Original Study

Multidisciplinary Clinics for Colorectal Cancer Care Reduces Treatment Time

Vanessa N. Kozak,[1] Alok A. Khorana,[2] Sudha Amarnath,[2] Katherine E. Glass,[2] Matthew F. Kalady[1,2]

Abstract

Multidisciplinary clinics aim to facilitate delivery of coordinated care for diseases requiring a multimodal approach. The present retrospective review analyzed the effect of this working model on the time to treatment for patients with colorectal and anal cancer at a single institution. A mean shortening of 7.8 days from the first appointment to treatment was found, with the most benefit realized for patients requiring neoadjuvant chemoradiation.

Introduction: Management of locally advanced and metastatic colorectal cancer (CRC) requires the expertise of multiple specialists. Multidisciplinary clinics (MDCs) are a working model designed to facilitate delivery of coordinated care. The present study evaluated the effects of MDC on the time to treatment (TTT). **Patients and Methods:** Patients with CRC or locally advanced anal cancer who were evaluated at a single-institution MDC from January 2014 to October 2015 were identified from an institutional registry. The clinical characteristics and timelines for various aspects of treatment were retrospectively reviewed and recorded. A control population of patients not evaluated at the MDC was matched 1:2 by disease and the number of treating specialties. The primary endpoints were the TTT from diagnosis and the TTT from the first consultation. **Results:** A total of 105 patients were included: 35 were evaluated at the MDC and 70 were controls. The MDC patients experienced a 7.8-day shorter TTT from the first consultation (21.5 vs. 29.3 days; $P = .01$). The difference was greater for patients visiting 3 departments (21.3 vs. 30.6 days; $P < .001$). Patients requiring neoadjuvant chemoradiation accounted for most of the decreased interval compared with those requiring surgery alone as their first treatment. The proportion of patients initiating treatment within 3 weeks from the first consultation was greater for those seen in the MDC (57.1% vs. 30% for controls; $P = .01$). **Conclusion:** Implementation of a multidisciplinary CRC clinic yielded decreased intervals from the first consultation to treatment in our institution. Focusing efforts to increase MDC usage will improve treatment efficiency and improve patient access.

Clinical Colorectal Cancer, Vol. ■, No. ■, ■-■
Keywords: Colon cancer, Process improvement, Rectal cancer, Time to treatment, Timely care

Introduction

The increasing therapeutic options available for the treatment of locally advanced and metastatic colorectal cancer (CRC) requires management by multiple specialists.[1,2] Several factors, including cancer stage, patient comorbidities, functional status, and patient wishes, should be considered and balanced when choosing among treatment options and sequencing of therapy.[3] The coordination of colorectal surgeons, medical oncologists, radiation oncologists, and hepatobiliary surgeons must be timely and efficient. In such settings, the use of multidisciplinary teams to manage CRC cases has become a common practice in many centers.[3,4]

The multidisciplinary clinic (MDC) is a working model designed to deliver comprehensive, patient-centered care by centralizing all practitioners at a single physical site.[5,6] The MDC model differs from a coordinated care model in which multiple specialties participate in care that can occur at temporally and geographically distinct encounters. MDCs facilitate communication and coordination among specialists and provide patients with cohesive, integrated care conveniently delivered at 1 place.[5] Studies of various cancer types have demonstrated the effect of MDCs on patient satisfaction,[5,7-9] increased adherence to guidelines,[9,10] increased accrual to clinical trials,[6,9,10] a shorter time to treatment (TTT),[9,11] and, even, better survival.[12] Previous studies have also shown that streamlined processes strongly based on coordinated teamwork

[1]Department of Colorectal Surgery, Digestive Disease and Surgery Institute
[2]Taussig Cancer Institute, Cleveland Clinic, Cleveland, OH

Submitted: Sep 16, 2016; Accepted: Mar 16, 2017

Address for correspondence: Matthew F. Kalady, MD, Department of Colorectal Surgery, Digestive Disease and Surgery Institute, Cleveland Clinic, 9500 Euclid Avenue, A30, Cleveland, OH 44195
E-mail contact: kaladym@ccf.org

1533-0028/$ - see frontmatter
http://dx.doi.org/10.1016/j.clcc.2017.03.020

result in increased efficiency by eliminating duplicated steps and better addressing eventual overlooked issues.[13]

Although it seems logical that this model would enhance CRC care, sparse data are available regarding its application for CRC patients.[14,15] The multispecialty approach required to deliver best practices provides this framework, with particular needs for patients with locally advanced rectal cancer, anal cancer, and resectable stage IV colon cancer. Nevertheless, because MDC implementation could require significant adaptation by physicians and administrators, the benefits must be evaluated. One objective measure used in previous studies[11] and proposed as a surrogate for integrated cancer care[16] is the interval that elapses before treatment is initiated (ie, the TTT). This measure represents the timeliness of treatment, which is 1 of the 3 pillars of quality health care delivery proposed by the Institute of Medicine (now the Health and Medicine Division, National Academies of Science, Engineering, and Medicine, Washington, DC).[16]

In an effort to process improvements and more effective coordination of multidisciplinary care, our CRC program established a physical single-site MDC. In the present study, we have reviewed our early experience and evaluated the effect of CRC MDCs on the TTT. We hypothesized that the implementation of a MDC in the setting of a tertiary referral center would decrease the TTT for CRC patients.

Patients and Methods

The Cleveland Clinic institutional review board approved the present study. Patients with CRC or squamous cell anal cancer who were evaluated at the MDC from January 2014 to October 2015 were retrospectively identified from the Cleveland Clinic Tumor Registry and a DataMart Registry, using specific MDC department codes for colorectal surgery (CORS), medical oncology (MedOnc), and/or radiation oncology (RadOnc). The patient medical records were reviewed for diagnosis and clinical stage. All rectal adenocarcinoma, anal squamous cell carcinoma (SCC), and stage IV colon adenocarcinoma cases were initially included. The exclusion criteria were as follows: patients evaluated for recurrent cancer, patients who had sought their first therapy elsewhere, patients seen at the MDC only after surgery (emergent surgery or unexpected intraoperative findings), patients with colorectal tumors other than adenocarcinoma; and those seen by 1 specialty only.

To define our control group, cases were matched 1:2 with patients who had received a multimodal approach but were seen by each specialist outside the MDC, although during the same study period. The matching criteria were the number of specialties seen (either 2 or 3 among CORS, MedOnc, and RadOnc; always including CORS when 2 specialties only) and the diagnosis (rectal cancer, anal SCC, or colon cancer). Appointments with any department other than CORS, MedOnc, or RadOnc, including hepatobiliary surgery, gynecology, or genetic counseling, were considered as additional specialties and had their appointment dates noted. The need for a combined surgical plan or preoperative procedures was also noted.

From the Cleveland Clinic colorectal cancer database and medical record review, the following information was obtained: patient demographic data, tumor- and treatment-related data, including age, gender, date of pathologic diagnosis, place of diagnosis (Cleveland Clinic or elsewhere), staging status at first appointment (complete, partially complete, or no staging; as described further below), staging examination dates, all appointment dates, first treatment modality, and its initiation date.

First treatment was defined as 1 of the following: surgical resection, initiation of chemotherapy, and delivery of the first radiation dose. Creation of a diverting stoma for symptom control before the most definitive treatment was also considered as initiation of the treatment course, and these data were recorded, along with the data regarding surgery for tumor resection. The TTT was recorded using different points of the management encounter: (1) the interval from the pathologic diagnosis to first treatment (TTT from diagnosis); and (2) the interval from the first office consultation to the first treatment (TTT from first consultation).

To define the status of clinical staging at the first appointment, the staging was considered complete for anal SCC if both pelvic magnetic resonance imaging (MRI) and positron emission tomography/computed tomography (CT) had been performed; complete for colon adenocarcinoma if the most definitive chest (either radiography or CT) and abdomen/pelvis (either CT or MRI) imaging studies and serum carcinoembryonic antigen (CEA) measurement had been performed; and complete for rectal adenocarcinoma if the most definitive chest, abdomen, and pelvic (either MRI or endoluminal ultrasound) imaging and serum CEA had been performed. Staging was considered partially complete for patients missing any of the aforementioned imaging studies. Finally, staging was considered not performed for patients presenting without any imaging studies at all or CEA measurement only. Administrative data regarding the date of the patient's or referring physician's telephone call to request an appointment and notes regarding the eventual cancellation of earlier appointments were obtained.

The primary endpoints were the TTT from diagnosis and TTT from the first consultation for the MDC group and the time from the first appointment to the last appointment for the control group (among the 3 core specialties).

Categorical data are described as percentages, and the significance of differences between groups was tested using Fisher's exact test or the χ^2 test, as appropriate. Continuous data are described as the mean $\pm$ standard deviation and median and interquartile range. Differences between groups were tested using Student's t test and the Wilcoxon rank sum test, as appropriate. $P \leq .05$ was considered statistically significant.

Results

Patient Population

Thirty-five MDC patients met the inclusion criteria, with a median age of 56 years (range, 43-84 years), and were equally distributed by gender. These included 25 patients with rectal adenocarcinoma, 6 with anal SCC, and 4 with stage IV colon adenocarcinoma. The clinical stage for rectal cancer was stage cI in 4, stage cII in 6, stage cIII in 11, and stage cIV in 4. For anal SCC, the clinical stage was stage cI in 1, stage cII in 4, and stage cIII in 1. The 35 MDC patients were matched with 70 controls who had received multispecialty care but were seen by each specialty on different days. Of the 35 patients, 6 (17%) received their diagnosis at our institution; the remaining 29 (82.9%) had their consultation at our MDC after receiving the diagnosis at a referring institution.