and in securing access to cancer care."

Previous research cited in the article found that radiation oncologists, compared to other oncology specialists, are less geographically diverse and less geographically accessible, as they tend to be more concentrated around academic hubs. Findings from this study, however, suggest that the potential negative impact of this geographic maldistribution is circumvented by a network of referrals between physicians and facilities, as well as the willingness of many patients to travel for their

cancer care.

In addition to examining travel distance and physician availability as barriers to RT access, the study also found links between several patient characteristics and receipt of RT. Specifically, patients were less likely to receive RT if they were female, nonwhite, age 50 years or older, or had one or more comorbidities.

Patient information for the study was drawn from 26,845 records in the NCDB, which is a jointly-sponsored project of the American Cancer Society and the American College of Surgeons that aggregates data from more than 1,500 facilities accredited by the Commission on Cancer (CoC) and includes approximately 70% of all cancer cases newly diagnosed in the United States. Records for patients diagnosed with stage II or III rectal cancer between 2007 and 2010 were considered eligible for the analyses if they met several additional criteria: patients were age 18 to 80 years, received cancer-directed surgery within six months of diagnosis, had no distant metastasis and were surgically treated at facilities accredited by the CoC.

Patients in the study cohort were mostly male (60 percent), non-Hispanic white (74 percent) and from urban areas (78 percent; 20 percent rural). The median age was 60, and only 24 percent of patients were younger than age 51. In terms of disease stage, 58 percent of patients were diagnosed with stage III rectal [cancer](#), and 42 percent were diagnosed with stage II disease. More than three quarters of the patients (77 percent) had a Charlson comorbidity score of zero. The majority of patients resided in the South (38 percent) or Midwest (27 percent), with 19 percent of [patients](#) in the Northeast and 16 percent in the West. The most common type of insurance status was private coverage (54 percent), followed by Medicare (34 percent), Medicaid (6 percent), and uninsured (5 percent).

Physician information was collected from the Centers for Medicare & Medicaid Services Physician Compare dataset, which compiles demographic, geographic and specialty data for health care providers who submitted claims to Medicare within the previous 12 months. A total of 4,253 radiation oncologists were identified.

Chi-squared tests and generalized estimating equations, a type of multivariate analysis, were used to test for associations between density level, travel distance, other patient characteristics and receipt of RT.

More information: Chun Chieh Lin et al. Association Between Geographic Access to Cancer Care and Receipt of Radiation Therapy for Rectal Cancer, *International Journal of Radiation Oncology*Biophysics*Physics* (2016). [DOI: 10.1016/j.ijrobp.2015.12.012](https://doi.org/10.1016/j.ijrobp.2015.12.012)

Provided by American Society for Radiation Oncology

Citation: Travel burden linked with likelihood of receiving radiation therapy to treat rectal cancer (2016, March 21) retrieved 12 May 2024 from <https://medicalxpress.com/news/2016-03-burden-linked-likelihood-therapy-rectal.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.