

High Incidence of Early Onset Colorectal cancer in Ethiopia: Clinical and Therapeutic Evaluation with Genetic Mutational Analysis



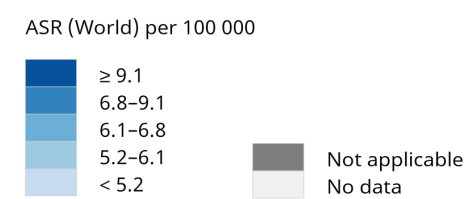
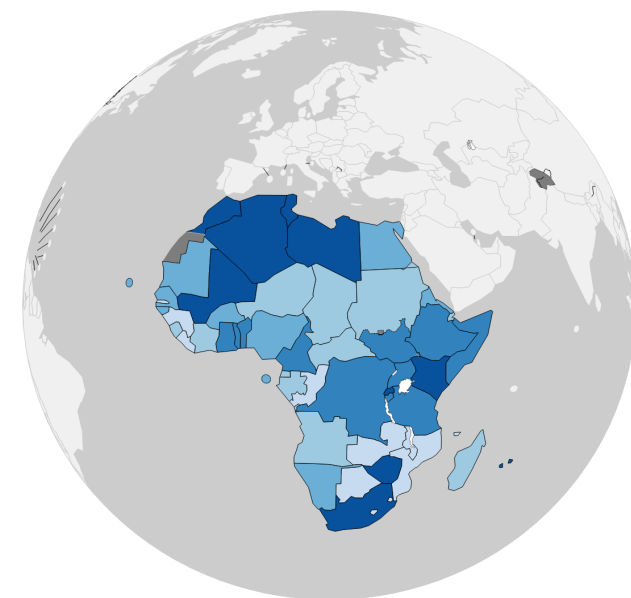
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INTRODUCTION

Colon cancer has been reported to occur early in certain African regions, but the understanding of the genetic modifications leading to early disease is incomplete. Here we present a study cases of early colon cancer and genetic modifications leading to these tumors in Ethiopia

Estimated age-standardized incidence rates (World) in 2018, Colorectum, both sexes, all ages



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Data source: GLOBOCAN 2018
Graph production: IARC
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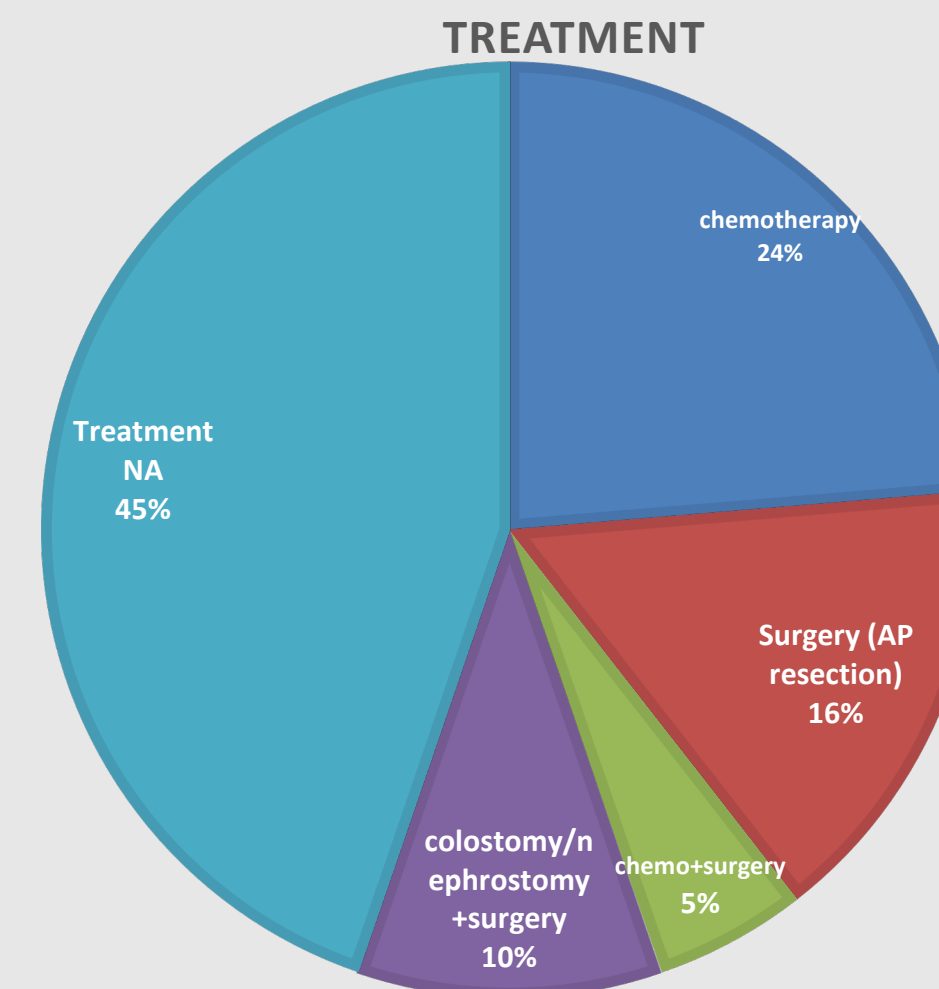
METHODS

- We evaluated all colon masses detected between 2015 and 2018 at Black Lion Hospital, Addis Ababa. Clinical, endoscopic and pathology descriptions were assessed for all cases 30 year-old or younger.
- None of the cases reported a family history of colon cancer or had evidence of inflammatory bowel disease (IBD).
- Subsets of pathology block-tissues were evaluated for genetic modifications via Multiplex Ligation-dependent Probe Amplification.

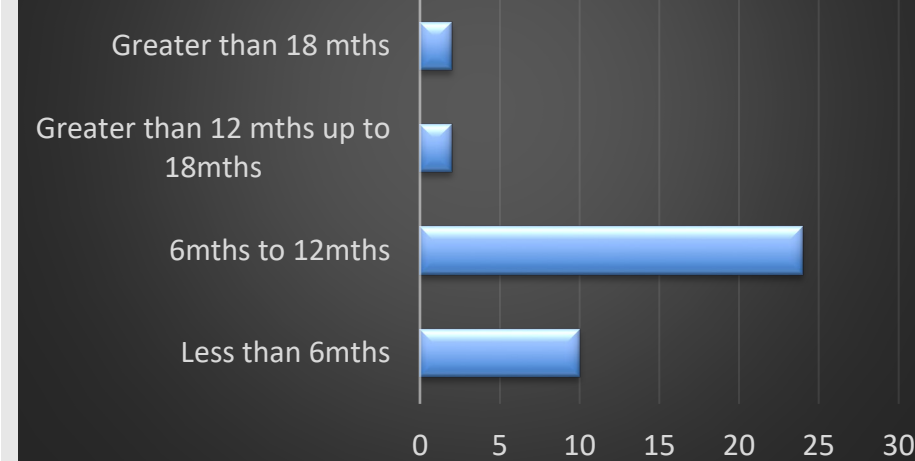
RESULTS

Variable	Frequency (%)
Men	19 (50%)
Women	19 (50%)
Location	
Urban	8 (21%)
Rural	30 (79%)
Symptoms	
Rectal bleed	25 (65.7%)
LBO	1 (2.6%)
Constipation	9 (23.8%)
Abdominal mass	2 (5.3%)
Anemic symptoms	1 (2.6%)
Histology	
Adenocarcinoma	37 (97.4%)
Signet Ring	1 (2.6%)
Metastasis	
No Metastasis	12 (31.6%)
Local Mets	14 (36.9%)
Distant Mets	9 (23.7%)
No data	3 (7.9%)

- A total of 38 cases of colon cancer ages 30 or earlier were identified.
- These represented 13% of all cases of colon cancer in the 3-year period.
- The median age was 27 years (IQR 27-30).



Duration of symptoms of Colorectal cancer at presentation



- Longer duration of symptoms correlated with the presence of metastasis on diagnosis (p=0.035).
- Surgery (23%) and chemotherapy (15%) were the most frequently used treatments.

RESULTS

We performed genetic analysis of biopsy tissue in a subset of 3 individuals via Multiplex Ligation-dependent Probe Amplification

	APC	K-RAS	BRAF	MSH2	MLH1
21y/o M	↓	↑	V600f mutation	↓	↓
21y/o F	Exon 4 duplication	↓	X	↓	X
30 y/o F	↓	↓	↓	↓	↓

DISCUSSION

- We report a high incidence of early colon cancer in Ethiopia with no family history or IBD.
- Early-onset CRC contributes to the significant morbidity, mortality and overall healthcare burden of CRC in low-resource countries. Further research is needed to determine if the understanding of these epigenetic variables would influence the diagnosis and management of CRC in Sub-Saharan Africa.

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