Patterns of Radiotherapy Practice in the Management of Gastric Cancer: Preliminary Findings from the Quality Research in Radiation Oncology (QRRO) GI Committee Process Surveys

Karyn A. Goodman, M.D.1; Najma Khalid, M.S.2; Lisa A. Kachnic, M.D.3; Bruce D. Minsky, M.D.4; Cheryl L. Crozier, R.N.2; Jean B. Owen, Ph.D.5; J. Frank Wilson, M.D.6; Charles R. Thomas, Jr., M.D.6

1Memorial Sloan-Kettering Cancer Center, New York, NY; 2Massachusetts General Hospital Cancer Center, Boston, MA; 3University of Chicago, Chicago, IL; 4Medical College of Wisconsin, Milwaukee, WI; Knight Cancer Institute, Oregon Health and Science University, Portland, OR

Purpose/Objectives
- American College of Radiology, Quality Research in Radiation Oncology (QRRO), formerly Patterns of Care (PC3), aims to provide an evidence base for quality of care in radiotherapy (RT).
- Through process surveys, QRRO aims to:
  - Conduct surveys allowing documentation of process of care and quality assurance
  - Collect data
  - Define a core set of process measures for major cancers
  - Document the effects of clinical trials results, practice guidelines and appropriateness criteria
  - Identify factors associated with higher compliance with clinical standards
  - Describe patient and practice-based parameters
  - Benchmark and track the distribution and utilization of advanced radiotherapy technology
  - Disseminate information and educate target audiences

Study Design
National Process Survey
- A National Process Survey was developed for gastric cancer to measure:
  - Patient demographics
  - Geographic region
  - Practice setting
  - Insurance status
  - Workup and Studies
  - Medical History and Comorbidities
  - Staging and Extent of Disease
  - Treatment Course (Surgery, Radiotherapy, and Chemotherapy details)

- Two-stage stratified random sample of:
  - 106 Radiation oncology facilities nationwide invited (first stage)
  - Eligible cases within those facilities (second stage)

- Facility Survey Data & Process Survey Data used to calculate national averages and make statistically valid inferences for national process measures

- Survey data collected via retrospective review of patient charts and records

Study Design
Clinical Performance Measures
- The QRRO Gastrointestinal Cancers Committee defined a set of core clinical process measures (CPM) based on national practice guidelines which can be used to measure performance:
  1. Use of CT-based simulation and treatment planning
  2. Use of dose volume histograms (DVH) to evaluate normal tissue doses to the kidneys and liver
  3. Completion of planned RT course within the prescribed time frame
- Emerging clinical process measures were defined based on best available evidence and expert consensus:
  1. Use of Intensity Modulated Radiotherapy (IMRT) treatment delivery when 3D conformal technology is used in treatment planning
  2. Use of image-guided tools (IGRT), other than computed tomography scans, for radiation therapy target delineation
  3. Use of preoperative (neoadjuvant) RT

Results
Clinical Performance Measures
- CPMs were computed on data for 250 eligible patients at 45 institutions.

Computation of CPMs
Proportion of patients that meet the CPM
Sub-set of the patient population with the condition that meets the defined criteria
Patient population with the condition
Less
Patients with exclusions

Demographics
- Total of 250 eligible pts treated for gastric cancer from 45 institutions were reviewed
- Six facilities had no eligible patients
- Stratum-specific weighted percentages were calculated to reflect the distribution in the population as a whole
- Median age was 62 years
- 65% male
- 68% Caucasian; 17% African American; 6% Asian; 8% other/unknown
- AJCC 2002: Stage I, 27%; Stage II, 30%; Stage III, 9%; Stage IIIB, and 14% IV
- Most pts (36%) were treated at small non-academic centers with the remainder split between large (24%) and medium (29%) non-academic facilities. Only 11% were treated at academic centers
- 39% of pts were covered by Medicare, 29% had private insurance and 13% were covered by an HMO; only 4% had Medicaid as a payer

Conclusions
- QRRO’s analysis of radiation practice patterns for non-metastatic gastric cancer indicate widespread adoption of CT-based planning with the use of DVHs to evaluate normal tissue doses
- Most pts completed adjuvant RT in the prescribed time frame
- Emerging RT techniques such as IMRT and IGRT were not routinely incorporated into clinical practice during the evaluated time period
- These data will serve as a benchmark for future QRRO gastric cancer surveys