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Management of Dyspepsia in the Emergency Department of a Teaching Hospital in Southwest Nigeria: a 5-year Review

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Abstract- **Background: Approach to management of an acute medical condition within first 24 hours of presenting at an emergency department is a major contributor to morbidity and mortality. Dyspepsia is one of the most common medical presentations seen in emergency settings. This study was determined the pattern of diagnosis among patient that presented with dyspeptic symptoms, their average length of stay, types of treatment and investigation prescribed.**

Materials and Method: A retrospective hospital-based, cross-sectional study.

The case notes numbers of patients that presented with acute dyspepsia at the Accident and Emergency department of Ekiti State University Teaching Hospital, Ado Ekiti with key words like dyspepsia, peptic ulcer disease (PUD), acute exacerbation of PUD, gastritis, gastro-oesophageal reflux disease (GERD), in their diagnosis were pulled out. The case notes were retrieved, and information were recorded inside a standardized proforma.

Result: Majority of the surveyed 112 (88.2%) presented with acute symptoms of < 2weeks duration, similarly majority 106 (83.5%) were admitted on presentation with majority of those admitted being for ≤ 1 dayAbdominal pain was observed to be the most prevalent symptom among the surveyed followed by vomiting. Majority of the surveyed had between 1&2 dyspeptic symptoms on presentation. There was significant difference between diagnosis made by casualty officers and the medical team. Proton pump inhibitors (PPIs) were mot commonly prescribed for acute dyspepsia followed antibiotics. Endoscopy was poorly prescribed to patients that presented with acute dyspepsia.

Conclusion: Majority of dyspepsia presents in acute phase. It is important that training of first responders be intensified to guarantee better outcome whenever they present in the emergency departments in Sub Sahara Africa.

Index Terms- **Dyspepsia, Emergency Department, Management, Primary Care**

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I. INTRODUCTION

Dyspepsia is one of the most common medical presentationswith significanteffect on the quality of life of its sufferers. It could be associated sometimes with serious underlying conditions [1]Itcould be defined as having one or more of the following symptoms:epigastric pain, burning, postprandial fullness, or early satiation[2]

Uninvestigateddyspepsia is that in which patients presented with new orrecurrent dyspepsia and have had no investigationundertaken as to the cause of their dyspepsia.These types of patients are more likely to be attended in any emergency unit where they may present freshly or with acute exacerbationof their symptoms[3]Global prevalence of uninvestigated dyspepsia is set atabout 21%, and confers addedburden to an individual's health-related quality of life, especially physical and social functioning[4,5]

When investigated, dyspepsia could be classified as organic or functional. According to Talley et al, "out of about 30–40% adults that experience symptoms of upper abdominal pain or discomfort, organic cause is found in only a minority who seek medical care"[6] The remaining group is labeled as having functional dyspepsia.

People with functional dyspepsia suffer remarkablyand spend lot of resources either through direct or indirect costs. Despite occasional remission, they will usually have long-term,intermittent symptoms [7],withdyspepsia being 2% - 5% of clinical consultations in family practice in the United States[8]

There are 5 major causes established in patients whose dyspepsia has been investigated: gastroesophageal reflux (with or without esophagitis), medications, functional dyspepsia, chronic peptic ulcer disease (PUD), and malignancy[9]Other minor causes include pancreatic or hepatobiliary tract disease, motility disorders, infiltrative diseases of the stomach (e.g., eosinophilic gastritis, Crohn's disease, sarcoidosis), celiac disease, intestinal angina, small intestine bacterial overgrowth (SIBO), irritable bowel syndrome (IBS), metabolic disturbances (e.g., hypercalcemia, heavy metal), diabetic radiculopathy, hernia, and abdominal wall pain[10,11]

Patients with mild symptoms may often be managed using over-the-counter medications while increase infrequency and/or severity of symptoms or concerns over underlying conditions may prompt patients toseek consultation for further treatment and reassurance[1]

When such patients present to theemergency department (ED), apart fromdirect questioning for the presence of alarm symptoms (e.g., unexplained weight loss, recurrent vomiting, progressive dysphagia, odynophagia, gastrointestinal blood loss, and family history of upper gastrointestinal cancer) [12],the management plan involves providing appropriatesymptomatic treatment and deciding who requires early endoscopic or ultrasonographicevaluation. The American College of Gastroenterology, the Canadian Association ofGastroenterology [13]and UK NICE [14] dyspepsia guidelines recommend early endoscopy forpatients who have alarm symptoms like dysphagia, vomiting, unintended loss of weight,unexplained anaemiaand family history of gastrointestinal tract malignancies, especially thoseabove 60 years while Society of Gastroenterology and Hepatology in Nigeria, recommends cut off age of 40 years.[15]Singapore a country deemed to have an intermediate-to-highprevalence of upper gastrointestinal malignancy[16] lowered its indication for anesophagogastroduodenoscopy (EGD)by including patients with new onset dyspepsia overthe age of 40 orthose who have been on empirical proton pump inhibitor treatment for more than 4weeks [17]

This study was aim to determined the pattern of diagnosis among patient that presented with dyspeptic symptoms, their average length of stay, types of treatment and investigation prescribed.

II. MATERIALS AND METHOD

This is a retrospective hospital-based, cross-sectional study.

The case notes numbers of patients that presented with acute dyspepsiabetween January 2014 and December 2018 at the Accident and Emergency department of Ekiti State University Teaching Hospital, Ado Ekiti withkey words like dyspepsia, peptic ulcer disease(PUD), acute exacerbation of PUD,gastritis, gastro-oesophageal reflux disease (GERD), in their diagnosis were pulledout.

The case notes were retrieved from the Health Information Department and information like age,sex, occupation, presenting symptoms, duration of symptoms, symptom burden (number of symptoms present in an individual),[18]initial diagnosis, types of treatment prescribed, investigation ordered,working diagnosis after investigations, and length of stay on admission were recorded inside a standardized proforma.

The Adult Accident & Emergency department of Ekiti state university teaching hospital is a 40 bedded emergency unit that attend to all emergency cases in the hospital. It was manned during the period under review by a Consultant who coordinate day to day running and medical officers (casualty officers) who provide initial evaluation of all emergency cases that presents in the unit whether medical, surgical or trauma. After initial review, the patients were either managed as a primary care case by the casualty officers or specialists in relevant field are invited to further review and possibly take over the management.

Data wereinputtedinto SPSS version 26.

Qualitative variables will be analyzed using frequency and percentages while quantitative variable will be analyzed using means and standard deviation.

Test of significance was done using Chi square with p value set at 0.05

III. RESULTS

One hundred and twenty-sevenpatientsrecord with following characteristics(Table 1) met the search terms and their case notes were reviewed for the study.

The mean age of reviewed patients was 37.8 ± 17.3 years. Eighty-four (66.1%) of the surveyed presentedwithin the age ≤ 40 years while 18(14.2%) were aged ≥ 60 years of age. There was higher preponderance of female sex withM: F of 1:2.3. Fifty-one(40.2%) of the surveyed were financially dependent being unemployed, students and retirees.

S/N	Characteristic	Frequency	Percentage %
1	**Age**		
	≤ 20 years	16	12.6
	21-30	39	30.7
	31-40	29	22.8
	41-50	20	15.7
	51-60	5	3.9
	≥60	18	14.2
2.	**Sex**		
	Male	38	29.9
	Female	89	70.1
M: F	*1:2.3*		
3.	**Occupation**		
	Unemployed	2	1.6
	Student	43	33.9
	Retired	6	4.7
	Farmer	2	1.6
	Artisan	5	3.9
	Private Sector employed	12	9.4
	Government employed	35	27.6
	Business	22	17.3

Table 1: Characteristics of surveyed participants

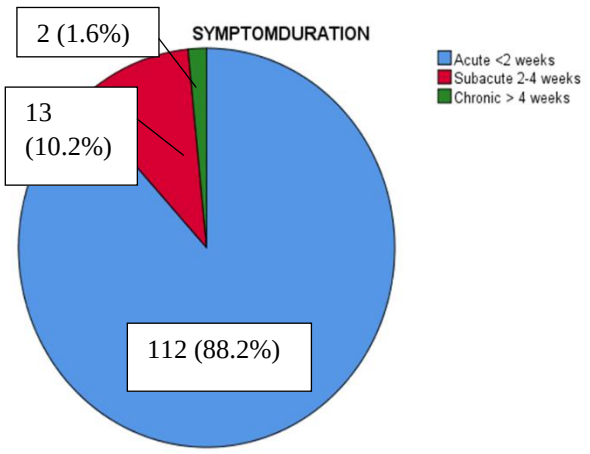

Figure 1: Duration of Symptoms before Presentation

Majority of the surveyed 112 (88.2%) presented with acute symptoms of < 2weeks duration, Fig. 1. Similarly majority 106 (83.5%) were admitted on presentation. Majority of those admitted 71(67%) were admitted for ≤ 1 day.

Abdominal pain was observed to be the most prevalent symptom among the surveyed (110, 86.6%) followed by vomiting (52, 40.9%) Table 2. Majority of the surveyed 77 (60.6%) has between 1&2 dyspeptic symptoms on presentation while those that had greater than 3 symptoms were 16 (12.6%), Table 3.

At presentation, the initial diagnosis by attending doctors showed most prevalent diagnosis to be Acute exacerbation of Peptic Ulcer Disease (PUD) 27.6%, followed closely with PUD coexisting with other illnesses, 24.4%, (Table 4). On further review and evaluation, the most prevalent working diagnosis was acute Peptic Ulcer Disease (PUD) followed by PUD with coexisting illness (18.1%) Table 4. Comparison between initial and working diagnosis showed improvement in recognition of dyspepsia related diagnosis on further review.

Table 2: Pattern of dyspeptic symptoms presented

S/N	Symptoms	Frequency	Percentage%
1.	Abdominal Pain	110	86.6
2.	Vomiting	52	40.9
3.	Chest Pain	10	7.9
4.	Bloating	3	2.4
5.	Heartburn	4	3.16
6.	Shortness of Breath	5	3.9
7.	Nausea	7	5.5

Table 3: Distribution of dyspeptic Symptoms (Symptom burden)

S/N	Symptom Burden	Frequency	Percentage
1.	1 Symptom	36	28.3
2.	2 Symptoms	41	32.3
3.	3 Symptoms	34	26.8
4.	> 3 Symptoms	16	12.6

One hundred and six (84.3%) of the surveyed were admitted with mean admission day being 3.05 ± 5.229 days, min = 1 day, max 35 days, Fig. 2.

Proton pump inhibitors was the mostly prescribed medication to patients that presented with dyspepsia in the emergency department during the period reviewed. This was followed by intravenous fluid (IVF) and antibiotics 78% and 68.5% respectively. The least prescribed medication was antimotility (2.4%), Table 5.

Eight of the surveyed (6.3%) were evaluated with abdominal ultrasound (USS) with majority having normal findings 6 (75%) Table 8. Seven of the surveyed were requested to have upper GI endoscopy, 2 (28.6%) were reported to have chronic gastritis, 1 (14.3%) respectively had gastric cancer, mild oesophagitis and upper GI bleeding due to gastric erosion, 2 (28.6%) reports were missing, Table 6.

Table 4: Comparison between Initial and working Diagnosis

S/N	Diagnosis	Initial Diagnosis Freq (%)	Working Diagnosis Freq (%)
1.	Acute Peptic Ulcer Disease	20 (15.7)	58 (45.7)
2.	Acute exacerbation PUD	35 (27.6)	13 (10.2)
3.	Complicated PUD	5 (3.9)	4 (3.1)
4.	PUD coexisting with other illnesses	31(24.4)	23 (18.1)
5.	Gastritis	8 (6.3)	8 (6.3)
6.	Dyspepsia	2 (1.6)	3 (2.4)
7.	GERD	3 (2.4)	4 (3.1)
8.	Others	23 (18.1)	14 (11.0)

$\chi = 374.9$ df = 49, P = 0.000

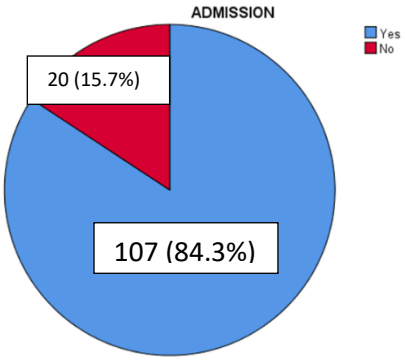

Figure 2: Pattern of Admission among dyspeptics

IV. DISCUSSION

Literature search revealed that limited work had been carried out to review management of dyspepsia cases managed within an emergency department hence this discussion is limited.

One hundred and twenty-seven patients that met the search terms of dyspepsia, peptic ulcer disease (PUD), acute exacerbation of PUD, gastritis, gastro-esophageal reflux disease (GERD) were attended to in the emergency department of EKSUTH between January 2014 and December 2018. This is comparable with a similar survey of all gastrointestinal disease and disorders over an eight-year period in the emergency department of a teaching hospital in a neighbouring town of Ido Ekiti that recorded 124 patients admitted on account of acute exacerbation of dyspepsia.[19] This however is lower than the population surveyed in a similar 5-year retrospective study in the North-Western Nigeria where GIT admissions was reviewed, and it was observed that dyspepsia cases were 370. [20] These numbers were farsmaller when compared to a one month survey of a newly built Emergency department in Tanzania with population of those with dyspepsia being 1,384[21] and a survey in Turkey [22] and Singapore [1] with 2,798 and 1,304 dyspeptics were surveyed respectively. The mean age of 37.8 years observed in this study and is comparable with that of 35.6 and 39.7 years observed in the study of dyspeptics in an endoscopy unit in Uganda and an emergency department in Turkey respectively [23,22] while a higher mean age of 49 years and 49.99 years were observed in study of dyspeptic patients in the emergency department observation unit of National University Hospital, Singapore [1] and peptic ulcer patient with perforations in the teaching hospital of Irrua in Edo State, Nigeria [24]. 70.1% of the patients were females, this proportion is higher compared to 52.0% and 58.1% in the Singapore and Turkey study respectively.[1,21]Majority, 88.2% of the patients surveyed presented with symptoms of less than 2 weeks duration, this is higher than 66.5% observed in the Singapore study [1]. Most prevalent symptom presented was abdominal pain, 86.6% followed by vomiting, 40.9%; this pattern is like the observation in the Singapore study, however with higher prevalence of 91.8% and 58.1% for abdominal pain and vomiting respectively. [1]

Table 5: Pattern of Treatment received at presentation

Treatment	Frequency (%)	
	Yes	No
1. Proton Pump Inhibitors (PPIs)	117(92.1%)	10 (7.9%)
2.Antibiotics	87 (68.5%)	40 (31.5%)
3.Antacids	67 (52.8%)	60 (47.2%)
4. Antimotility	3 (2.4%)	124 (97.6%)
5. Intravenous Fluid (IVF)	99 (78%)	28 (22%)

Majority of patients that presented with dyspepsia related complaint had more than 1 symptoms with 71.7% in this study having 2 and above symptoms out of which 12.6% had more than 3 symptoms. Those with 2 and above symptoms were more in the Singapore study, 85% and only 11.4% had more than 3 symptoms. [1] Compared to 16.7% admitted into the Emergency Department Observation unit (EDOU) with mean admission days of 3 days [1], this study had 84.3% on admission with mean admission day of 3.05 days. This variation may be due to presence of 2 cases of malignancy, 8 cases of upper GI bleeding and 2 cases perforation.

This study observed there was significant difference (χ = 374.9, P = 0.000) in the initial diagnosis made probably by casualty officers and the working diagnosis by the medical teamthat comprise mainly doctors on postgraduate training.

Table 6: Pattern abdominal ultrasound and upper GI endoscopy request and results

S/N	Investigation	Frequency	Percentage
1.	Abdominal Ultrasound	8	6.3
	Result USS		
	Normal Study	6	75
	Perforated Viscus	1	12.5
	Ascites	1	12.5
2.	Upper GI Endoscopy	7	5.5
	Result Endoscopy		
	Chronic Gastritis	2	28.6
	Gastric Cancer	1	14.3
	Mild Oesophagitis	1	14.3
	Upper GI Bleeding due to Gastric Erosion	1	14.3
	Missing report	2	28.6

This difference could be a pointer to the need for improved training on gastroenterology at primary care level.

Proton Pump Inhibitors (PPIs) were the mostly prescribed treatment for patient that presented with acute dyspepsia in the emergency department in this study followed by antibiotics which are usually triple regimen for Helicobacter pylori (H. pylori) eradication, this reflects the common practice of empirical H. pylori eradication in this environment. This could be due to non-ready availability and /or affordability of H. pylori screening tests in the local environment. The few (2.4%) prescriptions of antimotility, could be a reflection of low incidence of the motility component of dyspepsia like irritable bowel syndrome or inability to recognize same.

In contrast to finding in Singapore study [1] where 24.0% and 40.9% had hepatobiliary ultrasound scan and Upper GI endoscopy respectively; this study had 6.3% and 5.5% respectively. This could be due to among many factors the degree of poverty with subsequent inability to pay for these investigations, couple with challenged infrastructure and manpower development in the field of gastroenterology.

V. CONCLUSION

Majority of dyspepsia presents in acute phase. It is important that training of first responders be intensified to guarantee better outcome whenever they present in the emergency departments in Sub Sahara Africa. Concerted efforts should be made to improve upon the poor deployment and or access to Helicobacter pylori testing and endoscopy evaluation in management of dyspepsia in the emergency services of low & middle income countries

LIMITATIONS

1. Being a retrospective study, some records were missing.

2. Limited literature does not allow adequate comparison of findings in this study.

RECOMMENDATIONS

1. Improved training on basic gastroenterology at primary care level

2. Further study into management of acute dyspepsia in emergency department is recommended for guideline formulation

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