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The effect of multidisciplinary teams for rectal cancer on delivery of care and patient outcome: has the use of multidisciplinary teams for rectal cancer affected the utilization of available resources, proportion of patients meeting the standard of care, and does this translate into changes in patient outcome?

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Abstract

BACKGROUND: We hypothesized that mandatory multidisciplinary team (MDT) participation improves process evaluation, outcomes, and technical aspects of surgery for rectal cancer in a stable practice of colorectal surgery.

METHODS: A retrospective review of MDT data was conducted of all patients with colorectal cancer since 2010. Demographic, clinical stage, process evaluation, quality of surgery, and outcome data were collected. Total mesorectal excision and MDT required participation started 2013.

RESULTS: One hundred thirty patients were included in this study: 47 patients in 2014; 41 patients in 2013; and 42 patients pre-MDT. Improvements were seen in 12 of the 14 preoperative process variables, 6 significantly. Improvement in the completeness of total mesorectal excision (0% to 76%) was significant. Local recurrence occurred in 10% of the pre-MDT group, and follow-up is ongoing in the MDT groups.

CONCLUSIONS: MDT participation improves care of patients with rectal cancer. Preoperative clinical staging, multimodality treatment, pathologic staging, and technical aspects of surgery have improved.
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The complex treatment of rectal cancer requires a multidisciplinary approach.[1–4] A multidisciplinary team (MDT) should include radiologists, nuclear medicine physicians, gastroenterologists, and pathologists for staging

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expertise, in collaboration with surgeons, medical oncologists, and radiation oncologists to represent the treatment modalities of surgery, chemotherapy, and radiation therapy, respectively. Genetic counseling involvement is appropriate. The adoption of the MDT mechanism has become nearly universal in the management of rectal cancer in European hospitals.[1,5,6] The concept is currently being proposed by a multidisciplinary group in the United States.[1] The societies involved in creating centers of excellence for treating rectal cancer in the Optimizing Surgical Treatment of Rectal Cancer Consortium include American Society of Colon and Rectal Surgeons, Society for Surgery of the Alimentary Tract, Society of Surgical Oncology, Society of American Gastrointestinal and Endoscopic Surgeons, American College of Surgeons, Commission on Cancer, National Cancer Data Base, American Cancer Society, College of American Pathologists (CAP), American College of Radiology, and American Society of Clinical Oncology.

The treatment of rectal cancer has evolved in recent decades.[3,5,7–13] The development of the total mesorectal excision (TME) technique and the use of preoperative neoadjuvant radiation and chemotherapy in Stage II and Stage III, and appropriately selected Stage IV cases is now the standard of care.[9,14–17]

It is hypothesized that an MDT approach in a stable colorectal practice will likely allow for 3 main effects. The first effect is the standardization of care and the improved utilization of the available resources to meet this enhanced standard of care that has been pioneered by our colleagues in Europe.[1,5,6,11] Second is the improvement in the technical aspects of treatment, especially in the quality of surgery indicated by the completeness (R0) of TME and negative circumferential resection margins (CRM). Finally, MDTs will likely improve patient outcomes, reflected by recurrence rates and survival rates.

Many studies to date have shown improvements in the standardization of care and an increased proportion of patients receiving this standard.[6,11,18–20] Incorporating MDTs into practice has resulted in an increase in the utilization of rectal cancer focused imaging, such as pelvic magnetic resonance imaging (MRI) for preoperative clinical staging,[7,8,21–25] the use of neoadjuvant chemoradiation,[7,9,18] and in the accuracy and completeness of pathologic staging.[7,12,20,22,26–29] Over time and after education of members of the MDT, there is an improvement in the technical aspects of care.[3,18,21,30] It is theorized that immediate expert feedback from radiologists and pathologists will lead to improvements in the surgeon's ability to achieve complete (R0) TME and clear CRM in a higher proportion of patients.

Unfortunately, there is paucity in the data supporting the idea that improved utilization of resources will lead to an improvement in outcome. It is reasonable to suggest that more patients receiving the standard of care would result in better patient outcome; nevertheless, there is some conflicting opinion in the literature. Reports exist of improvements in local or distant recurrence,[8,30] or improvements in survival.[8,9,13] However, other reports have shown that increased resource utilization did not result in improved survival.[18,22]

We undertook a review of prospectively collected data (housed in a secure, validated database in the Division of Surgical Oncology) generated by the colorectal MDT at our institution to determine whether the MDT process improved the short-term cancer outcomes of our rectal cancer patients compared with retrospectively collected data from a cohort of patients treated before MDT existed.

Patients and Methods

At our institution, biweekly MDT conferences were initiated in January 2013. Presentation of all rectal cancer cases was made mandatory at that time. We examined the data from rectal cancer patients from 2 years before the adoption of MDT and the 2 years after MDT adoption. In addition, we examined the evolution over time from the beginning of MDT use by examining these 2 years separately. Complete datasets regarding demographics, tumor stage, treatment, process, and outcomes based on pathology after operation and follow-up were obtained.

The membership of the rectal cancer MDT consists of assigned representatives from medical oncology, radiation oncology, surgical oncology, colorectal surgery, gastrointestinal medicine, radiology, pathology, nuclear medicine, genetic counseling, and key nursing personnel. These biweekly conferences are used for discussion of proper patient management, concurrently, among all appropriate disciplines. A database is created to include each patient's workup, treatments to date, and for recommendations by each specialty. Patients are referred to the MDT by the treating colorectal surgeon close to the first encounter with the patient. This first encounter can range from the time of diagnosis to after completion of neoadjuvant therapy, based on the referral pattern.

From a prospective Institutional Review Board approved MDT database, a retrospective chart review was conducted of 130 patients with rectal cancer. "Demographic variables" consisted of age at diagnosis, sex, race, ethnicity, body mass index, comorbidities, and the "goal of treatment." The goal of treatment referred to those having a resection with intent to cure, those with known metastatic disease at the time of surgery, and those treated for palliation. "Process evaluation variables" included baseline carotid endarterectomy (CEA), the type of imaging, use of neoadjuvant chemoradiation, restaging following neoadjuvant therapy, distance from the anal verge, operation type, use of adjuvant chemoradiation, and completeness of pathology reporting. "Disease severity variables" consisted of preoperative clinical stage and postoperative pathological stage. "Quality of surgery variables" included the completeness of TME, distal CRM (positive <1 mm), and the number of regional lymph nodes harvested. "Outcome variables" consisted of local and distant recurrence, disease-free survival, completeness and appropriateness of treatments. Completeness of the TME

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