



Pattern and Outcome of Gastroenterology Admissions in Federal Medical Centre, Yenagoa.

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ABSTRACT

Introduction: The magnitude of digestive and liver diseases in our environment affects the pattern of admissions into the gastroenterology unit and the outcome of these medical admissions.

Methodology: This was a descriptive retrospective study conducted at the Federal Medical Centre, Yenagoa over a period of 3 years. The medical records of the patients admitted into the medical ward from 2017- 2019 were retrieved and reviewed for socio-demographics, pattern of gastroenterology presentations and outcome.

Results: A total of two hundred and seven patients were admitted into the Gastroenterology unit over the period of study. The study population comprise 117(56.5%) males and 90(43.5%) females in the ratio of 1.3:1. Majority of the admitted patients were in their 5th (21.7%) and 6th (23.2%) decade of life. Diseases of the liver (50.4%) and the upper gastrointestinal tract (35.4%) were the commonest indication for admission into the GI unit. During the study period, 72.9% of the subjects admitted were discharged by the managing team, overall mortality was 15.9% while 11.2% were discharged against medical advice.

Conclusions: Gastroenterology admissions are quite common, with liver diseases and upper gastrointestinal bleeding accounting for over 70% of these admissions. There is need for more emphasis on the preventive measures, to reduce the burden of digestive and liver diseases in Yenagoa, Nigeria.

INTRODUCTION

Diseases affecting the Gastrointestinal tract and its accessory organs have become a public health issue.¹ Its variation with geographical locations is dependent on lifestyle, environmental, and genetic factors.^{2,3} In the developed countries, there is an effective data recording and monitoring of diseases which is deficient in developing countries. Knowledge of the pattern of Gastrointestinal and liver disease is useful, not only in formulating health policies and prioritizing health interventions and research, but will also aid in planning the structure and activities of Gastroenterology units for provision of standardized patient care.⁴ Gastrointestinal and liver diseases are among diseases that show variability in the pattern of their prevalence, incidence, mortality and morbidity. The burden and outcome of liver diseases in Sub-Saharan Africa is determined by access to health care, socioeconomic status, poor sensitization and coverage of HBV vaccination, cultural inclination to high-risk lifestyle and late presentation of patients, limited availability of diagnostic and treatment facilities and shortage of trained specialists. While some countries are still facing challenges with control of Gastrointestinal infectious diseases, other countries with better economy have epidemiologically transitioned from communicable to non-communicable diseases.³ In Africa, Hepatitis B virus (HBV) is a leading cause of chronic liver disease.⁵ However, the role of hepatitis C virus (HCV) and alcoholic liver disease cannot be underestimated.^{6,7} Although the prevalence of non-alcoholic liver disease (NAFLD) is believed to be low in Africa compared to developed countries, there could be an under-representation of the burden of NAFLD considering the rising prevalence of obesity, type 2 DM and HIV which are recognized risk factors. This study is the first to be done on the pattern and outcome of Digestive disease admissions in Yenagoa, Nigeria and will serve as a landmark for other upcoming studies in the area.

Objective

This study was aimed at determining the pattern and outcome of admissions into the Gastroenterology unit of Federal Medical Centre, Yenagoa.

METHODS

We retrospectively reviewed the medical records of patients presenting at the Federal Medical Centre, Yenagoa, Nigeria over a period of 3 years from January 2017 to December 2019. The hospital is a major tertiary institution which serves as a referral centre for Bayelsans and nearby communities of Delta and Rivers State. It provides outpatient, in-patient, 24hours

emergency services and other ancillary services to the community. Case records of patients with various Gastro-Intestinal diseases were retrieved and reviewed for Information on biodata, diagnosis and outcome. The diagnosis of the various Gastroenterology conditions was based on ICD-10 classification⁸ after clinical evaluation and request for laboratory investigations including liver function test, abdominal ultrasound, serology for hepatitis B and C, abdominal CT scan, full blood count and α -fetoprotein. These diagnoses were also confirmed by the specialists, who are also the researchers. Majority of these patients were either admitted through the accident and emergency or medical out-patient clinic of the hospital and transferred to the Gastroenterology unit after initial evaluation. Others were known patients of the unit who were admitted through the Gastroenterology out-patient clinic.

Ethical consideration

The study was approved by the Ethics and Research Committee of the Federal Medical Centre, Yenagoa (FMCY/REC/ECC/2022/499) and all information gathered in the course of this study was kept confidential.

Data Analysis/calculations

Data was generated from the medical records and registers in the medical wards. The data collected included patients' socio-demographic information, diagnosis at admission, medical specialty involved in the management of the patient and outcome of the admission. Patients who had incomplete information were excluded. Data obtained were analyzed using the SPSS version 22.⁹ Continuous variables were compared using student T-test and presented as mean \pm standard deviation, while Categorical variables were compared with chi-square test and represented as proportions. *P* value of < 0.05 was considered significant.

RESULTS

Sociodemographic and trends of admission into the Gastroenterology unit.

During the study period, Gastroenterology admissions accounted for 207(11.7%) of all medical admissions (1782)

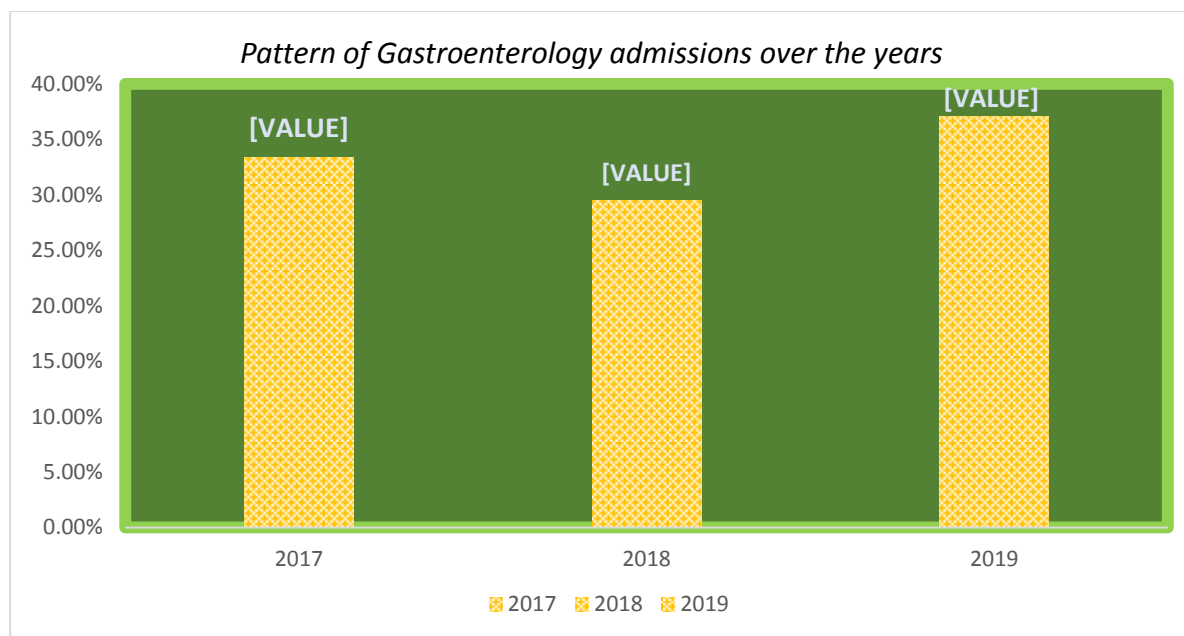
There were more males than females with a ratio of 1.3:1. The ages of the patients admitted ranged from 18 years to 83 years. The 5th and 6th decades accounted for majority of the admissions while the least prevalence was above the 7th decade as illustrated in table 1

Table 1: Sociodemographic characteristic of participants in the study group

Characteristics	2017	2018	2019	cumulative
	Total(N)=69(%)	Total(N)=61(%)	Total(N)=77(%)	Total(N)=207(%)
Sex				
Male	38(55.1)	32(52.5)	47(61.0)	117(56.5)
Female	31(44.9)	29(47.5)	30(39.0)	90(43.5)
Age groups (years)				
18-29	7(10.1)	9(14.6)	4(5.3)	20(9.7)
30-39	13(18.8)	6(9.8)	11(14.5)	30(14.5)
40-49	13(18.8)	12(19.8)	20(25.9)	45(21.7)
50-59	18(26.1)	14(23.0)	16(21.1)	48(23.2)
60-69	8(11.6)	10(16.4)	12(15.8)	30(14.5)
70-79	7(10.1)	7(11.5)	11(14.5)	25(12.1)
≥80	3(4.3)	3(4.9)	3(3.8)	9(4.3)
Mean age(years)±SD	49.4±15.8	50.6±16.9	52.7±15.0	50.9±15.9
Age Range(years)	23-81	18-82	27-83	18-83

Among the 207 patients admitted into the Gastroenterology unit, 69(33.4%) patients were admitted in 2017, 61(29.5%) patients in 2018, while

2019 had the highest number of gastroenterology admission 77(37.1%) as represented in figure I.

**Figure I: Pattern of Gastroenterology admissions during the study period**

Diseases of the liver were the commonest indication (50.4%) for admission into the gastroenterology unit, with alcoholic liver disease accounting for most of these diseases (16.9%). Diseases of the upper Gastro-Intestinal tract were the 2nd leading cause of GI

admissions with upper gastrointestinal bleeding being the most prevalent (26.2%) in this group. Other GI disorders were also seen with varying frequencies as shown in table 2

Table 2: ICD categorization of various Gastroenterology conditions

ICD-10 Classification	Gastroenterology admissions	2017 Total n=69(%)	2018 Total n=61(%)	2019 Total n=77(%)	Cumulative N=207(%)
Diseases of the Esophagus, stomach and duodenum	Esophageal Cancer	1(1.4)	0(0.0)	1(1.3)	2(1.0)
	Gastric cancer	1(1.4)	1(1.6)	0(0.0)	2(1.0)
	PUD	3(4.3)	4(6.6)	6(7.8)	13(6.3)
	Acute gastritis	1(1.4)	1(1.6)	0(0.0)	2(1.0)
	UGIB	22(32.0)	15(24.6)	17(22.0)	54(26.2)
	Total	28(40.5)	21(34.4)	24(31.3)	73(35.4)
Diseases of the liver	ALD	11(16.0)	11(18.1)	13(17.0)	35(16.9)
	Chronic HBV	6(8.7)	5(8.2)	7(9.1)	18(8.7)
	NAFLD	1(1.4)	0(0.0)	0(0.0)	1(0.5)
	Metastatic LDx	4(5.8)	6(9.8)	8(10.2)	18(8.7)
	Unexplained LDx	6(8.8)	9(14.8)	11(14.4)	26(12.6)
	Cystic liver disease	0(0.0)	0(0.0)	1(1.3)	1(0.5)
	Acute viral hepatitis	0(0)	0(0.0)	1(1.3)	1(0.5)
	PLCC	1(1.4)	2(3.3)	0(0.0)	3(1.5)
	Liver abscess	1(1.4)	0(0.0)	0(0.0)	1(0.5)
Total	30(43.5)	33(54.2)	41(53.3)	104(50.4)	
Diseases of the gallbladder, biliary tract and pancreas	Cholestatic Jaundice	1(1.4)	0(0.0)	1(1.3)	2(1.0)
	Acute pancreatitis	0(0.0)	1(1.6)	0(0.0)	1(0.5)
	Total	1(1.4)	1(1.6)	1(1.3)	3(1.5)
Non-infective enteritis and colitis	Gastroenteritis	7(10.3)	4(6.6)	8(10.4)	19(9.2)
	IBD	3(4.3)	1(1.6)	3(3.9)	7(3.4)
	Total	10(14.6)	5(8.2)	11(14.3)	26(12.6)
Other diseases of the digestive system	Lower GI bleeding	0(0.0)	1(1.6)	0(0.0)	1(0.5)

PUD- Peptic ulcer disease, CLD-Chronic liver disease, PLCC- primary liver cell cancer, UGIB-upper gastro-intestinal bleeding, IBD-inflammatory bowel disease, ALD-Alcoholic liver disease, NAFLD-Non-alcoholic fatty liver disease, HBV-Hepatitis B virus infection. LDx- Liver disease

Outcome of hospitalisation

In the Gastroenterology unit, 69.6% of the admitted subjects were discharged in 2017, compared to 67.2% and 80.6% reported in 2018 and 2019 respectively. The

highest mortality recorded was in 2018(27.9%), while the least was in 2019(6.4%). Among the 207 admitted patients, 33 died in the course of the admission with a mortality of 15.9% as shown in table 3.

Table 3: Outcome of Gastroenterology admissions over the years of study

Admission outcome	2017 Total n=69(%)	2018 Total n=61(%)	2019 Total n=77(%)	Overall 207(%)
Discharged	48(69.6)	41(67.2)	62(80.6)	151(72.9)
Discharged against medical advice	10(14.5)	3(4.9)	10(13.0)	23(11.2)
Dead	11(15.9)	17(27.9)	5(6.4)	33(15.9)

Out of the 104 patients admitted for diseases of the liver, 24(23.1%) died. 1(50%) of the 2 patients admitted for Gastric cancer died. The mortality for upper

gastrointestinal bleeding, inflammatory bowel disease, gastroenteritis and perforated PUD were 18.5%, 14.3%, 5.2% and 7.7% respectively as seen in table 4.

Table 4: Frequencies of Digestive disease disorders associated with mortality

Digestive and liver diseases	2017 Total n=11(%)	2018 Total n=17(%)	2019 Total n=5(%)	Cumulative Total n=33(%)	% mortality
Liver diseases	8(72.7)	11(64.6)	5(100)	24(72.8)	23.1%
Gastric cancer	0(0)	1(5.9)	0(0)	1(3.0)	50%
Upper GI bleeding	3(27.3)	2(11.8)	0(0)	5(15.2)	18.5%
IBD	0(0)	1(5.9)	0(0)	1(3.0)	14.3%
Gastroenteritis	0(0)	1(5.9)	0(0)	1(3.0)	5.2%
Perforated PUD	0(0)	1(5.9)	0(0)	1(3.0)	7.7%

DISCUSSIONS

Diseases affecting the gastrointestinal tract accounted for 207(11.7%) of all medical admissions(1782) over the 3-year study period. This is slightly higher than the prevalence of 7.9% reported by Nwokediuko *et al.*⁴ This can be explained by the differences in the population of patients studied. Their study was on pattern of liver disease admission and hence patients with other gastrointestinal disorders were excluded. Generally, more males were admitted into the medical wards compared to females and this is consistent with the findings in other studies.^{2,4} Males are more likely to abuse alcohol and substances that may have a negative impact on their overall well-being or it could be that they generally have a better health seeking behaviour. In this study, diseases of the liver accounted for the majority of the digestive disease admissions with alcoholic liver disease being the most prevalent. The high burden of liver diseases in sub-Saharan Africa can be attributed to chronic HBV, HCV and alcohol ingestion. In Nigeria, the burden of alcoholic liver disease is more likely to be more among the Niger Deltans, because there is a cultural inclination to excessive alcohol consumption.¹⁰ Chronic consumption of alcohol produces a variety of hepatic lesions. Hepatic steatosis is the earliest feature of alcoholic liver disease that develops in more than 90 percent of drinkers who consume 4–5 standard drinks per day.¹¹ However, with continued drinking, there is a gradual progression to steatohepatitis, fibrosis, cirrhosis, and hepatocellular carcinoma. In the present study, a significant number of patients had unexplained liver disease (12.6%). This is similar to an Ethiopian study where a high prevalence of unexplained liver disease was also reported.¹² This could be as a result of limited use of liver biopsy to detect the aetiology of liver diseases, owing to its associated risk of complications and sampling error.¹³ In a recent meta-analysis by Mecuria *et al.*,¹⁴ aflatoxins were significantly associated with liver cirrhosis and

therefore could contribute to the majority of idiopathic liver disease in Sub-Saharan Africa.¹⁴ The increased ingestion of herbal supplements and hepatotoxic recreational drugs also predispose to cryptogenic liver diseases in Africa.¹² The prevalence of NAFLD in this study is low despite the global rising trend of obesity. Clinically, the differentiation between ALD and NAFLD is usually by history taking including patient's alcohol consumption as well as laboratory and imaging; however, these methods are not always reliable.¹⁵ The 2nd leading cause of Digestive disease admission were diseases of the upper GI tract with upper gastrointestinal bleeding being the most common. Peptic ulcer disease is a frequently cause of upper gastrointestinal bleeding in Gastroenterology practice^{9,16} The low prevalence of endoscopically diagnosed peptic ulcer disease and acute gastritis in this study, mirrors the impact of the severity of medical illnesses to the physicians' decisions on admission of patients. Therefore, cases of acute gastritis and acute exacerbation of peptic ulcer disease were more likely to be discharged from emergency room for follow-up at gastroenterology clinic. In this study, the prevalence of GI neoplasms and infections are low, which is inconsistent with a population-based study in Hong-Kong, where both conditions contributed significantly to hospitalization.¹⁷ The disparity with the findings in an Asian country portrays the cultural and geographical variations in the pattern of digestive diseases.

The highest number of admissions was recorded in 2019 (37.1%), the year, 2018 had the lowest number of admissions (29.5%) as well as the highest mortality (27.9%). This could be attributed to incessant industrial actions which corresponds to the findings by Guiliano *et al.*¹⁸ in low-income countries. Strike is a common occurrence in the Nigerian health sector associated with increased mortality and morbidity, as well as a significant decline in patients admission^{19,20} Cumulatively, diseases of the liver were the commonest cause of mortality among the admitted

patients. Chronic liver disease associated with liver cirrhosis is a major cause of morbidity and mortality globally. It is responsible for 1-1.3million deaths annually.^{21,22} and reported as the 11th most common cause of death worldwide.¹⁵ Decompensated chronic liver disease has a poorer prognosis because of an increased risk of complications such as variceal bleeding, hepatic encephalopathy, ascites, spontaneous bacterial peritonitis and hepato-renal syndrome.²³ The mortality from upper Gastrointestinal bleeding which is 18.5% in our study, is similar to the reported mortality of 18.7% in a Tanzanian study.²⁴ Age, high rock all scores, severity of bleeding, co-morbidities and hemodynamic compromise are predictors of severity in UGIB.^{24,25} Inflammatory bowel disease was also a major cause of mortality, although the population of patients who were diagnosed with IBD cannot be used to make a reasonable scientific conclusion. There is an increasing burden of inflammatory bowel disease (IBD) globally, with substantial variation in levels and trends of disease in different countries and regions.²⁶ However studies on the true prevalence of IBD is still lacking in Nigeria. The patient who died of gastroenteritis associated complications also had background HIV infection. The gastrointestinal tract is an accessible site for clinical expression of HIV, Diarrhoea is one of those varied presentation whose severity and overall mortality is dependent on the level of immunosuppression.²⁷

CONCLUSION

There is need for public awareness and investment in hepatology services in Nigeria, considering the enormous burden of gastrointestinal and liver disease. This should encompass infrastructural rehabilitation, institution of cancer registries and electronic recoding of patient's data. There should also be governmental and non-governmental efforts to reduce the general consumption of alcohol in Niger Delta, considering its overall impact on the nature of liver disease admissions.

Limitations

Owing to the retrospective nature of the study, there were missing and incomplete data and therefore, these findings may not reflect the actual prevalence of these medical disorders.

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