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REVIEW ARTICLE

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Management of colorectal cancer during the COVID-19 pandemic: Recommendations from a statewide multidisciplinary cancer collaborative

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Abstract

COVID-19 has resulted in significant disruptions in cancer care. The Illinois Cancer Collaborative (ILCC), a statewide multidisciplinary cancer collaborative, has developed expert recommendations for triage and management of colorectal cancer when disruptions occur in usual care. Such recommendations would be applicable to future outbreaks of COVID-19 or other large-scale disruptions in cancer care.

KEYWORDS
access, colorectal neoplasms, COVID-19, evaluation, healthcare quality

1 | INTRODUCTION

The COVID-19 pandemic has disrupted medical care across the United States. To preserve hospital capacity, many procedures and treatments have been delayed, including those for colorectal cancer.[1] In addition, concern for disease transmission has prompted increased use of telehealth-based care.[2] While these adaptations have helped to ensure resource availability for patients with COVID-19, they have also resulted in unprecedented care disruptions, especially for patients with cancer.[3] The evidence guiding treatment decisions for patients with cancer during this time is limited, leaving clinicians, and healthcare institutions to rely primarily on their individual expertise.

2 | METHODS

The Illinois Cancer Collaborative (ILCC; http://ilcancer.org) was founded in 2020 as a multidisciplinary statewide cancer collaborative.[4] It consists of 10 diverse hospitals in Illinois working together to improve cancer care quality as a shared learning collaborative. The ILCC is partnered with the Cancer Programs of the American College

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of Surgeons and is led by experts representing the breadth of disciplines involved in comprehensive cancer care.

One of the ILCC's first actions was to create recommendations for cancer care during the COVID-19 pandemic. To accomplish this, disease-specific workgroups were created, consisting of medical, surgical, and radiation oncology experts. After evidence review, guidelines were produced based on expert consensus and disseminated to participating sites. We present here the ILCC multidisciplinary evidence-based consensus recommendations. These recommendations address colorectal cancer care during the COVID-19 pandemic and are applicable to other large-scale care disruptions.

3 | RESULTS

3.1 | The ILCC recommendations for the management of colon and rectal cancer during the COVID-19 pandemic

Many clinical decisions regarding cancer care during the COVID-19 pandemic cannot be based entirely on evidence. The recommendations provided here are a reasonable approach to these situations but do not replace clinical decision-making. To the extent possible, oncologic outcomes should not be compromised because of COVID-19. In addition, when possible, treatments that patients would not normally receive should be avoided.

3.2 | Summary of evidence

3.2.1 | Delayed surgical treatment of colon cancer

- Up to a 120-day period from diagnosis to surgical treatment of colorectal cancer was not associated with worse survival.[5]
- A systematic review of five studies with diagnosis-to-surgery intervals up to 56 days concluded that there was no association between surgical delay and survival in colon cancer.[6]
- Patients with stage I–III colon cancer who had primary elective surgery >40 days after diagnosis experienced reduced survival. Each 14-day increase in the interval from diagnosis to surgery was associated with a 6% increase in the hazard of death.[7]

3.2.2 | Delayed surgical treatment of rectal cancer

- A delay of >60 days from symptom onset to radiation or surgical treatment was associated with lower survival.[8]
- A review found no association between treatment delay and survival among patients with rectal cancer.[9]
- An interval of >6–8 weeks from completion of neoadjuvant therapy to surgery was associated with improved rates of complete pathologic response but not overall survival.[10]
- A watch-and-wait approach for patients with rectal cancer who had a complete clinical response to neoadjuvant therapy was shown to result in worse survival than total mesorectal excision but can be considered in selected patients.[11]

3.2.3 | Neoadjuvant therapy

- The feasibility phase of the FOxTROT trial suggested that neoadjuvant chemotherapy is safe for locally advanced, operable (T3–T4a, N0–2) colon cancer.[12] The preliminary results of the multicenter trial showed that neoadjuvant therapy reduced surgical complications but did not affect survival at 2 years.[13]
- Neoadjuvant chemoradiation is the standard of care for high-risk clinical stage II–III rectal cancer.[14]
- Three clinical trials have demonstrated equal efficacy of short versus standard course neoadjuvant radiotherapy for rectal cancer.[15–17]

3.3 | Management of locoregional colon cancer if resources are limited

3.3.1 | Asymptomatic primary

Clinical stage I–II

- Consider delaying therapy if inpatient resources are expected to become available within 4 weeks.
- In select cases, particularly T3–T4a disease, neoadjuvant chemotherapy may be considered. Therapy duration should be tailored to the clinical stage and anticipated ability to offer surgical resection. The total length of therapy can be modified based on the pathologic stage. A capecitabine/oxaliplatin (CAPOX) regimen is preferable to 5-fluorouracil/leucovorin/oxaliplatin (FOLFOX) due to shorter duration, fewer clinical encounters, and improved outcomes.[18,19]

Clinical stage III

- Consider neoadjuvant chemotherapy. Therapy duration should be tailored to the clinical stage and anticipated ability to offer surgical resection. Total systemic therapy duration can be modified based on the pathologic stage. CAPOX is preferable to FOLFOX due to its shorter duration, fewer clinical encounters, and improved outcomes.[18,19]

3.3.2 | Symptomatic primary

- If hospital resources are severely limited, consider alternatives to definitive resection in patients at high risk of complications, need for intensive care, or prolonged hospitalization. Alternatives

should be determined on a case-by-case basis but may include endoluminal stent placement in left-sided tumors, fecal diversion, or resection without immediate anastomosis.
- If symptoms are not amenable to a temporizing intervention, definitive surgery should be offered.

3.4 | Management of locoregional rectal cancer if surgical resources are limited

3.4.1 | Asymptomatic primary

Clinical stage I

- Consider delaying therapy if inpatient resources will become available within 4 weeks.
- Consider transanal excision for amenable T1 tumors.
- In select cases, consider neoadjuvant chemoradiation.
- Chemotherapy duration should be tailored to the clinical stage and anticipated ability to offer surgical resection. Total therapy duration can be modified based on the pathologic stage, and CAPOX is preferable to FOLFOX.
- Consider short course radiation (five doses of 5 Gy) to minimize hospital exposure.
- At experienced centers, consider a watch-and-wait approach for select patients with complete clinical response to neoadjuvant chemoradiation.

Clinical stage II–III

- Neoadjuvant chemoradiation should be administered before surgical resection for stage II–III rectal cancers.
- Therapy duration should be tailored to the clinical stage and anticipated ability to offer surgical resection. Total therapy duration can be modified based on the pathologic stage.
- CAPOX is preferable to FOLFOX and should be administered before radiation.
- Consider short course radiation (five doses of 5 Gy) to minimize hospital exposure.
- At experienced centers, consider a watch-and-wait approach for select patients with complete clinical response to neoadjuvant chemoradiation.

3.4.2 | Symptomatic primary

- If hospital resources are severely limited, consider alternatives to definitive resection in patients at high risk of complications, need for intensive care, or prolonged hospitalization. Alternatives should be determined on a case-by-case basis but may include fecal diversion or resection without immediate anastomosis.
- If symptoms are not amenable to a temporizing intervention, then definitive surgery and/or radiation should be offered.
- Stenting is not recommended as a temporizing measure for rectal cancers.

3.5 | Management of metastatic colorectal cancer if surgical resources are limited

- If curative intent surgery is possible (e.g., isolated metastatic liver and/or pulmonary disease, peritoneal disease), decisions about treatment should incorporate the extent of disease, expected surgical morbidity, risk of disease progression without intervention, and availability of inpatient resources.
- If surgery is not indicated, less invasive alternative therapies including Y-90 radioembolization or stereotactic body radiation therapy should be considered.

3.6 | Patient care coordination

- Patients with colorectal cancer should have initial telehealth appointments with the following providers (if applicable) to ensure that (1) treatment can proceed quickly aftercare is resumed, and (2) patients will be known to their providers if emergent intervention is needed:
- Primary care practitioner.
- General surgeon, colorectal surgeon, or surgical oncologist
- Gastroenterologist
- Medical oncologist
- Radiation oncologist
- Medical geneticist
- A protocol should be developed to ensure that patients with newly diagnosed colorectal cancer are scheduled for initial appointments with these providers.
- If no immediate treatment is planned, a process should be developed to maintain contact with each patient to ensure that they are not lost to follow-up and can resume treatment when able.
- Patients should be instructed how to perform simple tasks, such as disconnecting their chemotherapy pump at home, to minimize healthcare encounters that risk exposure.

4 | DISCUSSION

The need for cancer treatment guidance during the COVID-19 pandemic is imperative. The above recommendations were developed by a statewide multidisciplinary cancer collaborative consisting of a diverse group of hospitals and reflect scenarios that may be encountered during the COVID-19 pandemic. A statewide cancer collaborative is an ideal vehicle for rapid quality improvement, as is necessary during a pandemic where timely care adaptation is essential. By leveraging existing communication channels and quality improvement resources at multiple institutions, a high-quality recommendation was developed and disseminated. This can serve as a

model for collaborative-based quality improvement in the care of patients with cancer.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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REFERENCES

1. Czeisler MÉ, Marynak K, Clarke KEN, et al. Delay or avoidance of medical care because of COVID-19-related concerns—United States, June 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(36):1250-1257.
2. Baum A, Kaboli PJ, Schwartz MD. Reduced in-person and increased telehealth outpatient visits during the COVID-19 pandemic. *Ann Intern Med*. 2020;174:129-131.
3. Disis ML. Oncology and COVID-19. *JAMA*. 2020;324(12):1141-1142.
4. Illinois Cancer Collaborative. 2020. http://ilcancer.org/. Accessed November 30, 2020.
5. Wanis KN, Patel SVB, Brackstone M. Do moderate surgical treatment delays influence survival in colon cancer? *Dis Colon Rectum*. 2017;60(12):1241-1249.
6. Hangaard Hansen C, Gogenur M, Tvilling Madsen M, Gogenur I. The effect of time from diagnosis to surgery on oncological outcomes in patients undergoing surgery for colon cancer: a systematic review. *Eur J Surg Oncol*. 2018;44(10):1479-1485.
7. Grass F, Behm KT, Duchalais E, et al. Impact of delay to surgery on survival in stage I-III colon cancer. *Eur J Surg Oncol*. 2020;46(3):455-461.
8. Iversen LH, Antonsen S, Laurberg S, Lautrup MD. Therapeutic delay reduces survival of rectal cancer but not of colonic cancer. *Br J Surg*. 2009;96(10):1183-1189.
9. Ramos M, Esteva M, Cabeza E, Campillo C, Llobera J, Aguilo A. Relationship of diagnostic and therapeutic delay with survival in colorectal cancer: a review. *Eur J Cancer*. 2007;43(17):2467-2478.
10. Petrelli F, Sgroi G, Sarti E, Barni S. Increasing the interval between neoadjuvant chemoradiotherapy and surgery in rectal cancer: a meta-analysis of published studies. *Ann Surg*. 2016;263(3):458-464.
11. Smith JJ, Strombom P, Chow OS, et al. Assessment of a watch-and-wait strategy for rectal cancer in patients with a complete response after neoadjuvant therapy. *JAMA Oncol*. 2019;5(4):e185896.
12. Foxtrot Collaborative Group. Feasibility of preoperative chemotherapy for locally advanced, operable colon cancer: the pilot phase of a randomised controlled trial. *Lancet Oncol*. 2012;13(11):1152-1160.
13. Seymour MT, Morton D. FOxTROT: an international randomised controlled trial in 1052 patients (pts) evaluating neoadjuvant chemotherapy (NAC) for colon cancer. *J Clin Oncol*. 2019;37(15_suppl):3504.
14. Network NCC. Rectal Cancer (version 6.2020). https://www.nccn.org/professionals/physician_gls/pdf/rectal.pdf. Accessed November 30, 2020.
15. Bujko K, Nowacki MP, Nasierowska-Guttmejer A, et al. Sphincter preservation following preoperative radiotherapy for rectal cancer: report of a randomised trial comparing short-term radiotherapy vs. conventionally fractionated radiochemotherapy. *Radiother Oncol*. 2004;72(1):15-24.
16. Ngan SY, Burmeister B, Fisher RJ, et al. Randomized trial of short-course radiotherapy versus long-course chemoradiation comparing rates of local recurrence in patients with T3 rectal cancer: Trans-Tasman Radiation Oncology Group trial 01.04. *J Clin Oncol*. 2012;30(31):3827-3833.
17. Erlandsson J, Holm T, Pettersson D, et al. Optimal fractionation of preoperative radiotherapy and timing to surgery for rectal cancer (Stockholm III): a multicentre, randomised, non-blinded, phase 3, non-inferiority trial. *Lancet Oncol*. 2017;18(3):336-346.
18. Grothey A, Sobrero AF, Shields AF, et al. Duration of adjuvant chemotherapy for stage III colon cancer. *N Engl J Med*. 2018;378(13):1177-1188.
19. Sobrero A, Lonardi S, Rosati G, et al. FOLFOX or CAPOX in stage II to III colon cancer: efficacy results of the italian three or six colon adjuvant trial. *J Clin Oncol*. 2018;36(15):1478-1485.

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