Frequency of intestinal microeukaryotes in patients undergoing screening colonoscopy for colorectal cancer

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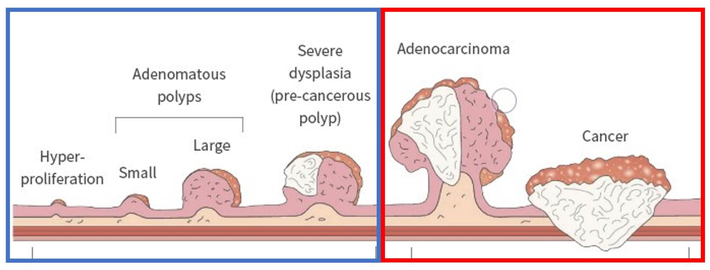
INTRODUCTION

The International Agency for Research on Cancer (IARC) has estimated that 16% of cancer worldwide is caused by infectious factors, including parasites [1]. Colorectal cancer (CRC) is one of the most common neoplasms in humans and intestinal microeukaryotes (ME) like *Cryptosporidium* spp. or *Blastocystis* sp. has been proposed as potential cancer risk factors [2].

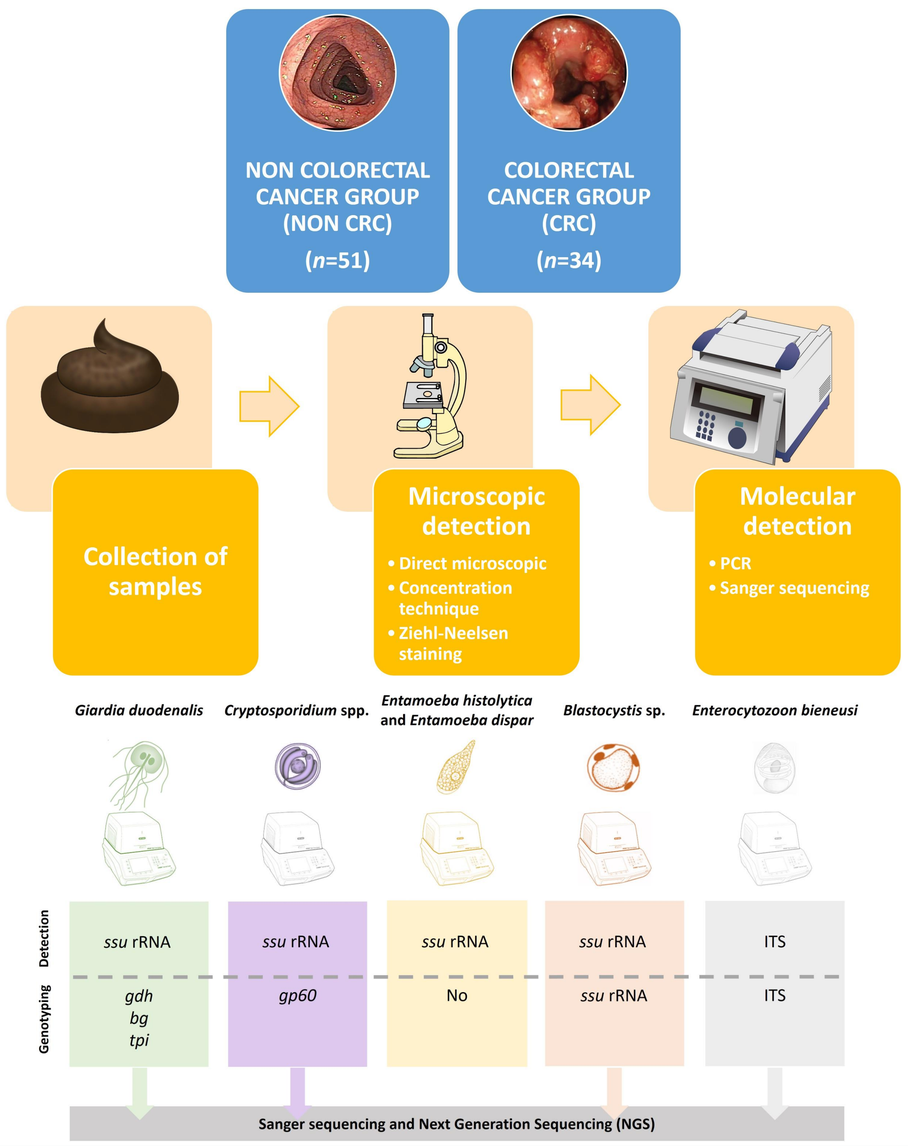
Blastocystis sp. is one of the most common ME in humans with a prevalence of up to 50% in developing countries like Colombia. Recent studies have highlighted the substantial role of *Blastocystis* and its genetic diversity in CRC [3].



OBJECTIVE

This ongoing study provides preliminary data on the potential associations among intestinal microeukaryotes including *Blastocystis* sp. and an increased risk of developing CRC in Colombian patients.

MATERIALS AND METHODS



RESULTS

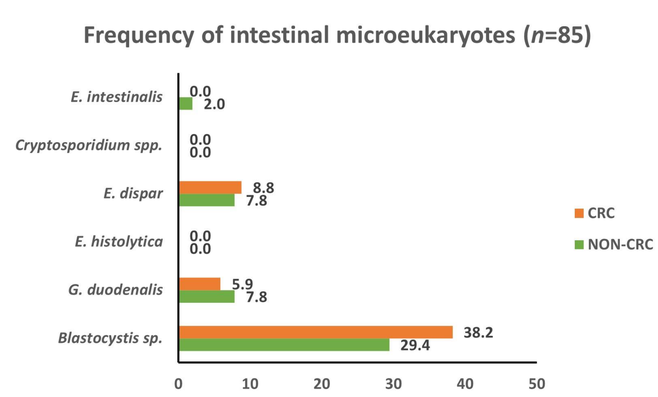


Fig. 1: Frequency of intestinal ME by microscopy and/or PCR in CCR and non-CCR patient cohorts.

	Sub-assemblage/ Subtype	NO CRC	CRC
Giardia duodenalis	BIV	25.0% (1/4)	–
	Mixed	–	50.0% (1/2)
Blastocystis sp.	ST1	20.0% (3/15)	7.7% (1/13)
	ST2	13.3% (2/15)	–
	ST3	33.3% (5/15)	53.8% (7/13)
	ST6	–	7.7% (1/13)
	ST7	6.7% (1/15)	–
	ST17*	6.7% (1/15)	–
	Mixed	20.0% (3/15)	30.8% (4/13)

* First report in human population.

Table 1: Frequency of molecular diversity of *G. duodenalis* and *Blastocystis* sp. in CCR and non-CCR patient cohorts.

CONCLUSIONS

Although still preliminary, *Blastocystis* infection was higher in CRC patients (38.2%) than in non-CRC patients (29.4%).

Pathogenicity of *Blastocystis* remains disputable; this study suggest that infection by *Blastocystis* ST3 may be a risk factor for CRC development. This result is in line with those obtained in previous surveys showing the predominance of ST3 in CRC patients [4].

Novel technologies like NGS may help unraveling the role of mixed *Blastocystis* infections involving two or more STs in chronic gastrointestinal illnesses.

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ACKNOWLEDGEMENTS

Ms. Hernández-Castro was recipient of a pre-doctoral fellowship funded by the Carolina Foundation and University of Antioquia (Colombia). This research was funded by the Health Institute Carlos III (ISCIII), Ministry of Economy and Competitiveness (Spain), under projects PI16CIII/00024.