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REVIEW REPORT

Colorectal Cancer Screening: Are we Missing an Opportunity in Trinidad & Tobago?

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ABSTRACT

Objectives: Opportunistic (ad-hoc) screening for colorectal cancer is practiced in Trinidad & Tobago, but there is no data on the outcomes of opportunistic screening. We carried out this study to determine the proportion of persons with colorectal cancer who were screen-detected.

Methods: We retrospectively audited the records of all patients who underwent colectomies for colorectal cancer at a public hospital over a 10-year period from January 1, 2012 to January 30, 2022. We compared American Joint Committee on Cancer stage based on method of diagnosis (screening vs symptomatic). Descriptive statistical analyses were generated using SPSS version 21.0.

Results: We analyzed 340 patients with colorectal cancer at a mean age of 63.3 years (SD +/- 13.4). There were 52 (15.3%) patients who had diagnoses made at screening and 283 (84.7%) had investigations after developing symptoms. Significantly more screen-detected lesions were early-stage colorectal cancer (73.1% vs 25%; P < 0.001). Table 1 compares the cancer stage in both patient groups.

Conclusions: Although significantly more patients with colorectal cancer are diagnosed at early stages by screening, the incidence screen-detected disease in Trinidad & Tobago is low. Most patients present with locally advanced (52%) or metastatic (15%) disease, when the opportunity for curative treatment is reduced. The time has come for policy makers to develop and institute a national screening programme for colorectal cancer in Trinidad & Tobago.

Key Words: Cancer; Colorectal; Trinidad & Tobago; Caribbean

INTRODUCTION:

According to the World Health Organization, the Caribbean region is an intermediate-incidence region for colorectal cancer (CRC), recording age-standardized incidence rates of 18 per 100,000 population per annum.¹ However, up to the year 2022 there were no countries in the English-speaking Caribbean with national CRC screening programmes.² These are alarming statistics, considering that CRC screening programmes have conclusively been proven to improve therapeutic outcomes through earlier diagnoses and reduce the incidence of colorectal cancer by removing adenomatous polyps.²⁻⁴ It is not a surprise, therefore, that many Caribbean patients already had advanced-stage CRC at diagnosis.³

The Pan American Health Organization documented that there were six countries in the Anglophone Caribbean with opportunistic CRC screening programmes.² However, there is little data available on their coverage and sensitivity rates. Trinidad & Tobago is one of these countries with opportunistic CRC screening programmes,² but we could find no tangible data on the outcomes of opportunistic screening in Trinidad & Tobago. Therefore, we carried out this study to determine the proportion of persons with CRC who were screen-detected.

METHODS:

The Government of Trinidad & Tobago provides free health care to all legal residents through a network of public hospitals. The General Hospital at Port of Spain is one of these facilities, with a catchment population of 675,000 persons in the north-western part of the nation.

At this facility, a gastroenterology department performs colonoscopies for post-operative CRC surveillance, symptomatic patients and opportunistic screening. Patients who present emergently for CRC complications present to the surgical teams for operative management. Specimens from all patients treated at this facility

are sent to the pathology department for histopathologic assessment and recorded in a CRC registry.

We secured ethical approval from the institutional review board (CREC-SA-0884-04-2021) to retrospectively audit records of patients diagnosed with CRC over a ten-year period from January 1, 2012 and January 30, 2022. The patients' records were retrieved and following data were extracted: patient demographics, method of diagnosis (screening vs symptomatic) and American Joint Committee on Cancer (AJCC) stage. We considered three categories of disease: Early CRC (AJCC stages 0, I and IIa) with no involvement of adjacent organs, lymph nodes or distant sites, locally advanced CRC (AJCC stage IIb, IIc and III) involving contiguous organs without distant metastases, and metastatic disease with distant spread. We compared CRC stage based on method of diagnosis (screening vs symptomatic).

Descriptive statistical analyses were generated using SPSS version 21.0. A descriptive analysis for the data set was performed using the Chi square test of independence to investigate correlations. A P value of 0.05 was considered significant.

RESULTS:

Over the ten-year study period, there were 469 patients diagnosed with CRC. This facility uses paper-based records, and 129 of these could not be retrieved. The final study population, therefore, comprised 340 patients with CRC at a mean age of 63.3 years (SD +/- 13.4, range 26-93) and insignificant female preponderance (1.02:1).

There were 52 (15.3%) patients who had diagnoses made at screening and 283 (84.7%) had investigations after developing symptoms. Significantly more screen-detected lesions were early-stage CRCs (73.1% vs 25%; P <0.001). Table 1 compares the AJCC stages in both patient groups.

Table 1: A Comparison of Colorectal Cancer Disease Stage Analyzed by the Method of Detection

AJCC Stage	All Patients (340)	Screening Detected (52)	Non-screening (288)
Early CRC	110 (32.4%)	38 (73.1%)	72 (25%)
• 0	0	0	0
• I	51	25	26
• IIa	59	13	46
Locally advanced	178 (52.4%)	14 (26.9%)	164 (56.9%)
• IIb	13	9	4
• IIc	11	5	6
• IIIa	17	0	17
• IIIb	110	0	110
• IIIc	27	0	27
Metastatic	52 (15.3%)	-	52 (18.1%)
• IVa	41	0	41
• IVb	8	0	8
• IVc	3	0	3

AJCC = American Joint Committee on Cancer.
CRC = Colorectal Cancer.

When patients were diagnosed after becoming symptomatic, they were significantly more likely to have advanced disease stage. Locally advanced CRC, involving contiguous organs without distant metastases, was present in 56.9% of symptomatic patients compared to 26.9% of screen-detected patients. Similarly, symptomatic patients were significantly more likely to have distant metastases already present at the time of diagnosis compared to screen-detected patients (18.1% vs 0).

DISCUSSION

The results of this study were predictable for a nation without a national CRC screening programme: 68% of patients with CRC already had locally advanced or metastatic disease at diagnosis. This was similar to reports from other English-speaking Caribbean nations. In Barbados, another Caribbean nation without a national screening programme, 69% of patients had locally advanced or metastatic CRC at the time of diagnosis.⁴

The principle behind CRC screening is to detect disease at early stages when patients can be treated with curative intent and to remove adenomatous polyps before they undergo malignant change. Several authority bodies in high income nations have published their CRC screening recommendations.^{5,6,7} The Caribbean Association for Oncology and Haematology (CAOH) in conjunction with the National Comprehensive Cancer Network (NCCN) also published CRC screening guidelines specifically tailored for populations in the English-speaking Caribbean.⁸

However, up to the year 2022 there were still no national screening programmes implemented in Trinidad & Tobago.

Opportunistic screening is still practiced, where persons undergo ad-hoc screening based on their individual physician recommendations. Unfortunately, opportunistic screening does not have widespread coverage and it has the potential to create healthcare inequity. In this study, we demonstrated that opportunistic screening programmes in our setting had poor penetration, with only 15% of patients with CRC diagnosed on screening and 85% detected after becoming symptomatic with more advanced disease. Similarly, other publications from the region document poor penetration of opportunistic screening, with only 15.5 % of CRCs in Barbados³ and 14% of CRCs in Jamaica⁹ being screen-detected.

Nevertheless, there was benefit because opportunistic screening detected significantly more early-stage CRCs (73% vs 25%). It is accepted that patients who have early disease detection have better survival statistics than those diagnosed at advanced stages.¹⁰⁻¹¹ Survival at five years post treatment falls from approximately 70% with early CRC, to 30% with locally advanced CRC,¹⁰ and further to 5-8% for metastatic disease.¹²

In addition to better survival statistics, patients diagnosed with early-stage CRC would also have increased access to minimally invasive colectomies, which international¹³⁻¹⁵ and regional data¹⁶⁻¹⁸ have proven brings advantages over open colectomies. There is also greater post-

operative morbidity and mortality when patients with locally advanced CRC undergo operative resections compared to those with early CRC.¹⁹

There are no estimates from English-speaking Caribbean countries on the financial burden of CRC treatment, but Redaelli et al²⁰ estimated that six billion USD was spent across the globe each year on CRC treatment, and of this \$4.8 billion US dollars were in-patient costs related to advanced CRC. While there are no direct cost estimates in Caribbean nations, it stands to reason that early disease detection should translate into a reduction in expenditure of treatment for advanced disease.²¹

These data suggest that a national screening programme in Trinidad & Tobago may improve CRC mortality. We support the calls from other Caribbean nations^{2,3,4,8,9} that it is time for policy makers to develop a national colorectal cancer screening programme to diagnose patients early, prevent cancers and improve their therapeutic outcomes.

While the data presented in this paper strongly supports the need for CRC screening, the

data do not allow recommendations on the screening modalities best suited for this Caribbean nation. There are multiple screening modalities available, including guaiac-based fecal occult blood testing, fecal immune-histochemical (FIT) testing, fecal FIT-DNA testing and/or endoscopic modalities. It is time for policy makers to perform cost-benefit analysis to determine which screening modalities best suit the nation and to develop a national screening programme for CRC.

CONCLUSIONS:

Although significantly more patients with CRC are diagnosed at early stages by screening, the incidence screen-detected CRC in Trinidad & Tobago is low. Most patients present with locally advanced (52%) or metastatic (15%) disease, when the opportunity for curative treatment is reduced. We agree with the call from other nations that the time has come for policy makers to develop and institute a national screening programme for CRC in Trinidad & Tobago.

REFERENCES:

1. World Health Organization. International Agency on Research for Cancer. Caribbean: Globocan Statistics 2020. [DOI: <https://gco.iarc.fr/today/data/factsheets/populations/915-caribbean-fact-sheets.pdf>]
2. Pan American Health Organization. Colorectal Cancer Screening in the Americas: Situation and Challenges. 2016. Available online: <https://www.paho.org/hq/dmdocuments/2016/Colorectal-Cancer-Screening-Landscape-English.pdf>
3. Griffith S, Padmore G, Phillips E, et al. Colorectal cancer demographics in Barbados. *Med Int.* 2021;2:1-4.
4. Cawich SO, Phillips E, Moore S, Ramkissoon S, Padmore G, Griffith S. Colorectal cancer in an Eastern Caribbean nation: are we missing an opportunity for secondary prevention? *Rev Panam Salud Publica.* 2022; 46: e18. <https://doi.org/10.26633/RPSP.2022.18>
5. Reinier GS, Peterse EF, Knudsen AB, et al. Optimizing colorectal cancer screening by race and sex: Microsimulation analysis II to inform the American Cancer Society colorectal cancer screening guideline. *Cancer.* 2018; 124(14): 2974–85.
6. Buskermolen M, Cenin DR, Helsingen LM, et al. Colorectal cancer screening with faecal immunochemical testing, sigmoidoscopy or colonoscopy: a microsimulation modelling study. *BMJ.* 2019; 367: 15383.
7. U.S. Preventive Services Task Force. Colorectal Cancer Screening: Final Recommendation Statement. 2021. [Available online at: <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening>]
8. Wharfe G, Benson AB, Lurie RH, et al. National Comprehensive Cancer Network. NCCN Harmonized Guidelines for the Caribbean: Colorectal Cancer. 2018; 2 [Available at: www.nccn.org/store/login/login.aspx?ReturnURL=https://www.nccn.org/professionals/physician_gls/pdf/colon_harmonized-caribbean.pdf]
9. Cawich SO, Mahabir AH, Arthurs M. Clinical yield of screening colonoscopies in Jamaica. *Trop Doct.* 2022; 52(1): 104-106. doi:10.1177/00494755211039591
10. Bretagnol F, Dedieu A, Zappa M, Guedj N, Ferron M, Panis Y. T4 colorectal cancer: is laparoscopic resection contraindicated? *Colorect Dis.* 2011; 13: 138–3.
11. Kuhry E, Shwenk WF, Gaupset R, Romild U, Bonjer HJ. Long-term results of laparoscopic colorectal cancer resection. *Cochrane Database Syst Rev* 2008: CD003432.
12. Masi G, Vasile E, Loupakis F, et al. Randomized trial of two induction chemotherapy regimens in metastatic colorectal cancer: an updated analysis. *J Natl Cancer Inst.* 2011; 103(1): 21-30.
13. Bonner RM, Ludwig KA. Laparoscopic Colectomy for Colon Cancer: Comparable to Conventional Oncologic Surgery? *Clin Colon Rectal Surg.* 2005; 18(3): 174–181
14. Biondi, A., Grosso, G., Mistretta, A. et al. Laparoscopic vs. open approach for colorectal cancer: evolution over time of minimal invasive surgery. *BMC Surg.* 2013; 13(S2):1-5
15. Huang, YM., Lee, YW., Huang, YJ. et al. Comparison of clinical outcomes between laparoscopic and open surgery for left-sided colon cancer: a nationwide population-based study. *Sci Rep.* 2020; 10: 75-77.
16. Leake PA, Pitzul K, Roberts PO, Plummer JM. Comparative analysis of open and laparoscopic colectomy for malignancy in a developing country. *World J Gastrointest Surg.* 2013; 5(11): 294-299.
17. Plummer JM, Mitchell DIG, Arthurs M, et al. Laparoscopic colectomy for colonic neoplasms in a developing country. *Int J Surg.* 2011; 9(5): 382-5.
18. Cawich SO, Singh Y, Naraynsingh V, Senasi R, Arulampalam T. Freehand-robot-assisted laparoscopic colorectal surgery: Initial experience in the Trinidad and Tobago. *World J Surg Proced.* 2022; 12(1): 1-7
19. Ascanelli S, Navarra G, Tonini G, et al. Early and Late Outcome after Surgery for Colorectal Cancer Elective versus Emergency Surgery. *Tumori J.* 2003; 89(1): 36–41.
20. Redaelli A, Cranor CW, Okano GJ, Reese PR. Screening, prevention and socioeconomic costs associated with the treatment of colorectal cancer. *Pharmacoeconomics.* 2003; 21: 1213-38.
21. Chen TM, Huang YT, Wang GC. Outcome of colon cancer initially presenting as colon perforation and obstruction. *World J Surg Oncol.* 2017; 15: 164.