Spectrum of Disease Conditions Seen at the Gastroenterology Clinic of a Tertiary Health Facility in South-Western Nigeria

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ABSTRACT

Background: Globally, gastrointestinal medical conditions are common and a considerable
number of patients will require specialist consultation for the diagnosis, management and follow-up
care.
Aim: To determine the spectrum of disease conditions seen at the Gastroenterology clinic of
Federal Teaching Hospital, Ido-Ekiti in south-western Nigeria.
Methods: This was a retrospective cohort study of all patients who attended the Gastroenterology
clinic between January 2015 and December 2019 (a period of 5 years). The Age, Gender and

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Diagnosis were obtained from the Clinic Register. A total of 679 patients attended the clinic over the period and they were all recruited into the study. The data obtained was analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0. Descriptive statistics used included frequency tables, means and standard deviations.

Results: A total number of 679 patients attended the Gastroenterology clinic during the period under review out of which 353 (52.0%) were males and 326 (48.0%) were females with a male to female ratio of 1.08 to 1. The age range of the patients was 10 to 93 years with a mean (±SD) of 43.8 (±16.32) and median of 40.0 years.

The commonest medical condition seen at our clinic was Chronic Hepatitis B viral infection (38.1%), followed by Acid Peptic Disorders (27.0%), Liver cirrhosis (5.2%), Non-Alcoholic Fatty Liver Disease (5.0%) and Hepatocellular carcinoma (4.1%). Hepatocellular carcinoma was the commonest malignancy seen at our clinic followed by Gastric cancer (2.5%), Colorectal cancer (1.9%) and Cholangiocarcinoma (0.7%). Pancreatic cancer and Oesophageal cancer were seen at our clinic at the same frequency (0.6% each). Primary Biliary Cirrhosis, Achalasia and Irritable Bowel Syndrome were the least frequently seen (0.1% each) medical conditions at our clinic. Acute Hepatitis B viral infection constituted 2.9% while Chronic Hepatitis C viral infection constituted 2.4% of the cases seen. The other medical conditions seen at our clinic include Alcoholic Liver Disease (2.4%), Abdominal Tuberculosis (0.7%), Toxin-induced Hepatitis (0.6%), Haemorrhoids (0.6%), Ulcerative Colitis (0.4%) and Diverticular Disease (0.3%).

Conclusion: The commonest medical condition seen at our Gastroenterology clinic was Chronic Hepatitis B virus infection followed by Acid Peptic Disorders both of which are largely preventable and the commonest malignancy seen at our clinic was Hepatocellular carcinoma. Hepatitis B virus infection is highly prevalent in our environment and it is a risk factor for chronic hepatitis, liver cirrhosis and hepatocellular carcinoma. Efforts must be enhanced by all stakeholders to curb the spread of this virus and thereby limit its sequelae.

1. INTRODUCTION

Globally, gastrointestinal medical conditions are common and a considerable number of patients will require specialist consultation for the diagnosis, management and follow-up care [1-3]. The gastrointestinal system also known as the digestive system is made up of the gastrointestinal tract, the salivary glands, the liver, the pancreas and the biliary tract with their accompanying vascular supply [4]. The gastrointestinal system can be affected by various disease pathological processes which could be infectious, non-infectious, genetic, autoimmune or neoplastic in nature and these disease conditions can present acutely or insidiously [1,5]. Common gastrointestinal medical conditions in our environment include acute and chronic diarrhoeal diseases, acid peptic disorders, acute and chronic viral hepatitis, chronic liver diseases and gastrointestinal malignancies among others with their attending complications [6-8].

Many developed nations across the world have well-established audit systems for gathering comprehensive data. Such data relates to the spectrum, prevalence, risk factors and the socio-economic burden of diseases affecting their populace, this cannot be said of many developing countries [1-3]. There are a few publications relating to the pattern of presentation of a few specific gastrointestinal disease conditions by authors from different parts of Nigeria, [8-10] but there is paucity of data in the literature on a comprehensive audit as regards the spectrum of the gastrointestinal medical conditions seen in a Gastroenterology clinic in Nigerian health institutions, [11-13] hence this study.

The objective of this study is to determine the spectrum and the prevalence of the various disease conditions seen at the Gastroenterology clinic of Federal Teaching Hospital, Ido-Ekiti in south-western Nigeria. It is a five-year retrospective study of cases seen from January 2015 to December 2019. This study is an audit of the cases seen in our clinic, which is taking place for the first time since we started offering Gastroenterology specialist consultation services.

This study will provide much needed scientific data on the subject, particularly among rural

dwellers. It will also, contribute to the pool of the already available data which can be used to build a national database on the spectrum of disease conditions seen at Gastroenterology clinics across Nigeria. The pooled data can be used to determine national prevalence of the different disease conditions. This can then form a template upon which more extensive research can be carried out.

Knowledge of the spectrum and prevalence of the Gastrointestinal disease conditions in our environment can be useful for national, sub-national and institutional policy making. With proper healthcare planning and provision of the required essential health services in our health institutions, this would facilitate the diagnosis, management and follow-up care of patients with such conditions. These essential health services would reduce the morbidity and mortality associated with the disease. Knowing the nature of these gastrointestinal medical conditions would also help stakeholders to institute adequate and appropriate measures for prevention.

2. MATERIALS AND METHODS

2.1 Study Design

This was a retrospective cohort study of all patients who attended the Gastroenterology clinic between January 2015 and December 2019 (a period of 5 years) at the Federal Teaching Hospital, Ido-Ekiti, Ekiti state in south-western Nigeria.

2.2 Study Location

The study was conducted at the Federal Teaching Hospital, Ido-Ekiti, Ekiti state in south-western Nigeria. Ido-Ekiti is one of the rural communities located in Ido-Osi local government area of Ekiti state which has an estimated population of 159,114 people. The Federal Teaching Hospital, Ido-Ekiti is a tertiary health institution that provides services across various specialties to patients from within and outside the community. The Gastroenterology clinic is an out-patient clinic conducted on a weekly basis at the Specialist Out-Patient Department of the Federal Teaching Hospital, Ido-Ekiti. Patients attend the clinic with various medical conditions that cuts across the field of Gastroenterology and Hepatology. The clinic is run by two Gastroenterologists assisted by Resident

Doctors. The average weekly attendance at the clinic is about 20 patients; out of which about 4 are new patients and the remaining are old patients, who are on follow-up.

2.3 Data Collection

The Gastroenterology Clinic Register was used to obtain the data for a five-year period; January 2015 to December 2019. Every patient has a unique Hospital Case File Number and a unique Clinic Register Number in order to ensure that a patient's data is not entered more than once in the Clinic Register. This procedure avoids duplication of data for this study. The following information was obtained from the register: Age, Gender and the Diagnosis. A total number of 679 patients attended the Gastroenterology clinic over this period and were all recruited for this study.

2.4 Data Analysis

The data obtained was analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0 computer software package (SPSS Chicago Inc. IL U.S.A). Descriptive statistics used included frequency tables, means and standard deviations. The statistical significant differences in the variables were determined using appropriate parametric test such as "t" test for analyzing continuous variables while a non-parametric test, chi-square (X^2) test, was employed for the analysis of qualitative variables. A P-value of less than 0.05 was considered as statistically significant.

3. RESULTS

A total number of 679 patients attended the Gastroenterology clinic during the period under review (January 2015 to December 2019 – a five year period), out of which 353 (52.0%) were males and 326 (48.0%) were females with a male to female ratio of 1.08 to 1 (Fig. 1). The age range of the patients was 10 to 93 years with a mean(±SD) of 43.8(±16.32) and median of 40.0 years (Fig. 2).

Individuals within the age bracket of 30-39 years, followed by those within 40-49 years were the highest attendees of the Gastroentero-logy clinic and they were mostly females (Table 1).

The commonest medical condition seen at our clinic was Chronic Hepatitis B virus infection (38.1%), followed by Acid Peptic Disorders (27.0%), Liver cirrhosis (5.2%), Non-Alcoholic Fatty Liver Disease (5.0%) and Hepatocellular carcinoma (4.1%). Hepatocellular carcinoma was the commonest malignancy seen at our clinic followed by Gastric cancer (2.5%), Colorectal cancer (1.9%) and Cholangiocarcinoma (0.7%). Pancreatic cancer and Oesophageal cancer were seen at our clinic at the same frequency (0.6% each). Primary Biliary Cirrhosis, Achalasia and Irritable Bowel Syndrome were the least frequently seen (0.1% each) medical conditions at our clinic. Chronic Hepatitis C virus infection (2.4%) was not as common as Chronic Hepatitis B virus infection (38.1%) in our study. Acute Hepatitis B virus infection constituted 2.9% of the cases seen. The other medical conditions seen at our clinic include Alcoholic Liver Disease (2.4%), Abdominal Tuberculosis (0.7%), Toxin-induced Hepatitis (0.6%), Haemorrhoids (0.6%), Ulcerative Colitis (0.4%) and Diverticular Disease (0.3%). The other conditions are as shown on Table 2.
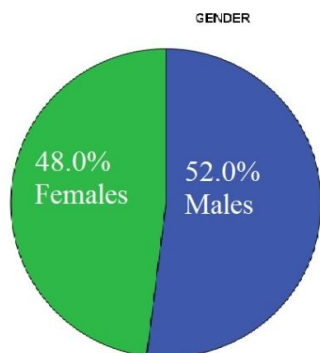
Fig. 1. Gender distribution

Age and gender distribution of the subjects with the leading disorders attending the Gastroenterology clinic showed statistically significant higher prevalence of Chronic Hepatitis B virus infection (*P = 0.04*) and Alcoholic liver disease (*P = 0.001*) among the males when compared to the females. The prevalence of Liver cirrhosis was also higher among the males when compared to the females (Table 3). On the other hand, the female subjects had significantly higher prevalence of Non-Alcoholic Fatty Liver disease when compared to the male subjects (*P = 0.002*). The prevalence of Acid peptic disorders and Chronic Hepatitis C virus infection were also higher among the females when compared to the males.

The mean age of the subjects with Liver cirrhosis was 51.85 (±17.42) years. These subjects were over two decades older than the subjects with Chronic Hepatitis B virus infection with the mean age of 33.87 (±10.76) years and a decade older than the subjects with Chronic Hepatitis C virus infection with the mean age of 41.87 (±19.62) years.

Age and gender distribution of the subjects with the leading malignancies attending the Gastroenterology clinic showed a higher prevalence of Gastric, Colorectal and Pancreatic cancers among the males when compared to the females while Cholangiocarcinoma and Metastatic liver disease were more common among the females than the males. There was equal gender prevalence of Hepatocellular carcinoma in this study (Table 4).

The mean age of the subjects with Hepatocellular carcinoma suggested that the disease occurred earlier among males when compared to females; 45.85(±10.41) years and 48.64(±11.14) years respectively. Also, the mean ages of the subjects with Gastric and Pancreatic cancers were lower among the males when compared to the females. On the other hand, the mean ages of the subjects with Colorectal cancer and Cholangiocarcinoma were lower among the females when compared to the males.

4. DISCUSSION

Gastrointestinal system disorders are common globally as well as in our environment [1,2,11,13]. It is therefore expected that a large number of patients would be present at a Gastroenterology clinic for specialist review, management and follow-up care of their conditions. In this study, the total number of patients that presented at our Gastroenterology clinic over the five-year period under review was quite low when compared with similar studies in Nigeria [11,13]. This low number could be due to a number of factors which include the fact that our hospital is located in a rural environment which has a small population compared to an urban community.

Also, the low educational status of the populace and their preference of traditional remedies to orthodox treatment are contributory. The poor socio-economic status of the residents, whom are mostly retirees and elderly, also prevents them from patronizing the hospital. This is because of the cost of services and treatment which they cannot afford. Many of the residents

are self-employed as artisans, farmers and traders. These individuals are not registered under the National Health Insurance Scheme which could have considerably reduced the cost of accessing specialist consultation in our hospital.

Table 1. Age and gender distribution

	Gender		
Age Group	Males	Females	Total (%)
< 20	17	9	26 (3.8)
20-29	57	45	102 (15.0)
30-39	90	103	193 (28.4)
40-49	57	63	120 (17.7)
50-59	60	54	114 (16.8)
60-69	32	28	60 (8.8)
70-79	29	19	48 (7.1)
80-89	11	3	14 (2.1)
≥ 90	0	2	2 (0.3)
Total (%)	353 (52.0)	326 (48.0)	679 (100.0)

Table 2. Diagnosis

Diagnosis	Frequency	%
Chronic HBV infection	259	38.1
Acid Peptic Disorders	183	27.0
Cirrhosis	35	5.2
NAFLD	34	5.0
Hepatocellular Carcinoma	28	4.1
Acute HBV infection	20	2.9
Gastric Cancer	17	2.5
Chronic HCV infection	16	2.4
Alcoholic Liver Disease	16	2.4
Colorectal Cancer	13	1.9
Metastatic Liver Disease	9	1.3
Gallstones	6	0.9
Chronic Diarrhoea	5	0.7
Abdominal Tuberculosis	5	0.7
Cholangiocarcinoma	5	0.7
Oesophageal Cancer	4	0.6
Toxin-induced Hepatitis	4	0.6
Pancreatic Cancer	*4*	*0.6*
Haemorrhoids	4	0.6
Ulcerative Colitis	3	0.4
Diverticular Disease	2	0.3
Hyper-reactive Malaria Splenomegaly	2	0.3
Oesophageal Candidiasis	2	0.3
Irritable Bowel Syndrome	1	0.1
Achalasia	1	0.1
Primary Biliary Cirrhosis	1	0.1
Total	679	100.0

KEY: HBV- Hepatitis B Virus, HCV- Hepatitis C Virus, NAFLD- Non-Alcoholic Fatty Liver Disease
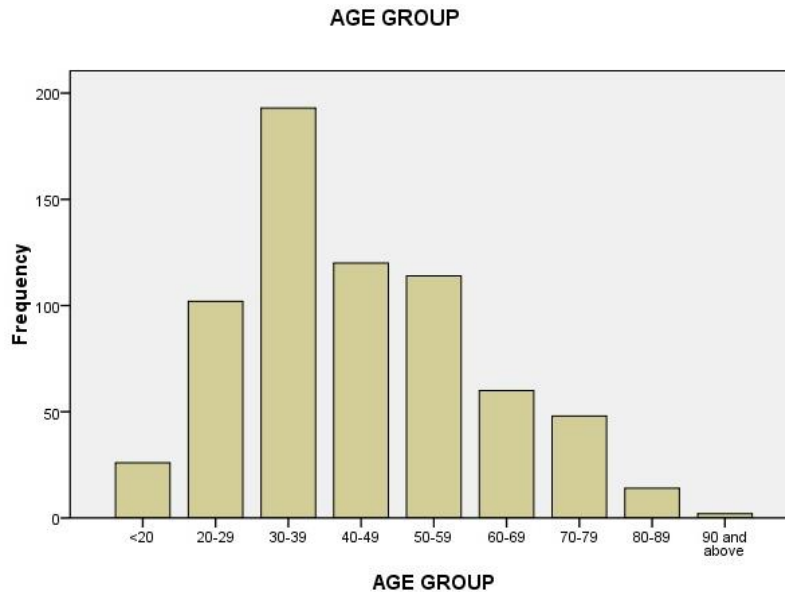
AGE GROUP

Fig. 2. Age group distribution

Table 3. Mean ages and gender distribution of the subjects with the common medical conditions seen at the Gastroenterology clinic

Diagnosis	Total (%)	Males (%)	Females (%)	Ratio(M:F)	*P*-values
Chronic HBV infection	259 (100%)	146 (56.4%)	113 (43.6%)	1.3 : 1	**0.040**
Mean Age (±SD)	33.87(±10.76)	34.31(±11.68)	33.31(±9.47)		0.457
Acid Peptic Disorders	183 (100%)	81 (44.3%)	102 (55.7%)	0.8 : 1	0.121
Mean Age (±SD)	50.35(±15.20)	51.90(±16.04)	49.12(±14.47)		0.221
Liver Cirrhosis	35 (100%)	23 (65.7%)	12 (34.3%)	1.9 : 1	0.063
Mean Age (±SD)	51.85(±17.42)	52.78(±18.39)	50.08(±15.99)		0.670
NAFLD	34 (100%)	8 (23.5%)	26 (76.5%)	0.3 : 1	**0.002**
Mean Age (±SD)	44.44(±9.51)	48.75(±12.91)	43.11(±8.06)		0.145
Acute HBV infection	20 (100%)	10 (50.0%)	10 (50.0%)	1 : 1	1.000
Mean Age (±SD)	29.75(±11.46)	30.30(±12.42)	29.20(±11.07)		0.837
Chronic HCV infection	16 (100%)	5 (31.2%)	11 (68.8%)	0.45 : 1	0.134
Mean Age (±SD)	41.87(±19.62)	46.00(±17.43)	40.00(±21.06)		0.589
ALD	16 (100%)	15 (93.8%)	1 (6.2%)	15 : 1	**0.001**
Mean Age (±SD)	54.12(±13.38)	53.60(±13.68)	62.00(±0.00)		0.562

KEY: HBV- Hepatitis B Virus, HCV- Hepatitis C Virus, NAFLD- Non-Alcoholic Fatty Liver Disease, ALD- Alcoholic Liver Disease

This study found a male to female ratio of 1.08:1 among the patients who attended the Gastroenterology clinic. Studies by Lesi et al. [11] in Lagos, Adeleye et al. [12] in Sagamu and Jemilohun et al. [13] in Ogbomoso had more males than females, with male to female ratios of 1.17:1, 1.3: 1 and 1.4:1 respectively.

In this study, the mean (±SD) age of the patients was 43.8(±16.32) years while studies by Jemilohun et al.[13] and Adeleye et al. [12] had younger patients with mean (±SD) ages of 38.9 (±18.39) years and 42.0 (±15.50) years respectively.

The commonest medical condition seen at our Gastroenterology clinic in this study was Chronic Hepatitis B virus infection (38.1%), followed by Acid Peptic Disorders (27.0%), Liver cirrhosis (5.2%), Non-Alcoholic fatty liver disease (5.0%)

and Hepatocellular carcinoma (4.1%). In a similar study conducted by Adeleye et al. [12] in Sagamu the commonest medical condition recorded at their Gastroenterology and Hepatology clinic was also chronic Hepatitis B virus infection (35.9%). This was followed by decompensated chronic liver disease (12.4%), hepatocellular carcinoma (11.6%) and acid peptic disorders (10%).

Also, Jemilohun et al. [13], in their study in Ogbomoso reported that the commonest medical condition seen at their Gastroenterology clinic was chronic Hepatitis B virus infection (28.8%). This was followed by acid peptic disorders (13.2%), hepatocellular carcinoma (7.0%) and liver cirrhosis (6.3%).

Lesi et al. [11] in Lagos reported acid peptic disorders (31.6%) as the commonest medical condition seen at their Gastroenterology out-patient clinic. This was followed by chronic Hepatitis B virus infection (28.7%), chronic liver disease (16.1%) and hepatocellular carcinoma (6.1%).

Based on the aforementioned, it is obvious that the spectrum of the medical conditions seen at a Gastroenterology clinic in Nigeria is similar, with chronic Hepatitis B virus infection as the overall leading disease condition. Chronic Hepatitis B virus infection is highly prevalent in sub-saharan Africa and south-east Asia with an average prevalence rate of 13.7% in Nigeria (about 23 million Nigerians) [14,15]. Chronic Hepatitis B virus infection is the most common cause of chronic liver disease in Nigeria [14]. It can cause liver cirrhosis and hepatocellular carcinoma [16]. The other common causes of chronic liver disease in Nigeria are alcoholic liver disease, chronic Hepatitis C virus infection, alpha-1-antitrypsin deficiency and non-alcoholic fatty liver disease. They can all lead to liver cirrhosis and then hepatocellular carcinoma [16].

Chronic liver disease is a clinico-pathological syndrome characterized by varying degrees of hepatocellular necro-inflammation, fibrosis and nodular regeneration of varying aetiology. The condition lasts for more than six months with or without malignant transformation [14,16]. Patients are usually asymptomatic in the early phase (Child-Pugh class A) but become symptomatic when they had developed decompensated cirrhosis (Child-Pugh class B and C) or malignant transformation to hepatocellular carcinoma [16].

Hepatocellular carcinoma was the commonest malignancy seen in our study followed by Gastric cancer, Colorectal cancer, Cholangiocarcinoma and Pancreatic cancer. Lesi et al. [11] Adeleye et al. [12] and Jemilohun et al. [13] also reported that hepatocellular carcinoma was the commonest malignancy in their studies. Jemilohun et al. [13]. In addition, also reported that hepatocellular carcinoma was the leading cause of In-hospital digestive disease mortality in their study. This supports previous studies in Nigeria that had reported a very high mortality rate amongst patients with hepatocellular carcinoma [16,17].

Table 4. Mean ages and gender distribution of the subjects with the common malignancies seen at the Gastroenterology clinic

Diagnosis	Total (%)	Males (%)	Females (%)	Ratio (M:F)	*P*-values
Hepatocellular Carcinoma	28 (100%)	14 (50.0%)	14 (50.0%)	1 : 1	1.000
Mean Age (±SD)	47.25(±10.67)	45.85(±10.41)	48.64(±11.14)		0.500
Gastric Cancer	17 (100%)	10 (58.8%)	7 (41.2%)	1.4 : 1	0.467
Mean Age (±SD)	53.00(±11.73)	50.60(±12.20)	56.42(±10.98)		0.329
Colorectal Cancer	13 (100%)	9 (69.2%)	4 (30.8%)	2.2 : 1	0.166
Mean Age (±SD)	65.31(±12.85)	66.66(±12.44)	62.25(±15.17)		0.590
Metastatic Liver Disease	9 (100%)	4 (44.4%)	5 (55.6%)	0.8 : 1	0.739
Mean Age (±SD)	66.67(±12.54)	67.25(±5.50)	66.20(±17.08)		0.910
Cholangiocarcinoma	5 (100%)	2 (40.0%)	3 (60.0%)	0.6 : 1	0.655
Mean Age (±SD)	75.00(±13.83)	84.50(±6.36)	68.66(±14.57)		0.258
Pancreatic Cancer	4 (100%)	3 (75.0%)	1 (25.0%)	3 : 1	0.317
Mean Age (±SD)	75.00(±13.54)	71.66(±14.43)	85.00(±0.00)		0.508

The mean age of the subjects with hepatocellular carcinoma in our study suggested that the disease occurred earlier among males (mean of 45.8 years) compared to females (mean of 48.6 years) whereas Adeleye et al. [12] reported that the disease occurred earlier among females (mean of 46.0 years) compared to males (57.6 years). The overall mean(±SD) age of patients with hepatocellular carcinoma in our study was 47.2 (±10.67) years which is lower than what was reported by Adeleye et al. [12] (50.3±15.1 years) and Jemilohun et al. [13] (50.3±18.24 years). Colorectal, Pancreatic and Gastric cancers in that order were the other common malignancies reported by Jemilohun et al. [13] whereas Adeleye et al. [12] reported that Cholangiocarcinoma, Pancreatic, Gastric and Colorectal cancers in that order were the other common malignancies seen at their clinic.

The findings from our study as well as other studies in Nigeria, [11-13] showed overall that chronic Hepatitis B virus infection and its sequelae were the commonest digestive disease conditions seen in a Gastroenterology clinic in Nigeria which differs from reports from hospital-based studies from western countries in Europe and USA, [1,18,19] where acid peptic disorders were the commonest digestive diseases and the most common reason for consulting a Gastroenterologist.

In our study, Acid peptic disorders were the second most commonly seen medical condition in our Gastroenterology clinic. Acid peptic disorders is a broad terminology that includes a number of conditions whose pathophysiology is believed to be the result of mucosal damage from acid and peptic activity of gastric secretions [20]. They include Gastritis, Duodenitis, Oesophagitis, Gastroduodenitis, Gastric erosion, Duodenal erosion, Gastric ulcer, Duodenal ulcer, Gastroesophageal reflux disease, Zollinger-Ellison syndrome and Stress-related ulcers [20]. The common risk factors for acid peptic disorders in our environment include use of non-steroidal anti-inflammatory drugs (NSAIDS), excessive alcohol consumption, consumption of herbs and other toxic substances and indiscriminate use of unprescribed or over the counter medications and Helicobacter pylori infection among others [20].

Helicobacter pylori infection is associated with chronic gastritis, gastric ulcers, duodenal ulcers, gastric adenocarcinoma and gastric mucosal associated lymphoid tissue (MALT) lymphoma [21]. The prevalence of Helicobacter pylori infection is high in Nigeria [22]. Jemilohun et al. [23] reported a prevalence of 64% among patients with dyspepsia in Ibadan, Nigeria while Solomon et al. [24] reported a prevalence of 76% in Ekiti, Nigeria. Its prevalence has been documented in the literature to be high in developing countries, and associated with low levels of education, dwelling in a rural environment, low social economic status, and poor sanitation [22,25]. Our study population are prone to all these risk factors and that may explain the high prevalence of the acid peptic disorders amongst them.

In our study, there is rarity of cases of diverticular diseases, irritable bowel syndrome, primary biliary cirrhosis and inflammatory bowel diseases that are adjudged to be common in the western world [1-3]. Three patients (0.4%) in our study have ulcerative colitis and there were no patients with Crohn's disease. Ulcerative colitis is reportedly rare in Black Africans [26,27] and indeed Nigerians [28,29] compared to Western populations [30,31]. There is no national data on the prevalence of ulcerative colitis in Nigeria; only few reports are available, mainly as case reports and case series [32,33]. Even though ulcerative colitis is rare in our environment, it is important for physicians to have a high index of suspicion for this condition particularly in young individuals presenting with recurrent haematochezia, such as in our patients.

5. CONCLUSION

The commonest medical condition seen at our Gastroenterology clinic was Chronic Hepatitis B virus infection followed by Acid Peptic Disorders both of which are largely preventable and the commonest malignancy seen at our clinic was Hepatocellular carcinoma. The findings from this study conducted in a rural community in Nigeria were similar to those conducted in urban communities in the country; suggesting that these disease conditions are widespread in the country regardless of the level of development of the community. Hepatitis B virus infection is highly prevalent in our environment and it is a risk factor for chronic hepatitis, liver cirrhosis and hepatocellular carcinoma. Efforts must be enhanced by all stakeholders to curb the spread of this virus and thereby limit its sequelae.

6. RECOMMENDATIONS

1. There is a need to enhance public awareness about Hepatitis B virus infection and the other risk factors for liver disease

and ways to adopt preventative measures against them. Such measures include early detection and treatment of chronic viral hepatitis, avoidance of risk factors for acquisition viral hepatitis, vaccination against Hepatitis B virus infection, post-exposure prophylaxis against Hepatitis B virus infection, avoidance of excessive alcohol consumption, avoidance of consumption of herbs and other toxic substances, as well as, to avoid indiscriminate use of medications. These measures are important to prevent the development of liver disease and its progression to liver cirrhosis which is irreversible and eventual development of hepatocellular carcinoma which has a very poor prognosis and high mortality.

2. Health education and public enlightenment about avoidance of the risk factors for acid peptic disorders is important in reducing its incidence in the general population. Such risk factors include use of non-steroidal anti-inflammatory drugs (NSAIDS), excessive alcohol consumption, consumption of herbs and other toxic substances and indiscriminate use of unprescribed or over the counter medications. There is also a need to test and treat for *Helicobacter pylori* infection in individuals with dyspepsia. This may prevent its sequelae and reduce the transmission and burden of this infection among the populace thereby reducing the morbidity and mortality associated with it.

3. The benefits of Electronic Medical Records (EMR) cannot be overemphasized; this should be ensured in our hospital and other health institutions for easy access to patients' medical records, safe and durable data storage, easy follow-up of cases, easy referral of cases and for easy data acquisition which would greatly enhance medical research.

4. Regular Clinical Audit should be performed by each specialized unit and compare practice with international standards; this would greatly improve overall performance and patient care.

DISCLAIMER

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.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval was obtained from the Ethics and Research Committee of the institution.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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