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Commentaries

Colorectal Cancer in Latin America: Quick Comment

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INTRODUCTION

Within the framework of Colorectal Cancer Awareness Month, much attention is given to a cancer that is potentially preventable. But what is the status of gastrointestinal cancers in Latin America (LATAM), specifically colorectal cancer?

Meanwhile, real-world Latin American oncologists focus their primary efforts on breaking barriers to access cost-effective therapies for our population, and patients navigate the long and complex journey to reach cancer care centers. Considering that LATAM includes a large number of countries with heterogeneous populations and health systems, we made efforts to summarize the available literature data in terms of epidemiology, risk factors, type and nature of symptoms, development stages, available test and treatments of colorectal cancer with a bibliographic search conducted in the PubMed/MEDLINE, Google Scholar databases from 2014-2024.

EPIDEMIOLOGY IN LATIN AMERICA

In Latin America, cancer incidence and mortality have been rising over the past decade. Colorectal cancer (CRC) ranks third in incidence and second in mortality in the region, according to the Global Cancer Observatory 2022[1]. In Mexico, for example, it is the leading cause of cancer-related death.[2] But even more, CRC is the second-most common malignant neoplasm among Latinos in the United States.

The population in Latin America and the Caribbean (LAC) has doubled in the past fifty years. Combined with increased life expectancy and other contributing factors, this has led to an exponential rise in cancer incidence. As Piñeros et al.[3] highlighted, colorectal cancer incidence is increasing, especially in low-income countries, while in the United States, mortality rates are decreasing significantly for both sexes. Specifically related to CRC in LATAM, it is predicted to increase by 60% by 2030. In contrast, global projections to 2035 predict a decrease in colorectal cancer mortality in high-income countries, particularly in Northern and Western Europe[4]. However, between 1990 and 2019, age-adjusted colorectal cancer mortality in Latin America rose by 20.56%[5]. These trends vary greatly between countries, reflecting healthcare inequalities that remain a major contributor to cancer-related mortality in the region.

A significant difference in cancer presentation is also observed. In high-income countries,

approximately 71% of patients are diagnosed at early or locally advanced stages with curative intent as the main objective of treatment[6]. By contrast, in Mexico, 60% of cancers. Colon cancer is among the top five cancers that are diagnosed at advanced stages[7], where treatment is so complex and expensive, contributing to higher mortality.

OPPORTUNITIES AND BARRIERS IN LATIN AMERICA

After receiving a diagnosis of colorectal cancer, patients face additional challenges related to treatment chronicity, cost, and access. Randomized clinical trials have shown survival benefits with the addition of targeted biologics to chemotherapy in metastatic colorectal cancer (mCRC), based on diagnostic, predictive, or prognostic markers[8]. According to literature mutations in KRAS are present in ~40% of CRC cases (G12C in ~3%)[9], BRAF mutations in ~10% (95% are V600E)[10], HER2 amplification in ~6%[11], and dMMR/MSI-H in 10–20% of CRCs but only ~3.5% of mCRCs[12]. But even the cornerstone of systemic therapy is fluoropyrimidine-based chemotherapy in combination with oxaliplatin and/or irinotecan, with or without anti-VEGF or anti-EGFR monoclonal antibodies, and nowadays the immunotherapy, was it is evident is that neither health infrastructure nor access to health care for all cancer patients is available in LATAM due to the fragmented and complex health systems in the region[13].

Without doubt, LATAM countries are making various efforts trying to change the prognosis of mCRC patients; to cite just a few, they have established consensus guidelines from Central America and the Caribbean that emphasize additional approaches for oligometastatic disease, such as synchronous liver and lung metastases, and in parallel others have shown the impact on overall survival and quality of life of a good selection therapy, even amid the limitations of the region[14],[15].

As previously mentioned, systemic therapy for chemo-refractory mCRC remains an unmet need in LATAM. Despite significant advances in cancer therapeutics, access to standard-of-care treatments continues to be uneven across the region. One potential strategy to address this gap is through the increased participation of Latin American patients in clinical trials. However, in recent years, only 3.64% of oncology clinical trials have been conducted in LATAM[16], with even lower representation in early-phase studies. Disparities are especially evident in tumor types such as prostate, thyroid, cervical, leukemia, and colorectal cancers. While countries like Argentina and Mexico demonstrate relatively higher trial participation, others, such as Brazil, remain underrepresented in proportion to their cancer burden. Multiple factors contribute to this situation, among which the variability in clinical trial approval timelines plays a key role, ranging from 2.8 to 9 months depending on the country[16].

Real-world evidence is increasingly important in oncology, as it complements clinical trial data by reflecting how treatments perform in everyday clinical settings. It includes diverse patient populations and helps inform regulatory decisions, improve access to therapies, and address healthcare disparities, especially relevant in regions like Latin America. In Brazil, most mCRC patients are treated by re-exposing them to prior regimens (85% in third-line, 71% in fourth-line), and in fewer cases, regorafenib is used[17]. In contrast, real-world data from Argentina, involving BRAF V600E-mCRC patients, revealed significant variability in treatment and limited access to targeted therapies[18].

What is the status of biomarkers in colorectal cancer? In several Latin American countries, there is trained personnel and infrastructure in place for the analysis of key genes involved in the management of colorectal cancer. However, one of the main challenges is the high cost of laboratory reagents, which must often be imported from the United States or Europe. Additionally, the limited availability of targeted therapies may contribute to low demand for molecular testing among healthcare providers, which can further increase the cost per test. Nonetheless, access has improved in recent years, partly due to support from pharmaceutical companies, leading to a noticeable increase in the use of RAS, BRAF, and MSI testing[19]. Regarding next-generation sequencing (NGS), or circulating tumor DNA (ctDNA), the costs in Latin America can be up to ten times higher than those in high-income countries. In this context, and to address this situation, specifically in Mexico, the Instituto Nacional de Cancerología is establishing the

National Genotyping Center for Cancer, aiming to identify both somatic and germline alterations across various tumor types.

On the other hand, an even greater challenge lies in the considerable ethnic diversity across Latin America, which adds complexity on multiple levels, not only in terms of treatment response but also about pharmacogenetics. For instance, while dihydropyrimidine dehydrogenase deficiency (DPYD) testing is mandatory in many European countries, in Latin America it remains optional. Moreover, most commercially available DPYD tests are based on single-nucleotide polymorphisms (SNPs) identified in Caucasian populations. As a result, screening for dihydropyrimidine dehydrogenase deficiency and associated DPYD variants is not a "one-size-fits-all" approach. It is essential to account for ethnic ancestry and the genetic diversity that influences both DPD activity and the prevalence of pathogenic DPYD variants in non-Caucasian populations[20].

Another major challenge in Latin America (LATAM) is the implementation and sustainability of colorectal cancer (CRC) screening programs. A recently published systematic review and meta-analysis, which included 17 studies conducted in upper-middle- and high-income countries in the region, reported a pooled participation rate of 85.8% in fecal immunochemical test (FIT)-based screening programs[21]. In contrast, a qualitative study conducted in a low-income urban community in Mexico City identified multiple barriers to CRC screening. These included limited public awareness, fear of a cancer diagnosis, logistical difficulties, and insufficient training among healthcare providers[22]. What we have learned is that successful screening programs must incorporate strategies such as providing free or low-cost testing, training primary care personnel, and delivering culturally sensitive education that avoids fear-based messaging. Education remains a cornerstone for improving participation and outcomes in CRC screening across LATAM.

Given all this information, we can highlight a practical point of view to make efforts and improve outcomes for patients with CRC. Suggesting as a priority to allocate resources for colorectal cancer screening programs, raise awareness about colorectal cancer, its risk factors, and the importance of screening, and identify and collaborate with community organizations. Table 1 summarizes the key points of the current scenario in Latin America.

Table 1. Current scenario in Latin America.

Country	Incidence per 100.000 (GLOBOCAN 2022)[23]	Mortality per 10,000 (GLOBOCAN 2022)[23]	Stage at diagnosis
Uruguay[24]	21	11.2	54% stage IV
Puerto Rico[25]	19.5	10.1	15.4% stage IV
Argentina[5]	19	10.4	22% stage IV
Paraguay[26]	16.3	7.2	30% stage IV
Cuba[27]	15.2	9.4	27.3% stage IV
Chile[28]	15.2	9.4	Estimated 23% stage IV
Colombia[29]	11.2	5.8	Estimated 22.1% stage IV
Panama[30]	10.9	5.0	Estimated 22% stage IV
Brazil[31]	10.9	5.7	27.7% stage IV
Costa Rica[32]	9.5	6.3	18.9% stage IV
Peru[33]	8.6	4.4	9.1% stage IV
Ecuador[34]	8.6	4.4	35% stage IV
Mexico[35]	8.1	4.4	33% stage IV

CONCLUSIONS

Colorectal cancer is a growing public health concern in Latin America, marked by rising incidence, late-stage diagnoses, and limited access to standard treatments. Despite having trained personnel and diagnostic infrastructure, high costs and fragmented healthcare systems hinder widespread use of molecular testing and targeted therapies. Real-world evidence highlights disparities in treatment patterns and access across countries. Participation in clinical trials remains low, particularly in early-phase studies, further limiting therapeutic options. Ethnic diversity adds complexity not only to treatment responses but also regarding testing, underscoring the need for tailored approaches. Strengthening health systems, improving biomarker access, and fostering inclusion in clinical research are urgent priorities. Targeted regional strategies are essential to address these gaps and improve outcomes in the mCRC in the LATAM region.

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