

ORIGINAL RESEARCH

## A study of disease pattern in a tertiary level Gastroenterology and Hepatology Out-Patient Unit

Adeleye O<sup>\*1</sup>, Olatunji A<sup>2</sup>, Afe T<sup>1</sup>, Odusan O<sup>1</sup>, Olaitan A<sup>1</sup>, Soyewo G<sup>1</sup>

<sup>1</sup>Department of Medicine, <sup>2</sup>Department of Radiology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State.

\*Correspondence: Dr. O. Adeleye, Department of Medicine, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State. Tel: +234-8038629664; Email: funtos2000@yahoo.co.uk; ORCID: <http://orcid.org/0000-0001-6069-5850>

### Abstract

**Background:** Diseases affecting the gastrointestinal tract and its accessory organs like the liver, gall bladder and the pancreas have become a global concern as they are characterized by morbidities with high burden to both the individual and the economy.

**Objective:** To describe the pattern of various gastrointestinal and hepatic diseases at a tertiary institution.

**Methods:** A retrospective study of consecutive new referrals for ambulatory clinic visits to a Gastroenterology and Hepatology Clinic between May 2014 and May 2016 was conducted.

**Results:** There were 259 new cases comprising 148 (57.1%) males and 111 (42.9%) females, aged 16-89 years with a mean age of 42.0 ±15.5 years. The commonest reasons for referral included asymptomatic chronic Hepatitis B Virus (HBV) infection (35.9%), chronic liver disease (CLD) (12.4%), hepatocellular carcinoma (HCC) (11.6%) and dyspepsia (10%). Asymptomatic HBV infection, CLD and HCC were more frequent among the males, whereas dyspeptic complains were more prevalent among the females (p = 0.008).

**Conclusion:** Asymptomatic chronic hepatitis B virus infection, which is the leading cause of chronic liver disease and hepatocellular carcinoma, was the most common reason for ambulatory gastroenterology and hepatology consultation in this study. Therefore, more effective measures for the eradication of the hepatitis B virus are desired.

**Key words:** Chronic Hepatitis B Virus infection, Dyspepsia, Hepatocellular carcinoma, Chronic Liver disease.

### Introduction

Understanding the disease pattern in a health care system helps with planning and policy formulation. Diseases of the gastrointestinal tract and its accessory organs like the liver, the gall bladder and the pancreas have become a global health concern. The diseases constitute a significant health burden both to the individual and the economy with many of the

diseases adversely affecting the patients' quality of life and productivity.<sup>[1]</sup>

Some gastrointestinal (GI) and liver disorders present acutely and could be life threatening while others are more chronic, less dangerous to life but severely debilitating.<sup>[2]</sup> In the USA, gastrointestinal diseases affect an estimated 60-70% of the population annually<sup>[3]</sup> with the burden of gastrointestinal, liver and pancreatic diseases recorded in various clinical settings, from the ambulatory to the emergency department visits including in-patient care.<sup>[1]</sup> Furthermore, the leading reasons for gastroenterology consultation in the USA include abdominal pain, diarrhoea and constipation with liver and biliary system related complains accounting for about five percent of the gastroenterology complains.<sup>[1]</sup>

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There is a paucity of epidemiological data on the burden of gastrointestinal and liver-related diseases in many parts of Sub-Saharan Africa. In Nigeria, many of the existing reports were obtained from hospital data, such as admission patterns as well as medical wards mortality statistics.<sup>[5-7]</sup> Data focusing on the gastrointestinal and liver-related admissions are limited.<sup>[8]</sup> In addition, data on the spectrum of diseases in ambulatory gastroenterology and hepatology care are scanty.<sup>[9]</sup> The knowledge of the pattern of liver and gastrointestinal diseases is useful in formulating health policies and prioritizing health interventions and research. It also aids in planning the structure and activities of gastroenterology units for the provision of optimal and effective patient care, hence the need to study the pattern of new patients referred with gastrointestinal and liver complaints.

The current study audited the pattern of liver and gastrointestinal diseases among new referrals to an out-patient gastroenterology and hepatology clinic in a tertiary setting.

## Methods

This retrospective study was conducted at the Out-Patient Clinic of the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria. The records of all the new referrals to the Gastroenterology and Hepatology Clinic of the hospital over the first two years of operation (May 2014- May 2016) were reviewed. The hospital is a 205-bed tertiary level health facility situated in Sagamu, Ogun State, south-west Nigeria.

The gastroenterology and hepatology ambulatory clinic consultation was commenced in May 2014 and the clinic runs once a week, with one Consultant Gastroenterologist in charge. Relevant information retrieved from the hospital records included the demographic data, clinical features, results of laboratory and radiologic investigation and the final diagnosis. The laboratory and imaging studies employed in making diagnosis included abdominal ultrasonography, computerized tomographic scan and biochemical tests of liver function, serological tests for viral hepatitis, coagulation studies, liver biopsy and viral molecular tests in varying combinations depending on the clinical context. The disease conditions were classified as (a) diseases of the oesophagus, stomach and duodenum (b) diseases of the liver (c) diseases of the gall bladder, the biliary tract and the pancreas (d) disease of the intestines and peritoneum (e) malignant disease and (f) viral infections of the gastrointestinal and hepatic system.

This study was carried out in accordance with the principles of the Helsinki Declaration on human subject research. The data obtained were recorded and analysed with IBM SPSS version 21.0 software using descriptive statistics. Continuous variables and categorical variables were compared using the Student's t-test and Chi-Square test, respectively. Statistical significance was set at  $P$  values  $< 0.05$ .

## Results

A total number of 259 new referrals were received at the clinic during the study period. The subjects were aged between 16 and 89 years with the mean age of  $42.0 \pm 15.5$  years. There were 148 (57.1%) males and 111 (42.9%) females. The distribution of the patients by educational background showed that 21(8.1%) had no formal education, 46 (17.8%) had only primary education, 68 (26.3%) had secondary school education while 124 (47.9%) had tertiary education. Table I shows that most of the subjects (71.8%) were married.

**Table I: Socio-demographic characteristics of the 259 subjects**

Characteristics	Frequencies	Percentages	
<b>Age groups (Years)</b>	10-20	14	5.4
	21-30	49	18.9
	31-40	73	28.2
	41-50	57	22.0
	51-60	30	11.6
	61-70	24	9.3
	= 71	12	4.7
<b>Sex</b>	Female	111	42.9
	Male	148	57.1
<b>Marital Status</b>	Married	186	71.8
	Single	62	23.9
	Widowed	9	3.5
	Separated	2	0.8
<b>Educational Status</b>	Tertiary	124	47.9
	Secondary	68	26.3
	Primary	46	17.8
	No formal education	21	8.1

The classes of clinical diagnoses are shown in Table II. The leading reason for ambulatory care in the gastroenterology sub-specialty was chronic Hepatitis B virus (HBV) infection among 93 (35.9%). This was closely followed by decompensated chronic liver diseases (CLD) (32; 12.4%), hepatocellular carcinoma (HCC) (30; 11.6%) and dyspepsia (26; 10%). Other diagnoses, with lesser frequencies, included gall stones, cholestatic jaundice, fatty liver and

unexplained ascites as shown in Table II.

Of the 32 subjects with decompensated CLD, 13 (40.6%) had HBV infection, 1 (3.1%) had Hepatitis C Virus (HCV) infection and 8 (25%) had a significant history of alcohol intake. HIV infection was the only positive finding in 1 (3.2%) subject; 2 (6.25) subjects had HBV infection with significant alcohol history while 7 (21.9%) subjects did not have common risk factors for CLD (HBV infection, HCV infection and alcohol) or were lost to follow-up. The risk factors for HCC identified in the cohort included HBV infection (7; 2.3%) and alcohol (1; 3.3%) with 22 (73.39%) either negative for the common risk factors for CLD (Hepatitis B,C and alcohol) or lost to follow-up.

Age and gender distribution of the subjects with the leading disorders showed higher prevalence of asymptomatic HBV infection, decompensated CLD and HCC among the males compared to the females. On the other hand, the female subjects had significantly higher prevalence of dyspeptic complaints compared to the male subjects ( $p = 0.008$ ). The mean ages of the subjects with CLD and HCC were  $45.4 \pm 14.2$  years and  $50.3 \pm 15.1$  years respectively. These subjects were over a decade older than the subjects who were asymptomatic HBV carriers with the mean age of  $34.0 \pm 10.8$  years. The mean age of the subjects with HCC suggested that the disease occurred earlier among males compared to females ( $p = 0.041$ ) as depicted in Table III.

## Discussion

The pattern of gastroenterological and hepatological referrals recorded in this study varied from asymptomatic cases to those who were symptomatic with chronic symptoms which impaired everyday living and to those who presented with life threatening and terminal illnesses.

The leading reasons for ambulatory consultation were for asymptomatic chronic HBV infection, decompensated CLD, hepatocellular carcinoma and dyspepsia. The most common reason for ambulatory gastroenterological and hepatological consultations in this study was chronic HBV infection, accounting for over a third of the study population. The findings were in contrast to another local study conducted by Lesi *et al.* at the Lagos University Teaching Hospital, Lagos, where dyspepsia was the commonest reason for ambulatory consultation.<sup>[9]</sup> The finding also differed from other reports from hospital-based studies from western countries in Europe and USA,<sup>[10]</sup><sup>[11]</sup> where dyspepsia was the most common reason for consulting a physician for a gastrointestinal

complaint.

Most of the subjects with asymptomatic HBV infection were incidentally detected during routine screening prior to blood donation or during pre-employment and pre-marital screening. The increasing number of referral of patients with asymptomatic HBV infection may reflect the increasing awareness of the public and healthcare practitioners of the potential sequelae of this infection and the need for further evaluation. Another plausible cause for early diagnosis of asymptomatic HBV infections may be the increasing drive for routine screening championed by Non-Governmental Organizations, for pre-employment screening and during blood donation exercises. A substantial number of patients with HBV infection still present with end stage liver disease in Sub-Saharan Africa with its attendant morbidities and mortality arising from long standing chronic HBV infection. Although asymptomatic and apparently healthy looking, there is a possibility that affected individuals may have significant liver disease requiring further evaluation to categorise the phase of the chronic infection. Unfortunately, only a few patients can afford the battery of investigations needed to categorize the phase of the disease.

Individuals with decompensated chronic liver disease and hepatocellular cancer ranked the second and third respectively, among people seeking ambulatory consultation in this study. The major risk factor for CLD and HCC in our subjects was chronic HBV infection, similar to other reports on liver cirrhosis and hepatocellular carcinoma.<sup>[12, 13]</sup> The observed mean age at presentation of HBV-associated CLD in this study, is consistent with the probable acquisition of the infection in childhood. This pattern agrees with previous documentations in countries endemic for HBV, such as Nigeria, that perinatal and horizontal transmissions are the major routes of transmission.<sup>[14]</sup> The other identified risk factor for CLD and HCC among these subjects was associated alcohol abuse.

It is well established that alcohol is a known aetiology of CLD and is synergistic with HBV in the causation of liver damage.<sup>[15, 16]</sup> It is well documented in the literature that males are generally more susceptible to HCC than females. The plausible reasons for the earlier age of occurrence of HCC among the males in the present study may be due to an earlier age at presentation among the blacks compared to Caucasians. This observation may also be linked to the elevated serum testosterone level, which is believed to cause synergistic interaction between the male sex and HBV in HCC.<sup>[17,18]</sup>

Table II: Pattern and categories of diseases among 259 subjects

Categories	Diseases	Frequencies	Percentages
Disease of the oesophagus, stomach and duodenum	Dypepsia/Gastritis/PUD/GERD	26	
	Upper GI bleeding	9	
	Sub-total	35	13.5
Diseases of the Liver	Chronic Liver Disease	32	
	Acute hepatitis	7	
	Fatty Liver	6	
	Liver abscess	2	
	Others (Liver cyst, haemangioma)	4	
	Unexplained hepatosplenomegaly	2	
	Unexplained abnormal LFT	1	
Sub-total	54	20.8	
Diseases of the gall bladder and biliary tract	Cholestatic/Obstructive jaundice	7	
	Gall stones/ Cholecystitis	3	
	Sub-total	10	3.9
Diseases of the Intestines and Peritoneum	Peritoneal TB/Unexplained ascites	7	
	Chronic constipation	3	
	Chronic diarrhea	2	
	Irritable bowel syndrome	2	
	Lower GI bleeding, Proctalgia	2	
	Inflammatory Bowel Disease	1	
	Sub-total	17	6.6
Viral hepatitis	Chronic asymptomatic HBV infection	93	
	Chronic HCV Infection	5	
	Dual HBV/HCV infection	2	
	Sub-total	100	38.6
Malignant Neoplasm	HCC	30	
	Metastatic Liver Disease	4	
	Cholangiocarcinoma	3	
	Cancer of the Gall bladder	2	
	Pancreatic Cancer	2	
	Gastric Cancer	2	
	Colorectal Cancer	1	
	Oesophageal Cancer	1	
Sub-total	43	16.6	

PUD-Peptic Ulcer Disease; GERD- Gastro-esophageal Reflux Disease; LFT-Liver Function Tests;

HCC Hepatocellular carcinoma; GI Gastrointestinal; HBV Hepatitis B Virus; HCV Hepatitis C Virus; TB Tuberculosis.

Dyspepsia was the fourth leading reason for a clinic visit in the present study; the prevalence in this study was lower than figures reported in some of the similar previous studies such as 26%, 33.4% and 45% in the North eastern part of the country, Lagos and Jos, Plateau State respectively.<sup>[9,19,20]</sup>

This lower prevalence observed may be attributed to the fact that our patients do not seek medical help early, as many of them would rather use alternative

medicine initially or self medicate because of the perceived higher cost of hospital care. This study also showed that dyspeptic symptoms were more frequently found among the females compared to the male in agreement with existing knowledge.<sup>[20-24]</sup> In view of the possible risk of upper GI bleeding and/or other severe symptoms, it is important to carefully evaluate every patient with dyspeptic features for *Helicobacter pylori* infection and more important features using endoscopic studies of the upper gastrointestinal tract.

Table III: Mean ages and gender distribution of subjects with the leading reasons for ambulatory consultation among the 259 subjects

<i>Clinical diagnoses</i>	<i>Total (n; %)</i>	<i>Males (n; %)</i>	<i>Females (n; %)</i>	<i>P-values</i>
<b>Asymptomatic HBV infection (n = 93)</b>	93 (35.9)	35 (31.5)	58 (39.2)	0.204
<b>Mean age (± SD)</b>	34.1 ± 10.9	31.8 ± 11.2	35.5 ± 10.5	0.112
<b>CLD (n = 32)</b>	32 (12.4)	14 (12.6)	18 (12.2)	0.913
<b>Mean age (± SD)</b>	45.4 ± 14.3	43.6 ± 11.9	46.8 ± 16.1	0.541
<b>HCC (n = 30)</b>	30 (11.6)	11(9.9)	19 (12.8)	0.466
<b>Mean age (± SD)</b>	50.3 ± 15.1	57.6 ± 18.6	46.0 ± 11.2	0.041
<b>Dyspepsia (n = 26)</b>	26 (10.0)	18 (16.2)	8 (5.4)	0.008
<b>Mean age (± SD)</b>	44.2 ± 15.1	43.4 ± 14.9	46.0 ± 16.2	0.699

Figures in parentheses represent the respective percentages

HBV Hepatitis B Virus; CLD Chronic Liver Disease; HCC Hepatocellular Carcinoma; SD Standard deviation.

Other GI and liver diseases less frequently seen were unexplained ascites, gall bladder diseases, and fatty liver. We encountered more cases of ascites in which traditional biochemistry, serology tests, imaging of the liver and other intra abdominal organ, including therapeutic trial of anti-tuberculous drugs did not unravel the underlying cause. Therefore, the role of peritoneal biopsy in the evaluation of such cases is becoming increasingly important.

The inability to investigate some of the patients in the present study in detail is acknowledged as a limitation. Some of the patients, for example, those with dyspepsia, were categorized on the basis of the clinical symptoms without ancillary investigations required to confirm the diagnosis. For example, investigations such as endoscopy and pathological studies which are frequently required are either not available or available at prohibitory costs in a setting where health financing is mostly by out-of-pocket payment.

## Conclusion

The pattern of new referrals to the Gastroenterology and Hepatology Clinic of the Olabisi Onabanjo University Teaching Hospital, Sagamu, over the first two years of operation showed that asymptomatic HBV infection was the most common reason for ambulatory consultation. It is of great concern that HBV infection, a highly preventable disease is still a major cause of clinically significant chronic liver diseases. This calls for more effective measures, including vaccination, towards the eradication of

HBV infection as a potentially life-threatening infection.

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