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DYSPEPSIA AND PREVALENCE OF CLINICALLY SIGNIFICANT ENDOSCOPY FINDINGS IN A GASTROENTEROLOGY REFERRAL CLINIC IN ETHIOPIA

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ABSTRACT

Background: *The clinical features and endoscopic findings of dyspepsia are not well studied in Ethiopia. Dyspepsia is the predominant presentation of patients to Gastrointestinal (GI) Clinics in our country and Endoscopic findings are not routinely recommended to patients. Yet, identifying which patients need an urgent Endoscopy diagnosis is important to diagnose organic causes at an earlier stage. This study assessed the prevalence of dyspepsia, associated factors, and clinically significant endoscopic findings and alarm symptoms in referral GI clinic in Ethiopia*

Methods: *A retrospective cross-sectional record review was conducted among adults who came with complaints of dyspepsia from September 1, 2015, to August 31, 2017 at St Paul hospital millennium medical college GI clinic. SPSS version 23 was utilized for data analysis. Descriptive data are presented as frequencies and percentages for categorical variables. To see the effect of each independent variable on the outcome, binary logistic regression was used, and the strength of the association was assessed by computing odds ratio. A P value of <0.05 was considered statistically significant.*

Results: *From 3542 patients seen at GI clinic, dyspepsia was diagnosed in 418 i.e. in 21.6% of cases. The endoscopic diagnosis showed a high prevalence of gastric cancer of 8.8%. Functional dyspepsia was diagnosed in 15.5% and a high prevalence of non-specific Gastro-duodenitis were reported, especially in younger cases with no associated alarm symptoms. Anemia and weight loss were independent predictors for organic causes.*

Conclusion: *Weight loss and anemia were important predictor of gastric cancer and should alarm physicians for an early endoscopy in these patients. The study also supports to restrict upper GI endoscopy in individuals <45 years of age and no alarm symptoms.*

Keywords: *Dyspepsia, Upper GI Endoscopy, Ethiopia, Alarm symptoms*

BACKGROUND

Dyspepsia is defined as a group of symptoms consisting mainly of epigastric pain, burning, and postprandial fullness (1). It can also include nausea, belching, and bloating (1). Dyspepsia is also defined as predominant epigastric pain lasting at least for one month and can be classified into organic and functional. In organic dyspepsia, specific pathology like peptic ulcer disease, GERD, and malignancies are identified on upper gastrointestinal endoscopy. In contrast, endoscopy will be normal in functional dyspepsia. There are also other non-luminal causes including pancreatic and gall bladder diseases that should be excluded (1, 2). The reported prevalence of dyspepsia ranges from 1.8 to 57% across different countries with an average prevalence of 20.8% among population studies; this variability is explained partly by the use of different criteria for dyspepsia (3). There has been an increased prevalence of dyspepsia in women, smokers, NSAIDs users, and among H. pylori positive people (3). Patients with dyspepsia generate substantial health care costs, with abnormal health care seeking behavior and considerable anxiety affecting their quality of life (4,5,6).Weight-loss related to dyspepsia should be considered as an alarm sign indicating GI malignancy (7).

The prevalence of dyspepsia in African countries like Nigeria and Rwanda ranges from 29 to 38.9%. In Ethiopia, it is the most frequent indication for an upper GI endoscopy, and it is increasingly becoming an important cause of morbidity (8). Although gastrointestinal endoscopy is a primary diagnostic tool for dyspepsia, it is not widely available. There are only two training centers in Ethiopia with a GI fellowship program; because of this, there are few well-trained physicians to diagnose and treat dyspepsia adequately.

In this study, we assessed the burden of dyspepsia, Endoscopic findings of those patients referred with symptoms and from this, we identified alarm symptoms that could predict an organic pathology.

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MATERIALS AND METHODS

This was a retrospective cross-sectional study carried out in the GI clinic of St. Paul's Hospital Millennium Medical College (SPHMMC) from September 1, 2015, to August 31, 2017. SPHMMC is one of the two major tertiary referral hospitals in Ethiopia with Gastroenterology and Hepatology fellowship program. The Endoscopy unit is a recognized regional training site and accredited by World Endoscopy Organization as an African training center. The GI clinic accepts patients referred from different parts of the country. The hospital has 350 beds, sees an annual average of 300,000 patients. It has a catchment population of more than 5 million.

After obtaining ethical clearance from the Institutional review board, data were extracted from medical records of patients and information regarding age, sex, symptoms, risk factors, and endoscopy diagnosis recorded. It was a two years chart review from patients who have visited the clinic and all patients with an initial presentation of Dyspepsia and physician diagnosis of Dyspeptic syndrome were included. Patient data with incomplete medical records were excluded. Dyspepsia was diagnosed based on the treating gastroenterologist diagnosis found and traced from the chart. Data were coded, cleaned and entered, into SPSS version 23, and all statistical tests were performed with the same statistical package.

Statistical analysis

Descriptive data are presented as frequencies and percentages for categorical variables, mean, and standard deviation for quantitative variables. To see the effect of each independent variable on the outcome, binary logistic regression was used, and the strength of the association was assessed by computing odds ratio. Variables with p-value <0.2 in the two variables analyses and relevant with the objective of the study were included in the multiple binary logistic regression model. Multiple binary logistic regressions were run, and the differences between variables were explored. P-values of less 0.05 were considered statistically significant.

RESULTS

Patient characteristics

Out of the 3542 patients seen at GI clinic; 418 (21.6%) were diagnosed with dyspepsia and requested to have an Endoscopy. The mean age of the participants was 42 (ranging from 15-97). A total of 40.7% of patients were from Addis Ababa. The patients consisted of 60% males and 40% females. Demographic characteristics of the participants were depicted in table 1 below.

Table 1: Patient diagnosed with Dyspepsia at St. Paul's Hospital GI Clinic, 2013-2015 G.C.

- (N=418)

Demographic Variable	Number	Percent
Sex		
Male	251	60
Female	167	40
Mean Age	42 years	
Region		
Addis Ababa	170	40.7%
Out of Addis	248	59.3%

*No complete data for occupation, marital status was found

Clinical features of patients with dyspepsia
Three hundred ninety-seven (95%) patients had epigastric pain. Weight loss and dysphagia as alarm symptoms occurred in 112 (26.7%) and 35(8.3%) patients, with organic and functional dyspepsia, respectively. (See Table 2).

Table 2: Clinical presentation of patients at St. Paul's Hospital GI Clinic, 2013-2015 G.C. (N=418)

Clinical Presentation	Number	Percent	Functional dyspepsia **	Organic Dyspepsia***
Epigastric pain	397	95.0	61	336
Epigastric burning	409	98.0	64	345
Postprandial fullness	298	71.0	50	248
Early satiety	280	66.9	48	232
Weight loss	112	26.7	21	91
Dysphagia	35	8.3	2	33
Upper GI bleeding	163	38.9	14	149
Symptoms of GOO *	9	2.1	0	9

*Gastric outlet obstruction
** Patient with clinical symptoms, but normal EGD and imaging findings and decision from treating physician after assessment of the patient
***Patients with Endoscopic findings of an organic cause

Endoscopic findings
From a total 418 patients with dyspepsia, who underwent endoscopy, functional dyspepsia constituted 15.5% while the remaining 84.5% presented has some endoscopic findings. The reported diagnosis on endoscopy were 18.5% duodenal ulcer, 16.4% GERD, 8.8% gastric cancer, while 6.6% had gastric ulcer (See Table 3).

Table 3: Endoscopic findings in dyspeptic patients at St. Paul's Hospital GI Clinic, 2013-2015 G.C.

Endoscopic finding	Freq.	Percent
Gastric Cancer	37	8.8
Duodenal Ulcer	62	14.7
Gastric Ulcer	19	4.5
Gastric and Duodenal ulcers	9	2.1
GERD[&]	31	7.5
GERD[&] + Duodenal ulcer	7	1.7
Gastritis	103	24.6
Duodenitis	17	4.0
GERD[&] + Gastritis	30	7.2
Bile reflux gastropathy*	8	1.9
Gastro-duodenitis	7	1.7
Others	22	5.3
Normal	65	15.5
Total	418	100.0

*physicians report of an endoscopy finding [&]Gastro-esophageal reflux disease

Associated factors for Dyspepsia
From this study, NSAIDs were used in 9.5%, 10.4% were consuming alcohol. H. pylori bacteria was positive in 12.3% of FD patients and 20.9% of organic dyspepsia. (See Table 4)

Table 4: Factors predicting Organic Dyspepsia at St1. Paul's Hospital GI Clinic, 2013-2015 G.C.

Variable		Total(n=418) n(%)[&]	P-value	Crude OR (95% CI)	Adjusted OR (95% CI)
Age	<45 45-60 >60	303(72.5) 71(16.9) 44(10.6)	0.01	1 1.18(1.45-11.02) 2.15(0.64-6.68)	0.83(0.22-3.10)
Sex	Male Female	249(59.5) 169(40.4)	0.05	1.68(0.99-2.86)	1.12(0.50-2.53)
NSAID [*]use	No Yes	202(83.4) 40(16.6)	0.07	1 0.26(0.06-1.13)	
Alcohol habit	No Yes	257(85.) 44(14.7)	0.11	1 0.37(0.11-1.27)	
H.Pylori	Neg.**	306(78.)	0.02	1	

*Non-steroidal Anti-inflammatory drugs ** Negative [&] Missing data for H.pylori,Alcohol,NSAIDs

The presence of weight loss and anemia were significantly associated with the presence of gastric cancer (see table 5). A biopsy result was collected for 37 patients with Gastric mass, out of this 29 had adenocarcinoma, and one participant had a Histologic diagnosis of lymphoma.

DISCUSSION

Dyspepsia was prevalent in our study. Patients presenting with dyspepsia may have a range of diagnosis from normal endoscopy finding to the diagnosis of cancer.

Table 5 Factors predicting gastric cancer at St. Paul's Hospital GI Clinic, 2013-2015 G.C.

Variables		**Total (n=37),n(%)**	**P-value**	**Crude OR 95% CI**	**Adjusted OR (95% CI)**
Age	<45	23(62.2)		1	
	45-59	8(21.6)	0.01	4.00(1.45-11.)	2.14(0.41,11.21)
	>60	6(16.2)	0.18	2.15(0.696.60)	2.160.34,13.84)
Sex	Male	20(54.1)		1	
	female	17(45.9)	0.12	1.90(0.834.30)	0.98(0.24, 4.05)
Smoking habit	No	31(83.8)		1	
	Yes	6(16.2)	0.05	0.26(0.07-0.93)	2.05(0.35,12.02)
weight loss	No	16(43.2)		1	
	Yes	21(56.7)	<0.01	0.04(0.01-0.17)	2.23(4.95,109.0)
Anemia	No	15(40.5)		1	
	Yes	22(59.5)	0.01	0.22(0.09-0.53)	3.09(1.05, 9.14)

Understanding which patients with dyspepsia could have cancer and prediction based on risk factors and non-invasive tests is important to prioritize and limit the need for endoscopy.

Dyspepsia accounted for 21.6% of patients seen at GI/ Hepatology clinic. This result was closer to a meta-analysis, which reported an overall pooled prevalence of 20.8% (3). Numbers are lower than a prospective study done in Rwanda, which showed a prevalence of 38.9%. This was a prospective study done in 356 health workers and as the study population is focused to a certain group, it might have increased the prevalence (5). Another study from the Northern part of Ethiopia, Gondar, has found a prevalence of 54.4% (9) This study has a larger sample size and it is focused on endoscopy findings as an entry point and included an eight-year study, which leads to a higher recruitment of patients with dyspepsia .

Gastric cancer was found in 8.8% of dyspeptic patients. Previous Ethiopian studies have shown a prevalence of gastric cancer ranging from 0.3-3.6% (9,12,16,22). The prevalence is higher in our study, possibly because it is a tertiary referral center and the catchment area is also considered to have higher prevalence of gastric cancer from previous studies (23)

The presence of weight loss increased the presence of gastric cancer by 23-fold while anemia increased the prediction by three-fold. This is consistent with different studies that reported alarm features as strong predictors of upper GI cancer (25, 26).

Functional dyspepsia with normal upper endoscopy was found in 15.5%, which is comparable to studies in Nigeria (15.4%), UAE (15%) (11) and lower than a study done in Mekelle, Ethiopia (12). Females had a slightly higher proportion of functional dyspepsia. Younger age (<45 years), female gender and lack of alarm symptoms (weight loss and anemia) were indicators of functional dyspepsia. This supports to defer endoscopy for such group of patients.

Gastritis was the commonest endoscopy diagnosis in this study, followed by duodenal ulcer and GERD. Data from Lagos, Nigeria have also shown a higher prevalence of gastritis (59.9%) (11,13,15)

This study showed a higher prevalence of GERD compared to a previous Ethiopian report from 2004, where the prevalence was 2.3%. This could be due to changes in life style and global increase in non-communicable diseases, which could increase GERD prevalence (22).

H.pylori was detected in 19.6%, which was lower compared to previous studies in Ethiopia, which reported a prevalence of 65-83%(8) (16, 17). This disparity may be due to the widespread use of H.pylori eradication therapy that reduced the prevalence of H.pylori in our setup. The patient recruitment may also be different. NSAIDs use was 9.5%, and it was associated with GERD and gastritis on endoscopy. Higher frequency of dyspepsia in persons taking NSAIDs has also been reported from a meta-analysis (19). Another study has also estimated that 4% of all dyspepsia in the community is attributable to NSAID use in subjects aged 40 –49 years (20). Alcohol use was lower in our study compared to a study that reported 34% in southern Ethiopia (6). In this study, the behavioral risk factors such as smoking and alcohol use had no relationship with organic dyspepsia, which is consistent with a study from southern Ethiopia (6). However, different studies in Africa and the western world have shown an increased risk of dyspepsia in people who smoke and drink alcohol (21) (13). This inconsistency may be due to incomplete chart documentation as a limitation of this retrospective study.

An important limitation of our study is the retrospective nature, which was associated with poor documentation of potential risk factors for dyspepsia and gastric cancer. On the other hand, the study was performed in a major referral center and inclusion of many patients in the referral clinic is the main strength of the study.

CONCLUSION

Dyspepsia was a common diagnosis in our clinic patients. Weight loss and anemia were important predictors of gastric cancer and should alarm physicians for an early endoscopy in these patients. The study also supports to defer upper GI endoscopy in individuals <45 years of age and no alarm symptoms.

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