REVIEW ARTICLE

COLORECTAL CANCER GUIDE FOR FAMILY PHYSICIANS

Selena G. M. Raines, DO, MPH[1]; Marie A. Dennison, MD[1];
Tanner P. Brondhaver, DO[1]; Benjamin M. Hayes, DO[1]

[1]University of Kentucky Rural (Morehead) Family Medicine Program, St. Claire HealthCare, Morehead, KY

KEYWORDS

Colorectal cancer

Osteopathic treatment models

Cancer screening

ABSTRACT

Colorectal cancer is a leading cause of morbidity and mortality in the United States. Family physicians play an integral role in educating patients about the current screening recommendations and modalities of available screening to improve early detection and allow treatment at its earliest stages. Family physicians must have the tools to minimize barriers to screening, alleviate patient concerns about screening modalities available, and educate patients on lifestyle modifications that have the potential to significantly lower the risk of developing colorectal cancer. Osteopathic physicians should consider the five osteopathic treatment models when developing an individualized plan for each patient.

INTRODUCTION

Colorectal cancer is the third leading cause of cancer death in the United States among both men and women.[1] Approximately 4.1% of adults will be diagnosed with colorectal cancer within their lifetime, with an estimated 153,000 new cases in 2023 alone.[2] There are 36.6 new cases per 100,000 adults per year, with a death rate of 13.1 per 100,000. In 2023, it is projected that 7.8% of all new cancer diagnoses are colorectal cancer, and 8.6% of cancer-related deaths are attributed to colorectal cancer. Despite these statistics, only 72% of US adults are up to date with colorectal cancer screening, with screening rates dropping significantly to less than 62% for Asian, American Indian, and Alaskan Native individuals.[3]

If colorectal cancer is detected in the early stages, the 5-year survival rate is 90% for those diagnosed with localized disease.[4] To improve early disease detection, in 2021, the United States Preventative Service Task Force (USPSTF) updated its guidelines to recommend that healthy individuals with average risk begin screening for colorectal cancer at age 45 years rather than 50 years, as previously recommended.[5]

There are numerous risk factors, both modifiable and nonmodifiable, for the development of colorectal cancer, and family physicians need to discuss these risk factors with their patients when developing a plan for screening.

CORRESPONDENCE:
Selena G. M. Raines, DO, MPH | drselenado@gmail.com

 Print ISSN: 1877-573X doi: 10.33181/160201

The authors have no conflicts of interest or financial disclosures.

MODIFIABLE RISK FACTORS FOR COLORECTAL CANCER

While genetic risk factors are nonmodifiable, numerous lifestyle choices have a dramatic impact on a person's risk of developing colorectal cancer. About 55% of all colorectal cancers in the United States can be attributed to lifestyle choices.[4] Current cigarette smoking carries a 59% increased risk of colorectal cancer. An elevated risk persists through 20 years' postcessation. Moderate alcohol consumption of 25 grams of ethanol per day increases colorectal cancer risk by 30%.[6] Obesity carries an increased risk of colorectal cancer in both men and women. Diets high in fats and processed meats, along with diets low in fiber, fruits, and vegetables, carry an increased risk of colorectal cancer. A sedentary lifestyle also carries an increased risk of colorectal cancer, but this can be lowered with increased activity.[4]

GENETIC RISK FACTORS FOR COLORECTAL CANCER

There are several genetic factors and chronic disease processes that carry an increased risk for the development of colorectal cancer, and each of these has slightly different recommendations for screening.

History of a first-degree relative with colorectal cancer carries a 2- to 4-fold increase in an individual's risk of developing colorectal cancer.[4] Surveillance screening with direct visualization should begin at age 40 years or 10 years before the family member's age at diagnosis.[7]

Inflammatory bowel disease is an independent risk factor for colorectal cancer, with patient risk increasing with the duration and severity of the disease. It is estimated that the colorectal cancer

risk 10 years after diagnosis is 2%, but it increases to 8% and 18% after 20 and 30 years' postdiagnosis, respectively. Screening by direct visualization is recommended beginning 8 to10 years after initial diagnosis and is continued every 1 to 2 years.[8]

Familial adenomatous polyposis (FAP) is an autosomal dominant disorder in which individuals develop hundreds to thousands of polyps, thus increasing the risk of early-onset colorectal cancer, typically by ages 30 to 40 years.[9] These individuals are also at risk of cancers of the stomach, small intestine, pancreas, bile duct, liver, adrenal gland, thyroid, and brain. Direct visualization is the recommended screening, starting at ages 10 to 12 years and repeating every 1 to 2 years.[7]

Lynch syndrome, also known as hereditary nonpolyposis colorectal cancer, is an inherited disorder in which gene mutations primarily increase the risk of colorectal, endometrial, and ovarian cancers. These gene mutations also increase the risk of brain, urinary tract, stomach, small intestine, pancreas, and bile duct cancers. For patients with Lynch syndrome, colorectal screening via direct visualization is recommended starting at the ages of 20 to 25 years or 2 to 5 years earlier than the age of the youngest family member diagnosed with colorectal cancer and repeating every 1 to 2 years. This condition is estimated to affect between 1 in 280 to 440 individuals and accounts for approximately 3% of colorectal cancers.[10]

SCREENING MODALITIES FOR COLORECTAL CANCER

Early detection through screening is important in preventing the development of advanced life-threatening colorectal cancer. Family physicians play a vital role in health maintenance screenings. Numerous factors impact patient compliance with colorectal cancer screening, including anesthesia risks, the necessity for bowel prep, and confusion with the available screening modalities. Many patients are unaware that the recommended age for colorectal cancer screening has been lowered from 50 to 45 years in recent years. Many are averse to aspects of colonoscopy screening and are unaware of alternative options. Frequently, patients do not see the need for screening if they are asymptomatic and have no family history. Other times, patients fail screening due to fear of the cost and effort (time off work, procuring a driver, expense of the bowel prep). Some simply fail to have screening performed due to procrastination.[11]

The USPSTF recommends grade A for colorectal screening in patients ages 50 to 75 years, grade B for patients ages 45 to 49 years, and grade C for ages 76 to 85 years.[12] Multiple screening modalities are available. Family physicians must explain the risks, benefits, and individualized patient screening options based on their personal and family history.

A colonoscopy is an endoscopy procedure that visualizes the rectum, colon, and part of the ileum. This is the most comprehensive colorectal screening modality; therefore, it is performed under anesthesia after bowel preparation. It is recommended every 10 years by the USPSTF if the results are benign.[5]

Sigmoidoscopy utilizes a scope to visualize the rectum, sigmoid colon, and descending colon. Thus, only left-sided polyps can be identified and removed. Patients do have to undergo bowel prep; however, screening can be performed in an office setting without anesthesia. This screening modality is limited to the left hemicolon, thus the USPSTF recommends screening every 5 years if screening is negative.[5]

Computed tomography (CT) colonography uses CT imaging to evaluate for polyps in the colon or rectum. Bowel prep is required before imaging. CT colonography is recommended every 5 years by the USPSTF when results are benign. While CT colonography is considered a direct visualization modality, only the colonoscopy and sigmoidoscopy allow for polypectomy at the time of evaluation.[5]

Stool-based tests allow patients to collect a stool sample at home and return it for processing at a laboratory facility. Fecal Immunochemical test (FIT) analyzes a stool sample for traces of blood. For this modality, the USPSTF recommends yearly screening. Multitarget stool DNA with FIT additionally analyzes the sample for DNA mutations using molecular assays to assess for biomarkers of any colorectal neoplasia. The USPSTF recommends this testing modality every 3 years, at minimum.[5]

It is important to note that an abnormal stool-based test or CT colonography necessitates a colonoscopy for further evaluation.

SYMPTOMS OF COLORECTAL CANCER

While the purpose of colorectal cancer screening is for early detection and treatment of localized disease, it is essential to discuss the common signs and symptoms of colorectal cancer. Bowel habit changes include new-onset constipation or diarrhea, "pencil thin" stools, bright red blood per rectum, or black, tarry stools. Patients may also report the sensation of incomplete bowel emptying with defecation, abdominal pain, or cramping. Unintended weight loss or changes in appetite without a clear etiology may also be present.[13]

STAGING OF COLORECTAL CANCER

When colorectal cancer is detected, it is important to obtain staging of the disease, as treatments will be guided by the stage present at diagnosis.

- **Stage 0** is carcinoma in situ, localized to the colonic mucosa.
- **Stage I and Stage II** involve cancers that have grown into or through the wall of the colon/isolated surrounding tissues but not to surrounding lymph nodes.
- **Stage III** involves cancers that have spread to nearby lymph nodes but not other parts of the body.
- **Stage IV** is advanced colorectal cancer involving the spread to distant organs outside of the colon. Frequent sites of metastases include the liver, lungs, brain, or peritoneum.[13]

TREATMENT OF COLORECTAL CANCER

Treatment of colorectal cancer varies depending on stage at diagnosis, location, patient age, patient preference, and genetic factors. Standard treatment includes removing or destroying lesions via surgery, radiofrequency ablation, or cryosurgery. Chemotherapy, radiation, targeted therapy, and immunotherapy are frequently employed adjunctive therapies. It is important to discuss with patients that surgical intervention may result in

- **Stage 0:** Local excision/polypectomy and/or resection/anastomosis
- **Stage I and Stage II:** Mainstay is resection and anastomosis with case-dependent adjuvant chemotherapy
- **Stage III:** Resection and anastomosis combined with chemotherapy regimens
- **Stage IV:** Local excision of associated tumors with colon resection is typically recommended and may involve surgery to resect metastatic lesions. This stage typically includes chemotherapy before, during, and/or after surgery. For those who cannot undergo surgery, radiofrequency ablation or cryotherapy may be an option. Case-dependent protocols may include radiation, chemotherapy, targeted therapy, immunotherapy, and clinical trials

Family physicians should assist patients in navigating the various treatment options established by their oncology team. Chemotherapy regimens often come with numerous unintended systemic side effects, which may necessitate co-management by their family physician. Side effects may include nausea/vomiting, diarrhea, mucositis, fatigue, peripheral neuropathy, and immunosuppression. Effective management of these side effects is a primary factor contributing to a patient's ability to tolerate and continue treatment. Targeted therapies have been developed to avoid systemic side effects and offer a more direct approach to treatment. These therapies typically involve monoclonal antibodies, angiogenesis inhibitors, and protein kinase inhibitor therapies. Immunotherapy is a biologic therapy that utilizes immune checkpoint inhibitor therapy to enhance the body's ability to target and kill cancer cells. Thus, it is often used in the setting of metastatic disease.[14,15]

OSTEOPATHIC CONSIDERATIONS

With training in whole-patient care and a focus on the body, mind, and spirit connection, osteopathic family physicians are poised to educate patients on the importance of colorectal cancer screening while helping each patient decide which screening method is best for their health and wellness goals. Since many of the risk factors for colorectal cancer are modifiable, family physicians can look to the five osteopathic treatment models for guidance in helping patients navigate these decisions. The metabolic-energetic model can address risk reduction strategies that target dietary and physical activity changes. The behavioral-biopsychosocial model can be employed to address some of the harmful lifestyle choices, such as cigarette smoking and excessive alcohol consumption, that increase colorectal cancer risks. It can also address some barriers to screening, such as social support, misconceptions or fear about the screening process, and time constraints of the screening modality employed.[16,1]

CONCLUSION

Since colorectal cancer is the third leading cause of cancer death in the United States among both men and women, early detection through screening is vital to preventing the development of advanced life-threatening disease.[1] While there are some genetic risk factors for the development of colorectal cancer, most risk factors are related to lifestyle. Family physicians play an integral role in educating their patients in ways to minimize these risks. In addition, family physicians must educate their patients on the available screening modalities, risks and benefits of each, and appropriate clinical indications for each test based upon each individualized patient's risk factors.

REFERENCES

1. Shaukat A, Kahi CJ, Burke CA, Rabeneck L, Sauer BG, Rex DK. ACG Clinical Guidelines: colorectal cancer screening 2021. *Am J Gastroenterol.* 2021;116(3):458-79. doi: 10.14309/ajg.0000000000001122
2. SEER Cancer Stat Facts: Colorectal Cancer. National Cancer Institute. https://seer.cancer.gov/statfacts/html/colorect.html. Accessed December 14, 2023.
3. Centers for Disease Control and Prevention. Use of Colorectal Cancer Screening Tests. https://www.cdc.gov/cancer/colorectal/statistics/use-screening-tests-BRFSS.htm. Accessed December 14, 2023.
4. American Cancer Society. Colorectal Cancer Facts & Figures 2020-2022. Atlanta: American Cancer Society; 2020.
5. US Preventive Services Task Force; Davidson KW, Barry MJ, Mangione CM, et al. Screening for colorectal cancer: US Preventive Services Task Force Recommendation Statement. JAMA. 2021;325(19):1965-1977. doi: 10.1001/jama.2021.6238
6. Amitay EL, Carr PR, Jansen L, et al. Smoking, alcohol consumption and colorectal cancer risk by molecular pathological subtypes and pathways. *Br J Cancer*. 2020;122(11):1604-10. doi: 10.1038/s41416-020-0803-0
7. Winawer S, Fletcher R, Rex D, et al. Colorectal cancer screening and surveillance: clinical guidelines and rationale—update based on new evidence. *Gastroenterology*. 2003;124(2):544-60. doi: 10.1053/gast.2003.50044
8. Nebbia M, Yassin NA, Spinelli A. Colorectal cancer in inflammatory bowel disease. *Clin Colon Rectal Surg.* 2020;33(5):305-17. doi: 10.1055/s-0040-1713748
9. Familial adenomatous polyposis. Medline Plus. https://medlineplus.gov/genetics/condition/familial-adenomatous-polyposis/. Accessed December 14, 2023.
10. American College of gastroenterology. Leach BH. Lynch syndrome. https://gi.org/topics/lynch-syndrome/#:~:text=Lynch%20syndrome%20is%20estimated%20to,and%202%25%20of%20endometrial%20cancers.&text=A%20diagnosis%20of%20Lynch%20syndrome%20may%20be%20suspected,a%20family%20history%20of%20cancer. Accessed December 14, 2023.

11. Cooper CP, Gelb CA. Opportunities to expand colorectal cancer screening participation. *J Womens Health (Larchmt)*. 2016;25(10):990-5. doi: 10.1089/jwh.2016.6049

12. USPSTF. Colorectal cancer: screening. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening. Accessed December 14, 2023.

13. National Cancer Institute. PDQ® Adult Treatment Editorial Board. PDQ Colon Cancer Treatment. Bethesda, MD: National Cancer Institute. https://www.cancer.gov/types/colorectal/patient/colon-treatment-pdq. Accessed December 14, 2023.

14. 14.Colorectal Cancer Alliance. Treatment options for colorectal cancer. https://www.ccalliance.org/colorectal-cancer-information/treatments. Accessed December 14, 2023.

15. American Cancer Society. Treating colorectal cancer. https://www.cancer.org/cancer/types/colon-rectal-cancer/treating.html. Accessed December 14, 2023.

16. Lunghi C. The metabolic-energetic model. In: Hruby RJ, Tozzi P, Lunghi C, Fusco G. *The Five Osteopathic Models Rationale, Application, Integration: From an Evidence-Based to a Person-Centered Osteopathy*. Edinburgh: Handspring Publishing; 2017:291-334.

17. Tozzi P. The behavioral-biopsychosocial model. In: Hruby RJ, Tozzi P, Lunghi C, Fusco G. *The Five Osteopathic Models Rationale, Application, Integration: From an Evidence-Based to a Person-Centered Osteopathy*. Edinburgh: Handspring Publishing; 2017:335-411.