

# World Journal of *Gastrointestinal Oncology*

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## Colon cancer screening: What to choose?

Martin Alonso Gomez Zuleta

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### Abstract

Colorectal cancer is one of the predominant tumors in the world, primarily generated by a progression from polyp to cancer which can last several years, giving a great opportunity to the scientific community for its prevention by screening programs that can be done with invasive and non-invasive tests. In this issue, Lopes *et al* show us an excellent review of screening, its options, its advantages and disadvantages.

**Key Words:** Colon cancer; Adenoma; Screening; Fecal immunochemical test; Colonoscopy

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**Core Tip:** Colorectal cancer can be prevented in more than 90% of cases, but for this it is very important to have screening programs that detect and treat the disease in time. Although there are multiple tests and probably non-invasive serological tests will be the ones used in the future. Two tests are mainly used on a regular basis in the world: Fecal immunochemical test and colonoscopy and we should focus our attention on them when deciding. In this editorial we will discuss these aspects.

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### INTRODUCTION

Colorectal cancer (CRC) is one of the main causes of morbidity and mortality in the

world[1], according to the global cancer observatory, in 2022 there were 1.9 million cases and in 2045 there will be 3.29 million (<https://gco.iarc.fr/tomorrow/en/dataviz/isotype>). Although since the mid-80s there has been a reduction in incidence and mortality, this trend has changed, especially in people born in the 60s and 70s, where there has been a progressive increase, especially in distal cancer, also in those under 50 years of age; a progressive increase is observed[2]. The most important risk factors are age, with an average of 68 years, smoking, obesity, excessive consumption of alcohol, red meat, and processed foods[3]. Other non-modifiable factors are inflammatory bowel disease, previous radiation, and genetic factors[4,5].

## COLON CANCER SCREENING

Considering that the majority of CRC cases occur through a progression from adenoma to carcinoma which can last 5 to 10 years on average, it offers a perfect opportunity for prevention through screening.

Survival in patients with CRC is directly related to the advancement of the disease from the time of diagnosis. Individuals diagnosed in an advanced stage have a 5-year survival rate of 7%, in contrast, individuals diagnosed in an early stage have a 5-year survival rate of 92%[6,7]. With the screening technologies available (fecal occult blood, colonoscopy, virtual colonoscopy, capsule, serological tests, etc.), CRC is highly preventable in more than 90% of cases[8-10]. But for the test to have a true impact on morbidity and mortality, the test we apply must be effective. In this issue of the journal, Lopes *et al*[11] show us an excellent review of the literature on this important topic in a methodical way that takes us from solid foundations of the disease to the clinic to illustrate to the reader what the screening options are and how we can prevent this terrible disease. The authors show the advantages and disadvantages of each of the prevention methods. Although there are many screening methods, the recent work by Chung *et al*[12] concludes that in an average-risk screening population, the cfDNA blood-based test had 83% sensitivity for CRC, and 90% specificity for advanced neoplasia, this test is the future in screening tests given the simplicity of taking the test and its adherence. But the reality in clinical practice is that only two tests compete for screening: The fecal immunochemical test (FIT) and colonoscopy. Each one has advantages and disadvantages, the first has in its favor that it is a simple test, does not require preparation, is non-invasive and economical, but has its disadvantages of low sensitivity (70%) for colon cancer and much more so for detection of polyps, in addition, when it is positive, the patient must be sent for colonoscopy, which is why it is considered a two-step examination[13]. Furthermore, the FIT has minimal sensitivity for sessile serrated lesions, which represent 15% to 25% of CRC[14]. In our opinion, the best screening test is colonoscopy since many studies conclude that it is cost-effective in a medium-risk population (population without family history and without a medical history that shows predisposition)[15]. In the general population, the risk of cancer is 5%-6%, and this incidence increases substantially after the age of 50, so this population is considered to be of medium risk and is the one in which a screening program should be started[16].

With colonoscopy we will not only detect cancer but also adenomas, which, as the work of Lopes *et al*[11] shows us, is the primary source of this tumor. Among the main disadvantages of colonoscopy is that it is an invasive examination (therefore not free of complications) and usually requires sedation. However, the main barrier for patients, which screening studies have shown[17] is the preparation that must be done for the exam, which is why it is essential to improve this point so that we have solid screening programs in the world. This can be mitigated by the preference for low-volume preparations and divided doses, which has been demonstrated to improve patient adherence and adenoma detection rate, which is the fundamental point in this examination[18].

Likewise, it is important to mention that a good preparation is one that allows polyps greater than 5 mm in diameter to be detected; poorly prepared patients are correlated with lower detection of polyps[19]. A meta-analysis of 27 studies found that inadequate bowel preparation for CRC screening by colonoscopy reduced the detection of small adenomas by 47% [Odds ratio (OR): 0.53, 95% confidence interval (95%CI): 0.46-0.62;  $P < 0.001$ ] vs to a suitable one. This relationship was weaker but still significant for advanced adenomas (OR: 0.74)[20] Additionally, poor preparation increases the need to repeat examinations at shorter intervals and worsens patient satisfaction with the examination[21]. Colonoscopy is then the study that allows us to detect colon cancer and precursor lesions in time, in addition to giving real-time treatment to these patients since if a polyp or lesion is detected in an early stage, we can resect them during the same examination[22].

We cannot fail to mention the NORDICC study[23] that raised so many doubts about the usefulness of colonoscopy in reducing mortality from CRC. This study, although without the strength of association of other studies, showed that the detection of CRC was much higher, almost 20% with a risk reduction of 0.82 in favor of invitation colonoscopy, which it must be understood is a colonoscopy in people of at risk age and without a diagnosis of cancer, but not as a screening colonoscopy since the people invited could have a history that the study was not aware of as well as clinical symptoms or manifestations that could be considered signs of alarm that would rule out screening and return it to detection. Additionally, this allowed the population that was not invited to the colonoscopy to request more frequent evaluations or studies more focused on cancer risk. Furthermore, the work was designed to show results at 15 years of follow-up and not at 10 years as reported, participating physicians had a lower adenoma detection rate than the ideal average (28.6% had an adenoma detection rate < 25%), in addition, the cecal intubation rate was less than 95% in 17% of the endoscopists, which is unacceptable for a screening program.

For these reasons, the impact of screening colonoscopy on CRC incidence and mortality may be greater than that identified by the NordICC trial, although the mortality rate was only 10% in the entire group that was invited to participate, this was 50% in the group that truly participated in the screening.

However, this work has raised the question of whether screening is done with colonoscopy or with FIT, but we know that many doctors, gastroenterologists and even patients already understand the performance of the two tests and probably, as in our case, prefer colonoscopy and not a stool test (FIT) that misses one in five tumors, two in three advanced adenomas and almost all serrated polyps[14].

## CONCLUSION

Finally, we believe that despite the NORDicc study, the scientific community has been critical and sensible in guiding efforts to continue using the best and most decisive colon cancer screening study: Colonoscopy and the implementation of true screening programs.

## FOOTNOTES

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