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UPPER GASTROINTESTINAL ENDOSCOPY IN IDO-EKITI, NIGERIA: A FOUR-YEAR REVIEW

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ABSTRACT

Background: Upper gastrointestinal complaints are common, and the underlying diseases varies widely. Upper gastrointestinal endoscopy is the gold standard investigation for upper gastrointestinal symptoms. It helps in the proper diagnosis and the appropriate management of the underlying lesions. **Aim:** To determine the characteristics of the patients undergoing upper gastrointestinal endoscopy in a rural community in south-western Nigeria. **Methods:** This was a retrospective cohort study of all patients who had upper gastrointestinal endoscopy between February 2016 and February 2020 (a period of 4 years). The Age, Gender, Indication and the Endoscopy findings were obtained from the Endoscopy Register. A total of 181 upper gastrointestinal endoscopies had been performed over the period. 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 181 Oesophagogastroduodenoscopies (OGDs) were performed during the period under review, out of which 95 (52.5%) were males and 86 (47.5%) were females with a male to female ratio of 1.1 to 1. The age range of the patients was 9 to 89 years with a mean(±SD) of 52.4(±1.69) and median of 52.0 years. The highest number of OGDs were performed on individuals within the age bracket of 50-59 years whom were mostly females. Dyspepsia constituted the commonest indication for OGD (51.9%) followed by symptoms of upper gastrointestinal

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bleeding (haematemesis/melaena) 16.0%, unexplained persistent vomiting 6.6% and clinical suspicion of a gastric tumour 5.5%.

The commonest endoscopic abnormality detected from this study was Gastritis 28.2% followed by Gastric erosions 12.2%, Duodenal ulcers 8.8%, Gastric tumours 8.3% and Oesophagitis 7.2%. Normal endoscopy findings were found in 24.9% of the patients. Gastritis was also the commonest endoscopic finding (constituting 40.4%) in patients who had OGD done on account of dyspepsia followed by Duodenal ulcers (8.5%) and Gastric erosions (6.4%). Gastric erosions constituted the commonest cause of upper gastrointestinal bleeding in this study (44.8%) followed by Duodenal ulcers (13.8%).

Conclusion: The commonest indication for upper gastrointestinal endoscopy in this study was dyspepsia while the commonest endoscopic diagnosis was gastritis. Gastric erosion was most commonly seen in patients with upper gastrointestinal bleeding. From this study, Acid-Peptic disorders were the commonest underlying gastrointestinal pathologies of patients' symptomatology necessitating endoscopic evaluation. The findings from this study conducted in a rural community in Nigeria were similar to those conducted in urban communities in the country. Therefore, a national guideline on the endoscopic evaluation of upper gastrointestinal disorders can be universally applied irrespective of the location of practice in Nigeria.

Keywords: Oesophagogastroduodenoscopy, Endoscopy, Findings, Gastrointestinal, Indications, Nigeria

Introduction

Upper gastrointestinal endoscopy also known as Oesophagogastroduodenoscopy (OGD) is an endoscopic procedure in which a small flexible endoscope is introduced through the mouth and advanced through the pharynx, esophagus, stomach, and the duodenum.[1] OGD is the gold standard investigation for upper gastrointestinal symptoms.[2] It has the added benefit of enabling mucosal biopsy sampling and brush cytology for histopathologic diagnosis and therapeutic interventions can also be carried out.[1,3] Indications for OGD include: Diagnostic evaluation for signs or symptoms suggestive of upper gastrointestinal (GI) disease (such as dyspepsia, dysphagia, noncardiac chest pain, or recurrent emesis); Surveillance for upper GI cancer in high-risk settings (such as Barrett esophagus or polyposis syndromes); Biopsy for suspected upper GI disease (such as malabsorption syndromes, neoplasms, or infections); and Therapeutic intervention (such as retrieval of foreign bodies, control of hemorrhage, dilatation or stenting of stricture, ablation of neoplasms, or gastrostomy placement).[1,4]

The symptoms of upper gastrointestinal diseases are common and accurate diagnosis is usually made after clinical, laboratory and imaging assessment.[3] In resource poor countries such as in Nigeria, diagnosis is often based on clinical assessment.[3] Accurate localization and diagnosis of gastrointestinal pathologies is necessary for proper evaluation,

treatment and follow-up of patients. The importance of upper gastrointestinal endoscopy in patient management thus cannot be overemphasized.

Many studies have been published in the literature internationally on the findings at upper gastrointestinal endoscopy in patients presenting with symptoms of upper gastrointestinal diseases.[5-8] Some of the findings include gastritis, duodenitis, oesophagitis, gastric ulcers, duodenal ulcers, gastric masses, hiatus hernia, oesophageal candidiasis, gastro-esophageal varices, oesophageal ulcers, oesophageal stenosis, worms in the duodenum, gastric erosions, foreign body in oesophagus, oesophageal masses, gastric outlet obstruction and gastric vascular malformations with varying prevalences in different study populations.[5-8] Many studies have also reported Normal findings at OGD despite the patients having upper gastrointestinal symptoms.[5-8]

Studies conducted in Nigeria have also shown similar findings with varying prevalences.[9-18] There is however paucity of data on the pattern of endoscopy findings in patients undergoing OGD in the rural environments in Nigeria. This is because endoscopy services are not available in most rural communities in Nigeria and the few published studies were conducted in urban communities where endoscopy is available. This is sadly the trend across the country and also in other developing countries.[5,9,10,14]

The aim of this study is to determine the characteristics of the patients undergoing upper gastrointestinal endoscopy in a rural community in south-western, Nigeria. The objective of this study is to determine the indications for and the findings at upper gastrointestinal endoscopy in our institution which is a government-owned tertiary hospital in Ido-Ekiti, Ekiti state, Nigeria. This study is an audit of our endoscopic practice, which is taking place for the first time, since February 2016 when we first started offering upper GI endoscopy services.

This study will provide much needed scientific data on the subject among rural dwellers and it will contribute to the pool of the already available data which can be used to build a national database on endoscopy findings across the different communities in Nigeria. This can then form a template upon which more extensive research can be carried out in our population and can also be used for the development of a national endoscopy guideline. Knowledge of the common indications for and findings at OGD in our environment can also be useful for institutional policy making and health planning; improvement in reporting of endoscopy findings and overall endoscopy service delivery; as well as improvement in patient management and outcome.

Methodology

Study design

This was a retrospective cohort study of all patients who had upper gastrointestinal endoscopy between February 2016 and February 2020 (a period of 4 years) at the Federal Teaching Hospital, Ido-Ekiti, Ekiti state in south-western Nigeria.

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 started providing endoscopy services for patients since February 2016 till date.

The upper gastrointestinal endoscopies were carried out in the endoscopy suite which is located within the Operating Theatre complex of the Federal Teaching Hospital, Ido-Ekiti. The Gastroenterology unit of Internal Medicine Department is in charge of all gastrointestinal endoscopies in the institution and all such procedures are performed by us. There are two

gastroenterologists in the hospital and four endoscopy nurses.

Patient population

The Gastroenterology unit receives referrals for endoscopies from the hospital's outpatient clinics, wards, emergency department, other various specialized units within Internal medicine department as well as from other departments in the hospital such as Paediatrics, Obstetrics and Gynaecology, and General Surgery. The hospital runs an "open access" endoscopy policy whereby the patients are directly referred to the endoscopy room by their physicians based on their perceived need without prior review by a gastroenterologist. Nevertheless, the patients would be properly prepared for the procedure following standard protocols.

Procedure

The patients presenting for upper gastrointestinal endoscopy would have been booked and fasted for a minimum of 8hours before the procedure. The procedure was explained to them and a written informed consent obtained before the procedure. The patients' socio-demographics and indication for OGD were documented in the endoscopy register.

The oropharynx was anaesthesized with 10% Xylocaine spray and an anti-motility agent (Hyoscine butyl bromide 20mg) administered before the procedure. Occasionally, a sedative (Diazepam 2.5-5mg) was administered when indicated. No general anaesthesia or heavy sedation was done for any of our patients. Continuous monitoring of SpO2 and pulse rate of the patient was done by a nurse throughout the procedure.

Patients were placed in the left lateral decubitus position. A systematic examination was done by an endoscopists (a Gastroenterologist). The OGD was done using a forward viewing Olympus CV-170 series video scope (Olympus America Incorporated) according to standard procedures. Endoscopic images of important views were taken for documentation and for further review after the procedure. Mucosal biopsies were taken as indicated and the specimens were transported in a formalin solution for histopathological evaluation. There was observation of the patient for a minimum period of 30minutes after the procedure and subsequently discharged home or taken to the wards once the vital signs are satisfactory. The endoscopy findings were documented in the endoscopy register and an endoscopy report was issued to the patients.

Data collection

The endoscopy room register was used to obtain the data for a four-year period; February 2016 to February 2020. The following information was obtained from the register: Age, Gender, Indication and the Endoscopy findings. A total of 181 upper gastrointestinal endoscopies had been performed over this period.

Ethical Approval

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

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.

Results

A total number of 181 Oesophagogastro-duodenoscopies (OGDs) were performed during the period under review (February 2016 to February 2020 – a four year period), out of which 95 (52.5%) were males and 86 (47.5%) were females with a male to female ratio of 1.1 to 1 (Figure 1). The age range of the patients was 9 to 89 years with a mean(±SD) of 52.4(±1.69) and median of 52.0 years (Figure 2).

The highest number of OGDs were performed on individuals within the age bracket of 50-59 years whom were mostly females (Table 1). There has been a rise over the years in the

number of the OGDs performed with 57 (31.5%) procedures performed in 2019 (Figure 3).

Dyspepsia constitute the commonest indication for OGD (51.9%) followed by symptoms of upper gastrointestinal bleeding (haematemesis/ melaena) 16.0%, unexplained persistent vomiting 6.6% and clinical suspicion of a gastric tumour 5.5% (Table 2).

Various endoscopic abnormalities were detected in this study and some patients had multiple abnormalities (Table 3). The commonest endoscopic abnormality detected from this study was Gastritis 28.2% followed by Gastric erosions 12.2%, Duodenal ulcers 8.8%, Gastric tumours 8.3% and Oesophagitis 7.2%. The other abnormalities detected in this study are as shown in Table 3. Normal endoscopy findings were found in 24.9% of the patients.

In this study, it was observed that some patients with dyspepsia had multiple endoscopic abnormalities (Table 4). Gastritis was the commonest endoscopic finding (constituting 40.4%) in patients who had OGD done on account of dyspepsia. Duodenal ulcers (8.5%) and Gastric erosions (6.4%) were found in this category of patients while 38.3% of them had normal endoscopy findings.

Multiple endoscopic abnormalities were also found in some patients with upper gastrointestinal bleeding. Gastric erosions constitute the commonest cause of upper gastrointestinal bleeding in this study (44.8%) followed by Duodenal ulcers (13.8%). Gastritis and Duodenal erosions were also responsible for 10.3% each of the cases of Upper gastrointestinal bleeding (Table 5).

Table 1: Age and Gender Distribution.

	Gender		
Age Group	**Male(s)**	**Female(s)**	**Total (%)**
< 20	5	1	6 (3.3)
20-29	5	3	8 (4.4)
30-39	15	15	30 (16.6)
40-49	20	9	29 (16.0)
50-59	19	24	43 (23.8)
60-69	12	18	30 (16.6)
70-79	17	12	29 (16.0)
80-89	2	4	6 (3.3)
≥ 90	0	0	0 (0)
Total (%)	**95 (52.5)**	**86 (47.5)**	**181 (100.0)**

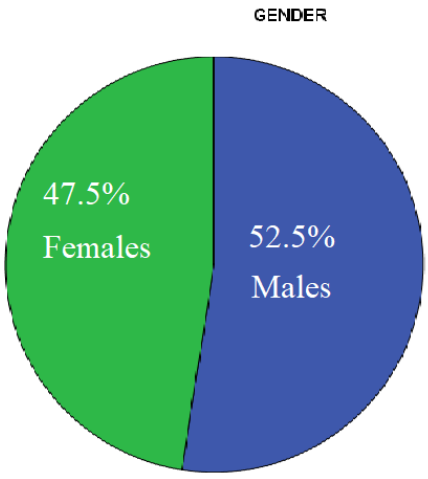

Figure 1: Gender Distribution

Table 2: Indications for Oesophagogastroduodenoscopy (OGD)

Indications	Frequency	%
Dyspepsia	94	51.9
Haematemesis/Melaena	29	16.0
Unexplained Vomiting	12	6.6
Suspected Gastric Cancer	10	5.5
Heartburn/Regurgitation	10	5.5
Dysphagia	8	4.4
Unexplained Weight Loss	3	1.7
Odynophagia	3	1.7
Epogastric Mass/Swelling	2	1.1
Acute Poisoning	2	1.1
Foreign Body in the Oesophagus	2	1.1
Oesophageal Variceal Banding	2	1.1
Chronic Diarrhoea	2	1.1
Unexplained Anaemia	1	0.6
Follow-up Endoscopy	1	0.6
Total	**181**	**100.0**

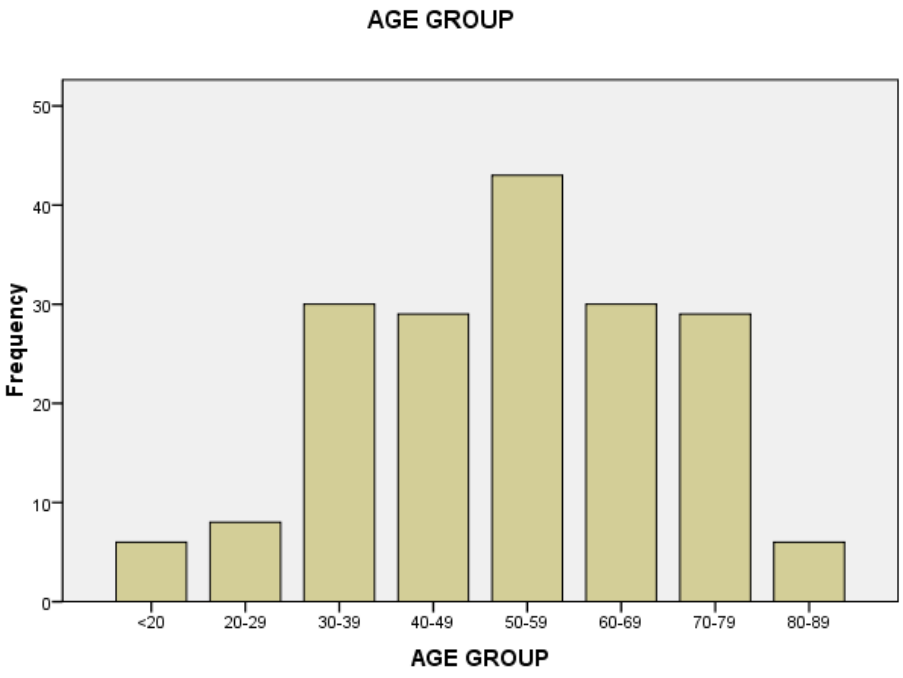

Figure 2: Age group distribution.

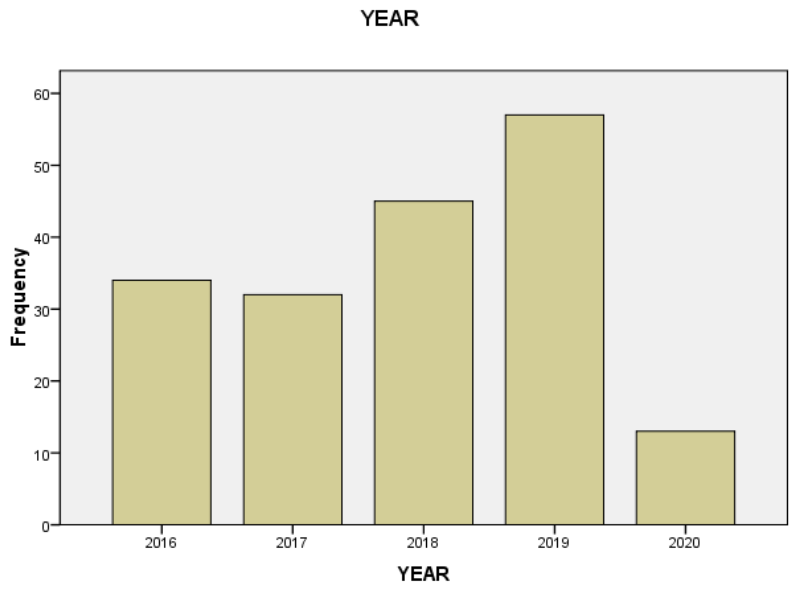

Figure 3: Frequency of Oesophagogastroduodenoscopies over a four-year period (February 2016 to February 2020).

Table 3: Upper Gastrointestinal Endoscopy findings.

Endoscopy Findings	Frequency	%
Gastritis	51	28.2
Normal Findings	45	24.9
Gastric Erosion	22	12.2
Duodenal Ulcer	16	8.8
Gastric Tumour	15	8.3
Oesophagitis	13	7.2
Gastric Outlet Obstruction	11	6.1
Duodenitis	7	3.9
Duodenal Erosion	6	3.3
Gastro-Oesophageal Reflux Disease	6	3.3
Gastric Ulcer	5	2.8
Oesophageal Tumour	5	2.8
Gastro-Oesophageal Varices	4	2.2
Gastric Atrophy	4	2.2
Oesophageal Stenosis/Stricture	3	1.7
Barrett's Oesophagus	3	1.7
Portal Hypertensive Gastropathy	3	1.7
Gastric Polyp	2	1.1
Oesophageal Ulcer	2	1.1
Oesophageal Diverticulum	2	1.1
Foreign Body in the Oesophagus	2	1.1
Hiatus Hernia	1	0.6
Duodenal Tumour	1	0.6
Oesophageal Candidiasis	1	0.6
Achalasia	1	0.6
Gastroparesis	1	0.6
Eosinophilic Oesophagitis	1	0.6
Total	**233**	**129.3**

Table 4: Endoscopy Findings in patients with Dyspepsia.

Endoscopy Findings	Frequency	%
Gastritis	38	40.4
Normal Findings	36	38.3
Duodenal Ulcer	8	8.5
Gastric Erosion	6	6.4
Oesophagitis	3	3.2
Gastric Outlet Obstruction	3	3.2
Gastric Ulcer	2	2.1
Gastric Atrophy	2	2.1
Duodenitis	2	2.1
Duodenal Erosion	2	2.1
Gastric Polyp	1	1.1
Oesophageal Diverticulum	1	1.1
Gastro-Oesophageal Reflux Disease	1	1.1
Total	**105**	**111.7**

Table 5: Endoscopy Findings in patients with Upper Gastrointestinal Bleeding.

Endoscopy Findings	Frequency	%
Gastric Erosion	13	44.8
Normal Findings	5	17.2
Gastritis	3	10.3
Duodenal Erosion	3	10.3
Gastro-Oesophageal Varices	2	6.9
Gastric Ulcer	2	6.9
Portal Hypertensive Gastropathy	2	6.9
Gastric Tumour	1	3.4
Gastric Outlet Obstruction	1	3.4
Gastric Atrophy	1	3.4
Total	**37**	**127.3**

Discussion

The symptoms of upper gastrointestinal disorders are common and oesophagogastro-duodenoscopy (OGD) plays a major role in the diagnosis of the underlying pathology.[2,3] It is therefore expected that a large number of OGDs would be performed as a result. In this study, the total number of OGDs performed over a 4-year period was quite low when compared with similar studies in Nigeria but which were conducted in urban communities.[9-18]

Although there was an increase in the number of OGDs performed from 34(18.8%) in 2016 to 57(31.5%) in 2020, the number is still too small. This is 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 considering the cost of services and treatment which they cannot afford. Many of the residents are self-employed; artisans, farmers and traders and they are not registered under the National Health Insurance Scheme which could have considerably reduced the cost of accessing an upper GI endoscopy service in the hospital.

This study found a male : female ratio of 1.1:1 among patients who had OGD. This is similar to the finding of Picardo *et al*.[18] in Enugu and Mustapha *et al.*[14] in Maiduguri. Ray-Offor *et al*.[3] in Port Harcourt, Jeje *et al*.[16] in Lagos and Dambauchi *et al*.[10] in Zaria had a male preponderance in their patients while Olokoba *et al*.[19] in Ilorin, Gyedu *et al*.[20] in Kumasi and Al-Romaih *et al*.[21] in Saudi Arabia had more females in their study.

In this study, the mean(±SD) age of the patients is 52.4(±1.69) years while studies by Malu *et al*.[9] in Zaria, Jeje *et al*.[16] in Lagos and Ray-Offor *et al*.[3] in Port Harcourt had much younger patients with the mean age of 32 years, 42.2 years, and 46.4 years respectively. Sixty percent of the patients in this study were above 50 years of age; reflecting the age when majority of our population would likely require an upper GI endoscopy. The age difference may be because the setting of this study is a rural community with a lot of retirees and elderly individuals unlike the other studies which were conducted in urban communities with much younger population.

The commonest indication for upper GI endoscopy in this study was dyspepsia (51.9%) followed by upper gastrointestinal bleeding (16.0%). This is in keeping with the findings in similar studies across Nigeria, Africa[20,22,23] and the world.[21] Malu *et al*.[9] in Zaria, North Central, Nigeria found dyspepsia as the commonest indication for the procedure amongst their patients. This was followed by the upper gastrointestinal bleeding. Danbauchi *et al.*[10] also in Zaria, some years later still found dyspepsia as the commonest indication for the procedure. Agbakwuru *et al*.[11] in Ile-Ife, South-West, Nigeria, also found dyspepsia as the commonest indication for OGD amongst their patients. Onyekwere *et al*.[13] in Lagos, also in South-West of Nigeria found dyspepsia and upper gastrointestinal bleeding as the commonest indications for OGD in their patients. Dyspepsia and upper gastrointestinal bleeding were also the commonest indications for OGD in the North East and Middle belt regions of Nigeria as reported by Mustapha et al.[14] and Olokoba *et al*.[15] respectively. Picardo *et al*.[18] in Enugu, South-East Nigeria reported in their study that the commonest indication for the OGD was dyspepsia followed by gastrointestinal bleeding.

The commonest endoscopic abnormality in this study was gastritis (28.2%) followed by gastric erosion (12.2%). Among the patients with upper gastrointestinal bleeding; gastric erosions and duodenal ulcers were the most common endoscopic findings. Danbauchi *et al*.[10] reported gastritis and duodenitis as their most frequent endoscopic findings. They also reported more cases of duodenal than gastric ulcers in their patients. Malu *et al.*[9] reported in their study that oesophageal varices were commoner than peptic ulcer disease in patients who presented with upper gastrointestinal bleeding. Acute gastritis followed by duodenal ulcer and reflux esophagitis were the most frequent endoscopic findings by Agbakwuru *et al*.[11] The commonest findings by Onyekwere *et al*.[13] in their patients were gastroesophageal reflux disease, gastroduodenitis, and peptic ulcer disease. They noted that varices were uncommon in their patients. Picardo *et al.*[18] reported gastritis as the commonest endoscopic diagnosis in their study. They also reported that peptic ulcers were seen more commonly than gastro-oesophageal varices in patients presenting with upper gastrointestinal bleeding. In our study, duodenal

ulcers were found more frequently than gastric ulcers and this is in keeping with the findings with other similar studies in Nigeria.[10,12,16] Oesophageal varices were also uncommon findings in our study which 4(2.2%) patients had and two of them had variceal band ligation.

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.[24] They include Gastritis, Duodenitis, Oesophagitis, Gastroduodenitis, Gastric erosion, Duodenal erosion, Gastric ulcer, Duodenal ulcer, Gastroesophageal reflux disease, Zollinger-Ellison syndrome and Stress-related ulcers.[24] 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.[24] *Helicobacter pylori* infection is associated with chronic gastritis, gastric ulcers, duodenal ulcers, gastric adenocarcinoma and gastric mucosal associated lymphoid tissue (MALT) lymphoma.[25] The prevalence of *Helicobacter pylori* infection is high in Nigeria.[26] Jemilohun *et al.*[27] reported a prevalence of 64% among patients with dyspepsia in Ibadan, Nigeria while Solomon *et al.*[28] 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.[26,29] Our study population are prone to all these risk factors and that may explain the high prevalence of the dyspepsia and upper gastrointestinal bleeding amongst them; and the high prevalence of gastritis, gastric erosion and some of the other endoscopic abnormalities including the gastric tumours seen in our study.

Our study has shown an overall diagnostic yield of 75.1% with 24.9% having normal endoscopic findings at upper GI endoscopy. Picardo *et al*.[18] in Enugu reported a diagnostic yield of 87.2% in their study while Ray-Offor *et al*.[3] in Port Harcourt and Jeje *et al*.[16] in Lagos reported a diagnostic yield of 90% and 66.3% respectively. Differences in indications, as well as the spectrum of upper GI diseases, inclusion criteria and sample size are some of the factors that can determine the diagnostic yield following OGD. Studies have shown that the highest diagnostic yield is found in patients having upper GI bleeding.[13,14,15]

Limitations of the study

1. The total number of the oesophagogastro-duodenoscopies performed over the 4-year period under review is relatively very small, a larger volume of the procedure would have been better.

2. The report of the histological findings of mucosal sampling was not documented in the Endoscopy register and thus was not included in this study. The hospital does not have Electronic Medical Record and such reports can only be retrieved by searching through the individual case files of the patients which is outside the scope of this study.

Conclusion

The commonest indication for upper gastrointestinal endoscopy in this study was dyspepsia while the commonest endoscopic diagnosis was gastritis. Gastric erosion was most commonly seen in patients with upper gastrointestinal bleeding. From this study, Acid-Peptic disorders therefore are the commonest underlying gastrointestinal pathologies of patients' symptomatology necessitating endoscopic evaluation. 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 place of domicile or environmental factors does not affect the pattern of symptomatology, clinical presentation or the endoscopy findings of

individuals, which further suggests that the other risk factors or aetiology of the underlying gastrointestinal pathologies are similar in both rural and urban communities. Therefore, a national guideline on the endoscopic evaluation of upper gastrointestinal disorders can be universally applied irrespective of the location of practice in Nigeria.

Recommendations

1. 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 in order to prevent its sequelae and to reduce the transmission and burden of this infection among the populace thereby reducing the morbidity and mortality associated with it.

2. Government should ensure universal health insurance coverage for the populace, which should cover the cost of upper gastrointestinal endoscopy procedures so that more patients with the indications can benefit from the procedure. This would improve overall patient care, there would be increase in the volume of procedures performed, which would improve the skills of the endoscopists and enhance better training of Resident doctors.

3. Government should also make endoscopy services available in more health institutions across the country including rural communities to facilitate patients' access to care. Facilities for Therapeutic endoscopy should also be provided in the various institutions.

4. 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.

5. 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.

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Previous publication

The authors confirm that the article is not under consideration for publication elsewhere.

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Conflict of interest disclosure

The authors declared no conflicts of interest.

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