Original Research Article

Epidemiological profile of gastrointestinal cancers in Douala, Littoral Region of Cameroon: a hospital-based retrospective study, 2016 – 2020.

ABSTRACT

Aim: Cancer is a real public health problem in the world, especially the so-called gastrointestinal cancers. In Cameroon, epidemiological data on these types of cancers are still poorly known. The aim is to study the epidemiological profile of gastrointestinal cancers in the metropolitan city of Douala.

Methodology: This was a retrospective study conducted at the General and Laquintinie Hospital of Douala over a period of 5 years (2016-2020), where patients with cancers of the gastrointestinal tract were recruited from the records available in the oncology and gastroenterology departments. Sociodemographic, clinical and toxicological information of patients was recorded and analyzed using SPSS version 26.0. The significance level was set at P-value <0.05 for statistical tests.

Results: During the study period, 479 cases of gastrointestinal cancers were registered. For a sex ratio of 1.20 in favor of the male sex. The most affected age groups were 50-60 (27.8%) and 60-70 (27.3%), 40-50 (13.8%) and 30-40 (13.3%); 54.7 % of the cases were from West Cameroon. The different types of cancers regularly encountered colorectal (36.54 %), liver (25, 26 %) stomach (15, 24%), pancreas (12, 53%). Medical history such as epigastralgia, hepatitis viral infections, high blood pressure and consumption of phytotherapeutic products were encountered in many cases of cancer.

Conclusion: Gastrointestinal cancers are a reality in Cameroon, especially in the city of Douala and mainly affect the population over 30 years old. The knowledge of risk factors by the population would be a real asset in the fight against these cancers.

Keywords: Epidemiological profile, gastro-intestinal cancers, retrospective, Douala.

INTRODUCTION

Cancer is one of the leading cause of death worldwide [1]. Gastrointestinal cancer (GIC) is a generic term encompassing cancers of the colon, rectum, stomach and oesophagus, alongside other gastro-intestinal tract-associated organs including the pancreas, liver, gallbladder and bile ducts [2, 3]. These cancers affect body surfaces covered by the most rapidly renewing epithelium in the body, and cumulatively account for about half of all cancer-related deaths worldwide.

Gastrointestinal cancers are complex and multifactorial diseases; with poor survival rates for such GIC patients, due to late diagnosis at advanced stages in health facilities, as well as complications from the type of GIC. Several factors have been identified to increase the risk of GIC, and these include mainly infections, smoking, dietary (e.g., high intake of salty foods, preserved meat and alcohol, and low citrus fruits consumption), genetic and even hormonal factors [3]. Liver cancer, mainly caused by infections with hepatitis B and C viruses, is ranked 6th most common cancer and 2nd largest cause of cancer-related deaths in the world [4], [5]. Pancreas cancer is a lethal malignant neoplasm largely prevalent in developed countries, where it is an important cause of cancer mortality [6], [7]. Oesophageal cancer is the 8th most common cancer type and sixth leading cause of cancer deaths worldwide, with its main risk factors being low socioeconomic status, consumption of tobacco, alcohol, hot beverages, nitrosamines, and micronutrient deficiencies [8]. Colorectal cancer is the cancer most frequently associated with inflammatory bowel diseases [9].

In Africa and Europe, data on digestive cancers are somewhat disparate. In Cameroon, epidemiological data on digestive cancers are lacking due to the absence of a national cancer register. In this line, it is crucial to produce data on the epidemiology of these cancers, so as to determine their frequency and proportions, characterize their evolutionary trends, identify at-risk groups, and develop etiological hypotheses. To efficiently achieve these objectives in future, the present study was designed and conducted to determine the epidemiological

patterns of GIC cases diagnosed and treated between 2016 and 2020 in reference hospitals in Douala, metropolitan city of Cameroon.

METHODS

Study site

This study was carried out at the gastroenterology and oncology units of the Douala General Hospital and Laquintinie Hospital. The Douala General Hospital (DGH), located in the Beedi neighbourhood, is one of the five first-class hospitals in Cameroon. It has a 630-bed capacity and offers a wide range of services including internal medicine, rheumatology, cardiology, neurology, endocrinology-diabetology, oncology, gastroenterology and many more.

The Laquintinie Hospital Douala (LHD) is a 2nd category reference hospital built on over 9 hectares in the heart of Douala. Its mission is to provide high-quality medical and medico-surgical care, as well as respond to major events (sporting, natural disasters, epidemics), via a variety of working units from intensive care, infectiology, oncology, emergency, gastroenterology to clinical laboratory.

These two hospitals possess within them intensive oncology care units that deal with almost all cancer-linked pathologies.

Study design

A retrospective cross-sectional hospital-based observational study spread over a period of 5 years (January 2016 - December 2020).

Eligibility criteria

All gastrointestinal cancer diagnoses confirmed by a histopathologist and/or a gastroenterologist (histologically) were retained. Conversely, we excluded from this study all other cancer types different from cancers of the gastrointestinal tract (such as digestive tumours and borderline cancers as well as cases of intraepithelial neoplasms).

Study population

The study population comprised of all patients admitted at the DGH and LHD for management of any gastrointestinal tract cancer. These participants were identified from review of patients' records, at the hepato-gastroenterology and oncology departments of the

two above-mentioned hospitals, and selected upon confirmation of the presence of carcinoma of the gastrointestinal tract (GIT).

Recruitment plan and studied variables

We consulted all the medical records of patients admitted to the gastroenterology and oncology units from 2016 to 2020. Only those with cancers of the gastrointestinal tract were recorded.

All epidemiological data available in the medical records of our patients were collected. These comprised of sociodemographic information (gender, age, ethnicity, marital status, occupation, BMI), clinical and toxicological data (Gastrointestinal cancer type, grade and stage; HIV and Hepatitis serology; Alcohol and Tobacco consumption), as well as any personal/family medical history.

Ethical Considerations

This study protocol was ethically approved by the Institutional Ethics Committee for Research on Human Health of the University of Douala (authorization n° 2879CEI-UDo/07/2021/T). In addition, administrative research authorizations were issued by the Douala General Hospital (n° 255AR/MINSANTE/HGD/DM/10/2020) and the Laquintinie Hospital Douala (n° 0317/AR/MINSANTE/DHL/CM).

Statistical Analysis

Data were entered, verified for consistency and encoded in an Excel spreadsheet (Microsoft Office, 2010, USA) and then analysed using SPSS (Statistical Package for Social Sciences) software version 26.0 for Windows (IBM, USA). Data were presented as percentages and mean ± standard deviation (SD). Goodness-of-fit Pearson's Chi-square test and Fisher's exact test were used to compare the percentages and assess outcomes. The significance level was set at P-value < 0.05.

RESULTS

Sociodemographic Characteristics of Patients

During the study period (2016 – 2020), 479 incident gastrointestinal cancer cases were recorded in the different departments chosen for the study. The average age was 54.4 ± 13.58 with a sex ratio of 1.20 in favor of male of all enlisted patients for a study. The [60 – 70]

(27.8%) and [50 – 60] (27.3%) age groups were the most represented, followed by [30 – 40] (13.8%) and [40 – 50] (13.6%).

A greater proportion of patients were married (77 %), (Table 1).

Table 1. Sociodemographic characteristics of the study population.

Variables	Frequency	Percentage (%)
Gender		
Female	218	45.5
Male	261	54.5
Age (years)		
[10 – 20[	2	0.4
[20 – 30[	25	5.2
[30 – 40[	66	13.8
[40 – 50[	65	13.6
[50 – 60[	131	27.3
[60 – 70[	133	27.8
[70 – 80[	48	10.0
[80 – 90[	9	1.9
Marital status		
Single	101	21.1
Married+ widowed	569	77
Divorced	9	1.9
Region of Origin		
Adamawa	4	0.8
Centre	30	6.3
East	4	0.8
Extreme-North	3	0.6
Littoral	110	23.0
North	9	1.9
North-West	19	4.0
West	262	54.7
South	8	1.7
South-West	25	5.2
Foreigner	5	1.0
Total	479	100.0

Evolution of Cancer Cases Diagnosis with Time

As shown in figure 1, a smooth increase in the yearly proportion of gastrointestinal cancer cases was observed with time. Despite the drop in the frequency of cases noted in 2017 (52 cases; 10.9%), peak incidence (99 cases; 20.7%) was seen in 2018. The frequency then slowly dropped till 2020.

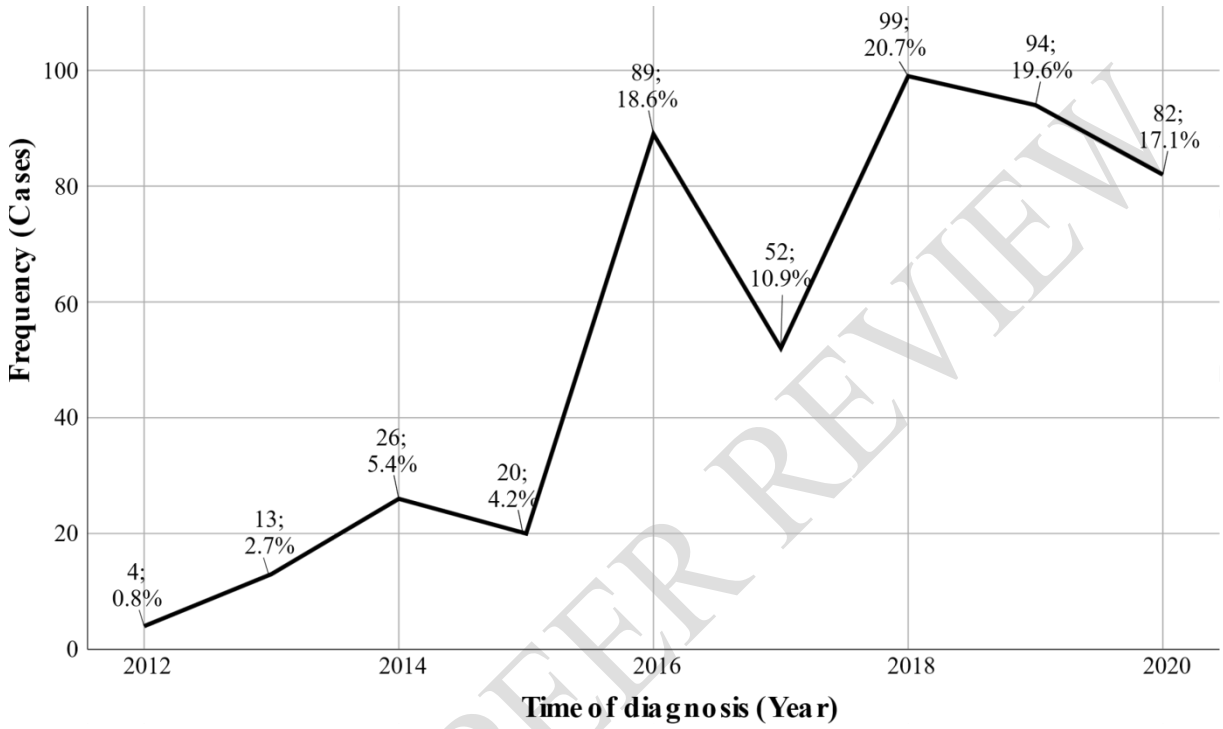

Figure 1. Frequency of gastrointestinal cancer cases diagnosed over time.

General Epidemiological Profile of Encountered Gastro-intestinal Cancers

Colorectal* cancer was the most diagnosed in the study population (36.54 %), follow by Liver cancer (25.3%), Intestinal cancer was the least common within the study population (2.3%) (Figure 2). Were termed “unspecified” all cancers originating from the GIT with no exact specification on the affected organ/tissues.

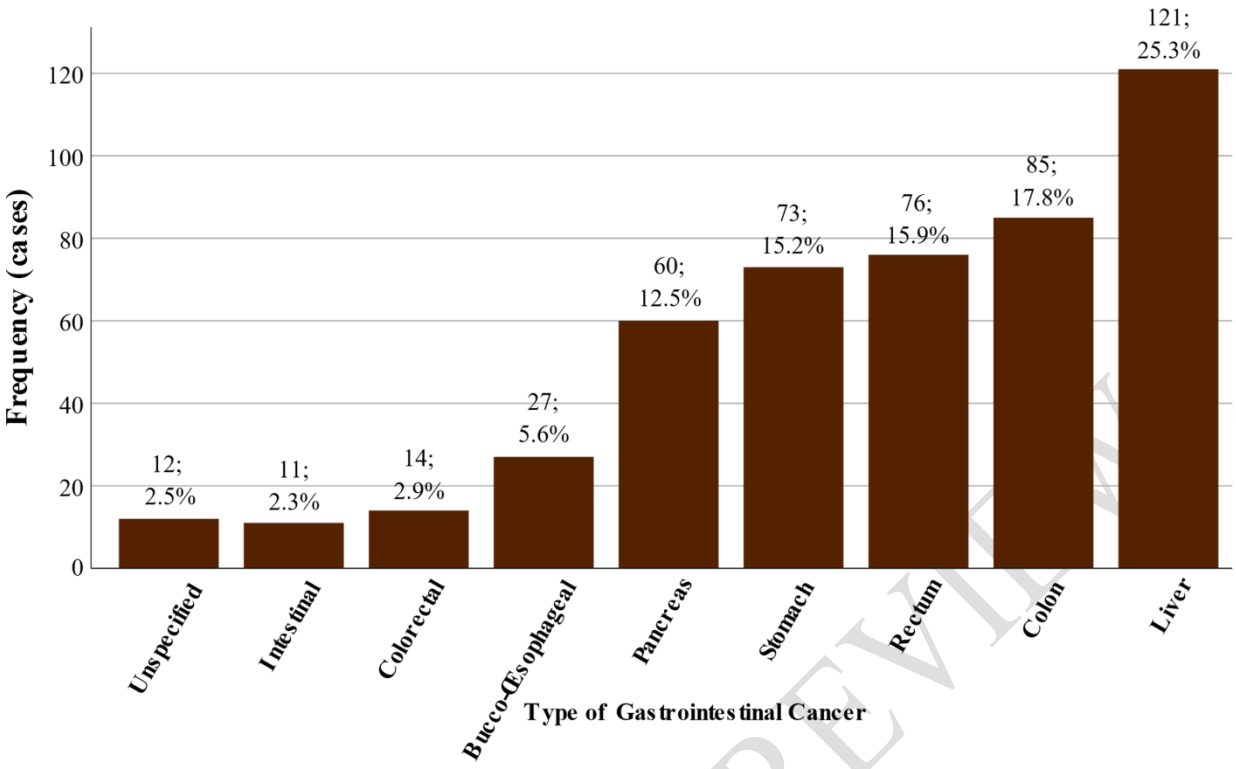

Figure 2. Different localisation of gastrointestinal cancers identified.

Percentages presented on each bar were computed from the cases count on the y-axis.

Colorectal * = Rectum + Colon + Colorectal.

Cancer Distribution According to Gender

For almost all cancer types, there was a greater dominance of cancer occurrence in males than females. Pancreatic, rectal and stomach cancers, however, appeared to be more prevalent in women than in men (Figure 3). A weak statistically significant association (*P*-value = 0.016; Phi = 0.198) was noted between the type of gastrointestinal cancer identified and gender.

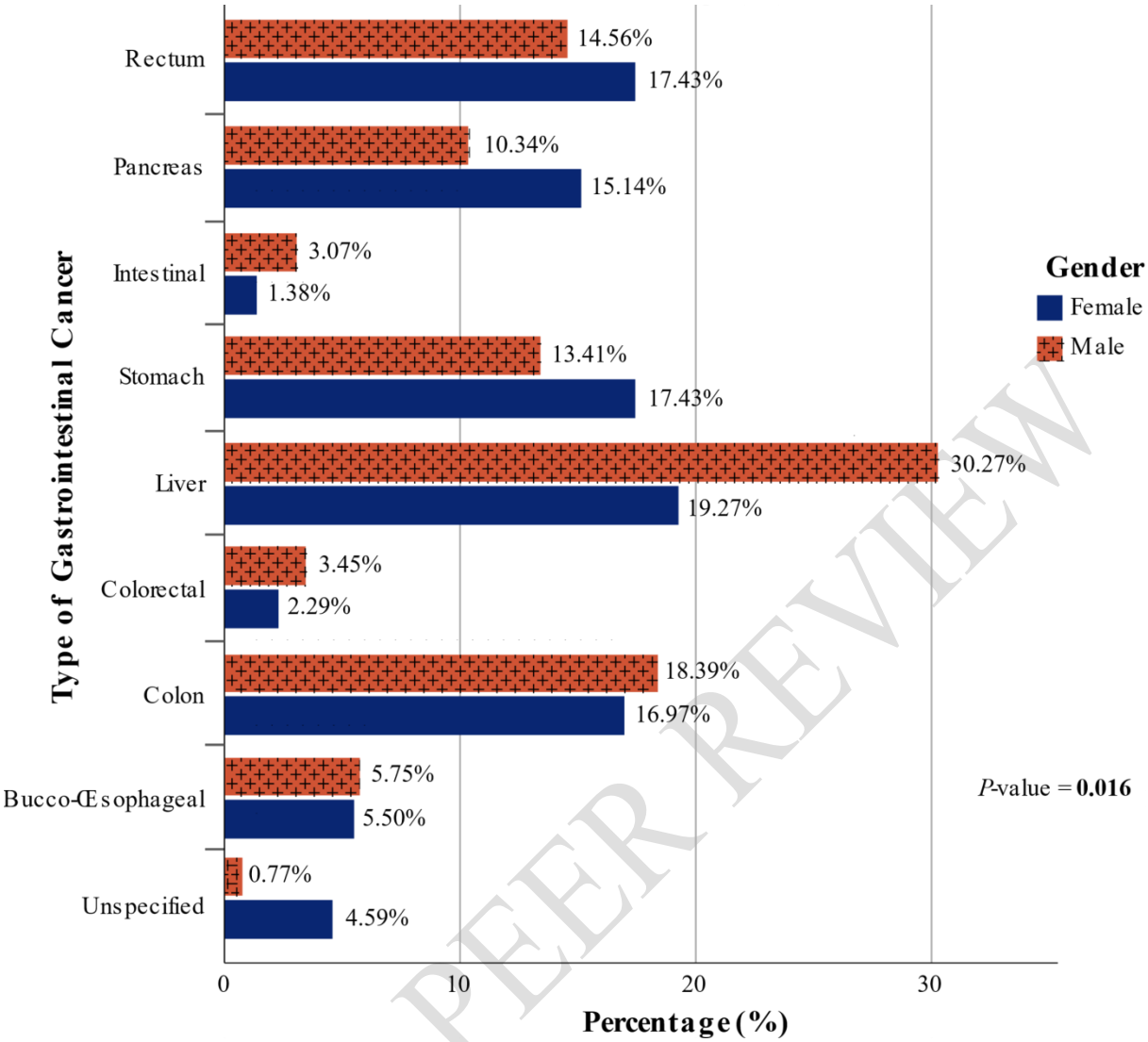

Figure 3. Digestive cancers distribution profile with respect to gender.

Pearson's Chi-square test of independence was used to compare percentages of outcomes. Statistical significance was set at *P*-value < 0.05.

We considered that Colorectal = Rectum+ Colon+ colorectal.

Distribution Profile of Cancers Stratified by Gender and Age

- **Males**

Cancers distribution in males shows a complete absence of male individuals aged between 10 and 20 years presenting any gastrointestinal cancer. Males aged between 50 – 60 years and 60 – 70 years were the most represented in the study population (29.5% and 29.1% respectively) matching the high proportion of cancer cases within these groups (Table 2). There was a statistically significant association with moderate effect size (*P*-value = 0.004; Phi = 0.515)

between the distribution of cancer types in various age groups amongst males, with liver cancer (30.3%) being the most frequently encountered especially within the 50 – 60 and 60 – 70 age groups (19 cases respectively). The greatest majority of patients with stomach cancer (54.3%) were in the 50 – 60 age group, and those presenting with colon cancer were mostly aged between 50 – 60 years (35.4%) and 60 – 70 years (31.3%). Colorectal and intestinal cancers appear to be the least frequently encountered cancers (~3%) in this study group.

Table 2. Cancer distribution amongst men with respect to age.

Age groups (years)	Types of gastrointestinal cancer									Total (%)	*P*-value
	Rectum *n* (%)	Pancreas *n* (%)	Intestinal *n* (%)	Stomach *n* (%)	Liver *n* (%)	Colorectal *n* (%)	Colon *n* (%)	BO *n* (%)	Unspecified *n* (%)		
[10-20[	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
[20-30[	4 (10.5)	1 (3.7)	1 (12.5)	1 (2.9)	3 (3.8)	0 (0.0)	0 (0.0)	1 (6.7)	0 (0.0)	11 (4.2)	
[30-40[	8 (21.1)	0 (0.0)	1 (12.5)	0 (0.0)	16 (20.3)	1 (11.1)	5 (10.4)	1 (6.7)	1 (50.0)	33 (12.6)	
[40-50[	6 (15.8)	4 (14.8)	0 (0.0)	2 (5.7)	14 (17.7)	2 (22.2)	7 (14.6)	2 (13.3)	0 (0.0)	37 (14.2)	
[50-60[	7 (18.4)	6 (22.2)	1 (12.5)	19 (54.3)	19 (24.1)	3 (33.3)	17 (35.4)	5 (33.3)	0 (0.0)	77 (29.5)	**0.004**
[60-70[	6 (15.8)	12 (44.4)	5 (62.5)	12 (34.3)	19 (24.1)	1 (11.1)	15 (31.3)	6 (40.0)	0 (0.0)	76 (29.1)	
[70-80[	6 (15.8)	4 (14.8)	0 (0.0)	1 (2.9)	6 (7.6)	2 (22.2)	2 (4.2)	0 (0.0)	1 (50.0)	22 (8.4)	
[80-90[	1 (2.6)	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.5)	0 (0.0)	2 (4.2)	0 (0.0)	0 (0.0)	5 (1.9)	
Total (%)	38 (14.6)	27 (10.3)	8 (3.1)	35 (13.4)	79 (30.3)	9 (3.4)	48 (18.4)	15 (5.7)	2 (0.8)	261 (100.0)	

n = Frequency; BO = Bucco-Œsophageal.
Percentages computed within each column.
Pearson Chi-square test was used to compare percentages.
Statistical significance set at *P*-value below 0.05.

- **Females**

The distribution pattern of cancers within females shows the predominance of liver cancer (19.3%), followed by stomach and rectum cancers (17.4% each) in this study group. The most affected age group was that of women aged between 60 - 70 years, with pancreatic cancer being the most diagnosed (42.4%) (Table 3). Stomach cancer was mostly observed within the 60 – 70 age group (31.6%), whereas most women presenting with colon cancer were aged 50 – 60 years. Despite the uneven distribution of cancers across the age groups, there was no significant association between cancer types and age variation (*P*-value = 0.137).

Table 3. Cancer distribution amongst women with respect to age.

Age groups (years)	Types of gastrointestinal cancer									Total (%)	*P*-value
	Rectum *n* (%)	Pancreas *n* (%)	Intestinal *n* (%)	Stomach *n* (%)	Liver *n* (%)	Colorectal *n* (%)	Colon *n* (%)	BO *n* (%)	Unspecified *n* (%)		
[10-20[	0 (0.0)	1 (3.0)	1 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.9)	
[20-30[	1 (2.6)	0 (0.0)	0 (0.0)	2 (5.3)	4 (9.5)	0 (0.0)	5 (13.5)	2 (16.7)	0 (0.0)	14 (6.4)	
[30-40[	5 (13.2)	2 (6.1)	1 (33.3)	5 (13.2)	7 (16.7)	1 (20.0)	7 (18.9)	1 (8.3)	3 (30.0)	33 (15.1)	
[40-50[	10 (26.3)	5 (15.2)	0 (0.0)	3 (7.9)	4 (9.5)	1 (20.0)	3 (8.1)	5 (41.7)	1 (10.0)	28 (12.8)	
[50-60[	8 (21.1)	4 (12.1)	0 (0.0)	8 (21.1)	12 (28.6)	2 (40.0)	11 (29.7)	2 (16.7)	4 (40.0)	54 (24.8)	0.137
[60-70[	12 (31.6)	14 (42.4)	0 (0.0)	12 (31.6)	9 (21.4)	1 (20.0)	5 (13.5)	0 (0.0)	2 (20.0)	57 (26.1)	
[70-80[	2 (5.3)	7 (21.2)	1 (33.3)	7 (18.4)	5 (11.9)	0 (0.0)	4 (10.8)	0 (0.0)	0 (0.0)	26 (11.9)	
[80-90[	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.6)	1 (2.4)	0 (0.0)	2 (5.4)	0 (0.0)	0 (0.0)	4 (1.8)	
Total (%)	38 (17.4)	33 (15.1)	3 (1.4)	38 (17.4)	42 (19.3)	5 (2.3)	37 (17.0)	12 (5.5)	10 (4.6)	218 (100.0)	

n = Frequency; BO = Bucco-Œsophageal.
Percentages computed within each column.
Likelihood ratio was used to compare percentages.
Statistical significance set at *P*-value below 0.05.

Distribution of type of cancer according to the medical story

The table 4 presents the location of the gastrointestinal tract cancers according to the medical history. From this table it can be seen that herbal medicine was practiced in 12.3%, 17.8%, and 11.4% of the patients for whom the digestive cancer was located in the liver, rectum and stomach, respectively.

Table 4: Association between Location by Medical History

Locations	*n**	Principal medical history							
		Phyto-thérapy	Scarification	Epigastralgy	Diabetis	Hemicolectomy	Allergy	HTA	Transfusion
Liver	57	7 (12.3%)	7 (12,3%)	5 (8.8%)	2 (3.5%)	0 (0,0%)	4 (7.0%)	2 (3,5%)	1 (1,8%)
Colon	47	0 (0.0%)	2 (4.4%)	1 (2.1%)	2 (4.4%)	8 (17,0)	2 (4.4%)	1 (2,2%)	2 (4.4%)
Rectum	45	8 (17.8%)	4 (8.9%)	4 (8.9%)	1 (4.4%)	0 (0,0%)	2 (2.2%)	2 (2.2%)	2 (2.2%)
Pancreas	37	2 (5.4%)	4 (10.8%)	3 (8.1%)	4 (10.8%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	2 (5.4%)
stomach	35	4 (11.4%)	3 (8.6%)	2 (5.7%)	3 (8.6%)	0 (0,0%)	1 (2.9%)	0 (0,0%)	2 (5,7%)

* Only locations with a sample size > 30 were presented

Profile of observed cancers according to drug consumption (alcohol and tobacco)

Table below (table 5) shows the distribution of gastrointestinal cancer types according to alcohol and tobacco consumption. It shows that among the patients with a history of exclusive alcohol consumption, 31.3% had liver cancer and 17.7% had stomach cancer.

In addition, 62.5% of those with a history of exclusive tobacco use had developed liver cancer and 25% had gastric cancer. Among the patients who reported alcohol and tobacco use, the most common cancer was colon cancer (41.7%), followed by pancreatic cancer (19.4%). With a significance level set at a P value of less than 5%, alcohol and tobacco use could be a factor associated with the development of liver, colon, and pancreatic cancers (P value = 0.008, Phi = 0.281).

Table 5. Distribution of gastro intestinal cancer types according to alcohol and tobacco consumption.

Drug consumption	Type of gastrointestinal cancer								Total (%)	*P*-value
	*BO *n* (%)	Colon *n* (%)	Colorectal *n* (%)	Liver *n* (%)	Gastric *n* (%)	Intestinal *n* (%)	Pancreas *n* (%)	Rectum *n* (%)		
None	17 (5.2)	60 (18.3)	10 (3.1)	81 (24.8)	52 (15.9)	9 (2.8)	40 (12.2)	58 (17.7)	320 (70.0)	**0.008**
Alcohol only	7 (7.3)	10 (10.4)	2 (2.1)	30 (31.3)	17 (17.7)	1 (1.0)	13 (13.5)	16 (16.7)	96 (20.6)	
Tobacco only	0 (0.0)	0 (0.0)	0 (0.0)	5 (62.5)	2 (25.0)	0 (0.0)	0 (0.0)	1 (12.5)	8 (1.7)	
Alcohol and tobacco	3 (8.3)	15 (41.7)	2 (5.6)	5 (13.9)	2 (5.6)	1 (2.8)	7 (19.4)	1 (2.8)	36 (7.7)	
Total	27 (5.8)	85 (18.2)	14 (3.0)	121 (25.9)	73 (15.6)	11 (2.4)	60 (12.8)	76 (16.3)	467 (100)	

*BO = Bucco-Œsophageal; *n* = Frequency.
Percentages computed within each row.
Likelihood ratio used to compare percentages.
Statistical significance set at *P*-value below 0.05.

DISCUSSION

This work showed a disparity in gender, male versus female, a study if gastrointestinal cancer affects more men than women in Africa as well as in other continents. The aim of this study was to describe the epidemiological profile of digestive cancers encountered at the Douala General Hospital and the Laquintinie Hospital in Douala, Cameroon. The observation of our results shows that there are many cases of digestive cancers clearly identified in our health care facilities and that they are being managed. The majority of gastrointestinal cancers encountered in our environment are cancers that could be favored by environmental risk factors and/or bad social hygiene habits, such as excessive alcohol and tobacco consumption.

It is interesting to note that the majority of cancer cases in this study were observed in natives of the Western region (54.7%), as well as in men (54.5%) and in patients aged 60 to 70 years (27.8%) (Table 1). This result could suggest that certain environmental factors or even dietary/social habits associated with this western ethnic group could be factors associated with the development of digestive cancers in Cameroon. The late onset of these diseases in elderly patients may possibly be due to the latency of cumulative risk factors prior to disease onset.

The results indicate a steady increase in the annual proportion of gastrointestinal cancer cases over time, with a peak (99 cases; 20.7%) observed in 2018, followed by a steady decline in cases through 2020.

These results may reveal the alarming state of poor food preservation or degradation of social hygiene over time in our population. The decline in the observed proportion is quite small, and the lack of complete annual cancer incidence data makes this state alarming. Colorectal (36.54%), liver (25.26%), stomach (15.24%), and pancreatic (12.53%) cancer. (Figure 2) was more represented. These data on colon and liver cancer in this study are consistent with research conducted elsewhere, since other authors show that liver cancer is the sixth most frequently diagnosed cancer and the third most common cause of cancer death worldwide [19], some studies have found that colorectal cancer cases are becoming more prevalent in some African communities with a high number of cases in Nigeria [10]. Studies have also shown that the risk of colorectal cancer (undifferentiated) increases with age. After the age of 30, the risk is at least doubled every 10 years, and many authors have been able to show the prevalence of colon cancer in many countries [17], [18]. Such findings may reveal the alarming state of improper food preservation or degradation of social hygiene over time in our population setting. The drop in proportion observed was quite faint, and absence of full data on yearly incidence cancer incidence keeps this state alarming.

Gastric cancer, 3rd most observed in our study (Figure 2), can be divided into two topographical subsites, the cardia (upper stomach) and non-cardia (lower stomach). It has been showed that in terms of risk factors, carcinogenesis, and epidemiologic patterns, these entities differ. Chronic *Helicobacter pylori* infection is thought to be the leading cause of non-cardia gastric cancer, accounting for nearly all cases [11]. This implication of *H. pylori* in stomach cancer may elucidate the high prevalence of this cancer in our setting, since *H. pylori* infection associated with gastric ulcers and other gastric disorders is highly indigenous to Africa, and Cameroon.

The data show that oral-esophageal and intestinal cancers are the least represented in our work. in fact, studies have shown that esophageal cancer is one of the least studied cancers, although it is the sixth most deadly cancer in the world, due to its extremely aggressive nature and low survival rate [14], [15]. The low incidence of esophageal cancer may be due to economic gains and improved diet, as described by other authors [16], and some studies point out that cases of esophageal cancer are related to the presence of mycotoxins in foods [12]. Because of the significant representation of male sex in the majority of gastrointestinal cancers, a statistically significant association with a small effect size (P-value = 0.016; Phi = 0.198) was noted between the type of gastrointestinal cancer identified and sex. These results corroborate studies conducted by researchers who have shown that some cancers, such as liver cancer, are increasing in men, much more so than in women [11]. Here, men would appear to have a higher risk of developing colon cancer, as incidence rates vary about 9-fold worldwide, with the highest rates in Europe, Australia/New Zealand, and North America, with Hungary and Norway ranking highest among men and women, respectively [19]. Pancreatic, rectal and stomach cancers, however, appear to be more common in women than in men. These results are in contrast to observations made by other authors for stomach cancer, where it has been shown that men have twice as many stomach cancers as women [12], [13]. The presentation of cancers by age showed that young individuals under 20 years of age least developed digestive cancers compared to elderly individuals. This could be explained by the fact that the process of oncogenesis is a complex and generally time-consuming process. Some researchers have shown that in certain regions of the world cancer is increasingly found in children; in Africa however, these cases are still rare compared to other continents [13]–[15]. As in men, the highest prevalence of liver and colon cancer in women was observed in the 50-60 age group, and that of pancreatic cancer in the 60-70 age group. On the contrary, the highest prevalence of rectal and stomach cancer in women was observed in the 60-70 age group, which may be due to a late onset of the pathology or a genetic factor. Oral-esophageal cancer, on the other hand, showed a higher prevalence in women aged 40-50 years, which may be due to the increased use of oral ointments and makeup. Surprisingly, no significant association was noted between cancer types and age variation (P value = 0.137) in women. Medical history revealed that phytotherapy was practiced in many cases of cancer, it should be noted that the Cameroonian population gives an important place to traditional medicine which is sometimes accessible and also inexpensive [16], [17]. However, the use of these products could be a factor favouring the appearance or the development of these cancers.

Data on alcohol and tobacco use by individuals in the study population showed fairly high alcohol and tobacco use in colon cancer (17.2%), colorectal cancer (14.3%), and pancreatic cancer (11.1%) (Table 5). Alcohol consumption was highest among those with oral-esophageal, pancreatic, colon, and liver cancers. A statistically significant association between alcohol and tobacco use in different digestive cancers showed that drug use may be a factor in the development of colon and pancreatic cancers. Numerous studies have shown that these two substances can be risk factors for the occurrence of cancers in case of prolonged consumption. Alcohol consumption has been linked to cancers of the oral cavity, pharynx, larynx, oesophagus, liver, colon, rectum and, in women, breast; an association with pancreatic and lung cancer is suspected [23].

CONCLUSION

The aim of this study was to describe the epidemiological profile of digestive cancers encountered at the Douala General Hospital and the Laquintinie Hospital in Douala, Cameroon. The observation of our results shows that there are many cases of digestive cancers clearly identified in our health care facilities and that they are being managed. The majority of gastrointestinal cancers encountered in our environment are cancers that could be favored by environmental risk factors and/or bad social hygiene habits, such as excessive alcohol and tobacco consumption. Gastrointestinal cancers are a reality in Cameroon, especially in the city of Douala and mainly affect the population over 30 years old. The knowledge of risk factors by the population would be a real asset in the fight against these cancers. It is critical to develop public health strategies with the primary goal of raising public awareness and organizing free screening campaigns for these cancers.

Data Availability

The data will be available upon reasonable request to the corresponding author.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the

advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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