ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF INTERNAL MEDICINE

Research Title:

Clinical characteristics and Endoscopic outcomes of patients who underwent UGIE for an indication of dyspepsia at Tikur Anbesa Hospital Gastroenterology referral clinic from December 1, 2015- December 30 2019.

Investigator: Endashaw.Kefyalew MD, (Final year internal medicine resident)

Advisor: AMIR SULTAN (MD, internist, Consultant Gastroenterologist) Addis Ababa University, Ethiopia.

A thesis submitted to the department of internal medicine in partial fulfillment of the requirements for specialty certificate in internal medicine.

December 2020
ADDIS ABABA, ETHIOPIA

Email address: endu.imed@gmail.com
Phone No: +251913924298

Acknowledgement

I would like to thank Dr. Amir Sultan (MD, Internist, Gastroenterologist and Hepatologist) for his unreserved help, advice and guidance in the area of my research.

Table of Contents

Acknowledgment	2
List of tables and figures	3
Abbreviations	4
Abstract	5
1. Introduction	6
1.1 Background	6
1.2 Statement of the Problem	8
1.3 Significance of the study	9
2. Literature Review	10
3. Objectives	12
3.1. General objective	12
3.2. Specific objectives	12
4. Materials and methods	13
4.1. Study area	13
4.2. Study design and period	13
4.4. Population	13
4.4.1. Source population	13
4.4.2. Study Population	13
4.4.3. Sample size determination	14
4.5. Inclusion and exclusion criteria	15
4.6. Study variables	15
4.7. Measurement and Data collection	16
4.7.1. Data collection procedure	16
4.8. Data Quality Assurance	16
4.9. Data analysis and interpretation	16
4.10. Operational definitions	17
4.11. Ethical considerations	18
4.12. Dissemination of the result	18
5. Results	19
6. Discussion	27
7. Conclusions	29
8. Limitations of the study	29
9.Recomendations	30
10. References	27
11. Annexes	32
Declaration	35

Acronym

AAU	Addis Ababa University
ACG	American Collage of Gastroenterology
ASA	Aspirin
BLH	Black lion Hospital
CAG	Canadian Association of Gastroenterology
CCG	Canadian Collage of gastroenterology
IRB	Institutional Review Board
NSAIDS	Non-steroidal anti-inflammatory drugs
PI	Principal Investigator
PPI	Proton Pump Inhibitor
PUD	Peptic Ulcer Disease
SPSS	Statistical Package for the Social Sciences/ Statistical Product and Service Solutions.
TASH	Tikur Anbesa Specialized Hospital
UGIE	Upper gastrointestinal Endoscopy

Abstract

Background:
Dyspepsia is a frequent syndrome in our country, where there is limited endoscopy service and high prevalence of Helicobacter pylori (H. pylori) infection with some having an organic cause while others have functional dyspepsia. Endoscopy is the most accurate method of diagnosis of most endoscopically positive conditions associated with dyspepsia, including gastric cancer, peptic ulcer disease, esophagitis and gastro- duodenitis. Helicobacter pylori infection is associated with various upper gastrointestinal pathologies.

Objective: The purpose of this study is to Clinical characteristics and Endoscopic outcomes of patients who underwent UGIE for an indication of dyspepsia at Tikur Anbesa Hospital Gastroenterology referral clinic.

Methods: A Hospital based- Retrospective cross-sectional study was conducted using pretested, structured questionnaires to determine clinical characteristics of patients between 17-76 years' old who underwent endoscopic procedure at Tikur Anbesa Hospital Gastrointestinal referral clinic. The study is conducted from April 2020-september 2020 G.C. A sample of 270 patients were included in the study. Based on the structured questionnaire, presenting symptom, alarm symptom, H.pylori test result and endoscopic finding and risk factors are assessed by the investigator. Organic dyspepsia findings were analyzed with different variables to verify statistically significant associations.

Result:
Two hundred seventy patients were included and analyzed in the study. The mean age was 38 years and Men comprised 58.5% of the study. 37 % of the patients reported alarm symptoms. The prevalence of H. pylori infection was 37.8 %. Endoscopic finding constitutes Normal, 29%, Ulcer disease, 16% (duodenal in 13% and gastric ulcer in 3%), Gastropathy/Gastritis 33 %, 13% had GERD and esophageal erosion and gastric mass account for 2.2 %. Ulcer diseases were found to have statistically significant association with H. pylori infection OR, (0.38 95% CI, (0.143-0.552) and alarm symptom (iron deficiency anemia and persistent vomiting), $p < 0.05$.

Conclusion:

The endoscopic diagnosis in our setting showed predominance of abnormal findings and of this ulcer disease is the major endoscopic outcome with strong associations with Helicobacter pylori infection and GERD diagnosis was also shown to be frequent endoscopic diagnosis among our dyspeptic patient. Whereas cancer was an uncommon finding, despite the high prevalence of H. pylori.

Keywords: endoscopy, dyspepsia, clinical characteristics

1. **Introduction**

1.1. BACKGROUND

Dyspepsia is defined as predominant epigastric pain lasting at least 1 month. This can be associated with any other upper gastro intestinal symptom such as epigastric fullness, nausea, vomiting, or heartburn, provided epigastric pain is the patient's primary concern. Dyspepsia was originally defined as any symptoms referable to the upper gastrointestinal tract. The Rome committee has developed iterative definitions of dyspepsia that have become more specific culminating in Rome IV. Rome IV definitions have attempted to minimize the inclusion of gastro-esophageal reflux disease in those with dyspepsia by excluding patients with heartburn and acid regurgitation.

Rome definitions have been helpful in better-standardizing patient symptom that are included in studies of dyspepsia but are less relevant to clinical practice as there is considerable overlap in symptom presentation making classification difficult in many patients presenting in primary and secondary care. Functional dyspepsia refers to patients with dyspepsia where endoscopy (and other tests where relevant) has ruled out organic pathology that explains the patient's symptoms

A systematic review reported that ~20% of the population has symptoms of dyspepsia globally Dyspepsia is more common in women, smokers, and those taking non-steroidal anti-inflammatory drugs[1]. Patients with dyspepsia have a normal life expectancy, however, symptoms negatively impact on quality of life [2] and there is a significant economic impact to the health service and society[3] .

Endoscopy is the most accurate method of diagnosis of most endoscopically positive conditions associated with dyspepsia, including gastric cancer, peptic ulcer disease, esophagitis and gastro-duodenitis. However, endoscopy involves some discomfort, significant social inconvenience and cost. Attempts to identify those patients most likely to benefit from endoscopy based on Clinical parameters such as dyspepsia subtypes (ulcer-like, reflux-like, and motility-like) have been shown not to pre-dict pathological conditions.[4] On contrary Other factors including age and "alarm symptoms," such as weight loss, recurrent vomiting, dysphagia, bleeding, or anemia have been shown to be predictive of positive endoscopic findings in some studies [5].

Dyspepsia is a huge clinical and economic burden ,estimated to cost the US health care service over $18 billion per annum[3] . In UK, it is estimated to cost £1 billion each year in the UK. Cost-effective management of dyspepsia can reduce its health and economic burdens, but it is over 10 years since the American College of Gastroenterology (ACG) or Canadian Association of Gastroenterology (CAG) published guidelines on dyspepsia. Inappropriate use is a major source of unnecessary costs, risk of complications, and are associated with reduced diagnostic yield[6].

Many upper gastrointestinal (GI) endoscopies worldwide are performed for inappropriate indications. Overuse of upper gastrointestinal (GI) endoscopy is emerging as a global concern as it is affecting the healthcare quality negatively and puts pressure on endoscopy services. Dyspepsia is one of the most common inappropriate indications for upper GI endoscopy as diagnostic yield is low[7],[8],[6].

.

In the absence of alarm symptoms, the current recommended policy in young dyspeptic patients is a 'test and treat' strategy for Helicobacter pylori positive patients [9]. In older patients, early endoscopy may be an appropriate strategy in view of the greater risk of malignant disease.
Patients ≥ 60 years of age presenting with dyspepsia are investigated with upper gastrointestinal endoscopy to exclude organic pathology .Alarm features should not automatically precipitate endoscopy in younger patients, but this should be considered on case-by-case basis. Patients<60 years of age were recommended to have anon –invasive test Helicobacter pylori and treatment if positive[10].

1.2. **Statement of the problem**

Dyspepsia is a prevalent complaint in general practice and gastrointestinal clinics. In our setup, there is no enough data, which show the magnitude of endoscopy indication for dyspepsia and clinical characteristic of those patients is not clearly known. The proportion of significant pathologic findings on endoscopy done for dyspepsia indication and the association between Ages, alarm symptoms with it among patients with dyspepsia is not known clearly. Data showing the magnitude of H. Pylori Infection, NSAID abuse and cigarette smoking as risk factors for dyspepsia and their contribution for organic cause of Dyspepsia need to be studied.

Socio demographic factors i.e. Sex association with prevalence of endoscopically negative dyspepsia will be the other area of interest that this study is going to reveal.
Dyspepsia is responsible for substantial health care costs and significantly affects quality of life. In order to avoid unnecessary investigation and reduce cost burden among dyspeptic patients knowing the predictive value of Age, presence of alarm symptoms and other clinical profile with major endoscopic lesion will help in providing early screening, prevention and treatment of patients at risk of developing complication.

Significance of the study

Dyspepsia is a common complaint seen among patients seen at GI follow up clinic of BLH. Cause of dyspepsia could be functional or organic of which include ulcer disease(gastric and peptic ulcer) , gastric or esophageal cancer, erosive esophagitis.

The study is primarily intended to assess the major Endoscopic finding of patients with dyspepsia undergoing UGIE. And by identifying predisposing risk factors for major Endoscopic finding implementation of targeted therapeutic and preventive strategies timely. In addition, it will provide clue in the optimal management of patient who are currently sub-optimally managed if there is any pathologic lesion and give reassurance if the procedure is non reveling.

There is no adequate study or data published in Ethiopian context regarding clinical characteristics and pattern of endoscopic outcome of patients presented with dyspepsia. Carrying out this study will play a crucial role in answering those questions and fill the knowledge gap on magnitude of structural lesion on endoscopy and proportion of alarm symptoms at TAH, which is the first and largest GI center in Ethiopia.

The findings of this study may contribute in providing baseline data regarding the cause of dyspepsia in endoscopic environment, incidence of major endoscopic finding and associated risk factors among patients with dyspepsia information for those who will like to conduct further studies.

2. Literature Review

The incidence of dyspepsia has been increasing all over the world; with some having an organic cause while others have functional dyspepsia. Helicobacter pylori infection is also a contributory factor. Moreover, these dyspeptic patients also show a wide spectrum of symptoms [11]. One of the most common complaints in clinical medicine is dyspepsia and about 25% of the population experiences it every year. Based on Rome IV criteria, dyspepsia includes at least one of these symptoms: postprandial fullness, early satiation epigastric pain, burning[12].

A meta-analysis on global prevalence and risk factors for, uninvestigated dyspepsia show that the prevalence varied according to country (from 1.8% to 57.0%) and criteria used to define dyspepsia. The greatest prevalence values were found when a broad definition of dyspepsia or upper abdominal or epigastric pain or discomfort was used. The overall pooled prevalence of uninvestigated dyspepsia was 21%,being higher in women, smokers, non-steroidal anti-inflammatory drug (NSAID) users and Helicobacter pylori-positive individuals [1].

The high cost of endoscopy and high prevalence of dyspepsia symptoms has led to extensive studies of how to best apply endoscopy. Cohort studies of endoscopy in referral and general practice populations have shown a high prevalence of relevant pathology among patients with dyspeptic symptoms[13].

Systematic Review and Meta-analysis with 5389 patients on the Prevalence of Clinically Significant Endoscopic Findings in Subjects With Dyspepsia show that Erosive esophagitis was the most common abnormality encountered (pooled prevalence 13.4%) followed by peptic ulcer (pooled prevalence 8.0%)[14].

A multicenter database study evaluated the effectiveness of age and "alarm" symptoms for predicting major endoscopic findings in six practicing endoscopy centers. Patients with dyspepsia symptoms undergoing upper endoscopy examinations were recorded using a common endoscopy database. Major pathology (tumor, ulcer, or stricture) was found at endoscopy in 787/3815 (21%) patients with dyspepsia. Age, male sex, bleeding, and anemia were found to be significant but weak independent predictors of endoscopic findings[13].

A prospective study on Clinical and endoscopic evaluation of dyspeptic patients attending a tertiary care hospital in South India was conducted on 100 dyspeptic patients over one-year period and they were predominantly males. Homemakers and those leading a retired life were the main victims. Smoking, alcohol and NSAID consumption were contributory factors. Epigastric pain and epigastric burning sensation were the main presenting symptoms. Erythematous gastritis followed by erosive gastritis was the common endoscopic findings. Duodenitis and duodenal ulcers were more among alcoholics[11].

A prospective observational study was carried out in an outpatient screening clinic of a tertiary hospital in São Paulo, which provides open-access service to endoscopy consecutive adult outpatients who presented with uninvestigated dyspepsia study shows results that are consistent with the meta-analysis by Ford[14] . Patients were followed in a three-year prospective general practice study and the presence of alarm symptoms significantly increased the risk of developing peptic ulcers, but not gastrointestinal cancer. Positive predictive values for development of cancer and ulcer were 4% and 14%, respectively[15] . Patients with peptic ulcer were more likely to present with gastrointestinal bleeding and in our study, gastrointestinal bleeding was an uncommon alarm symptom (5%), whereas the prevalence of peptic ulcer was 13% and malignancy, 2%. It was somewhat surprising that more than two fifths of our functional dyspeptic patients had alarm symptoms, while about 75% of the ulcer patients did not. It is possible that our most frequent alarm symptom (weight loss) was not specific for serious digestive tract diseases[16].

A retrospective study on Endoscopic evaluation of patients with dyspepsia in a secondary referral hospital in Egypt the findings show that the majority of patients (65%) with dyspepsia had no important endoscopic lesions. The significant endoscopic lesions were more frequent among the older age groups than in the younger age group. There was a statistically significant difference between the age groups for the presence of peptic ulcer, esophagitis, erosive gastroduodenitis that were diagnosed in 18%, 14% and 8% of patients, respectively. These findings were more frequent among the older age groups than in the younger age group .and UGI malignancy [17].

A cross-sectional study was conducted to determine endoscopic findings and *H. pylori* status in two hundred and eight consecutive dyspeptic adult patients between June 2009 and April 2010 at Kilimanjaro Christian medical Centre, a referral and teaching hospital in northern Tanzania[12].The most commonly identified endoscopic findings were gastritis (61.10%), Gastroesophageal reflux disease(GERD) (57%), and Peptic ulcer disease (PUD) (24.1%). Gastric cancer was identified in 6.7 % of Patients and all of them were aged 40 years and above. *H. pylori* infection was detected in 65% (n=130) of patients. *H. pylori* infection was present in 57% (n=24) of patients who were tested within six months after eradication therapy. Gastritis and duodenal ulcer were statistically significantly associated with *H. pylori* [12 18,19]

A retrospective study of the endoscopic findings in adults with dyspepsia and alarm features study conducted in Nigeria Endoscopy was normal in 26% and the most frequent significant endoscopic findings were gastritis (49%) and gastric ulcer (17%) and they were not associated with alarm features; whereas upper gastrointestinal bleeding, persistent vomiting and odynophagia were specific for significant endoscopic findings[20].

3. Objective

3.1 General Objective:

To assess the clinical characteristics and endoscopic outcomes of patients who underwent UGIE for an indication of dyspepsia.

3.2 Specific objectives

To assess socieodeomograhic profile of patients who underwent UGIE for indication of dyspepsia

To assess the prevalence of H. pylori infection among patients who underwent UGIE for an indication of dyspepsia

To determine the predictive value of alarm symptom for major endoscopic finding among patients who underwent UGIE for indication of dyspepsia

To determine the proportion of major structural lesions on Endoscopy study and associated risk factors

4. **Methodology and Materials**

4.1. **Study area**

The study was conducted at Tikur Anbesa specialized hospital/TASH which is located in Addis Ababa the capital city of Ethiopia. TASH was one of the biggest teaching and referral center with high patient flow from the capital city and across the country with 700 beds. In 1998 was transferred to the School by the Federal Ministry of Health, and it has since become a University teaching hospital. The Tikur Anbesa Specialized Hospital is now the main teaching hospital for both postgraduate and under graduate (clinical and preclinical training) of most disciplines. It is also institutions where specialized clinical services i.e Gastroenterology unit with endoscopy service that are not available in most of public or private institutions in the country.

Study Design

Hospital based descriptive retrospective cross sectional study design was conducted using data since electronic recording of Endoscopic procedure for dyspepsia started.

4.3. Study Period

This study is conducted April 2020-september 2020 G.C.

4.4. Source Population

All patients greater than 18 years of age attending at TASH during study period undergoing upper GI Endoscopy over a five-year period

4.5. Study Population

Total patients with dyspepsia who undergone UGIE at GI referral clinic since introduction of electronic recording in the unit (from December 2015 - December 2019 G.C)

4.4.1. Sampling method:
4.4.2. Sample Size:

The sample size was determined by using Cochran Formula:

$n = Z^2pq/e^2$. P= 0.5 C.I--95% Z= 1.96

n = 385.

Considering patients with dyspepsia seen at Gastroenterology Referral clinic within 5-year period to be 900, modified sample size= ***270***!

N mod= n/1 + (n-1)/N

Based on the above sampling process, 270 patients were included in the study during the study period due to time limit and incomplete laboratory studies. (***n= 270***)

Sampling Methods

Systematic sampling

The sampling interval is calculated by dividing the population size by the desired sample size (270) and every3rd samples are selected to get sample size of 270 from a study population of 900 to include patients undergone endoscopic procedure randomly from the electronic record according to inclusion and exclusion criteria.

4.7. Eligibility criteria

4.7.1. Inclusion criteria

- ✓ All patients on follow up for diagnosis of dyspepsia at GI referral clinic of Tikur Anbesa Hospital during the study period who have Undergone endoscopic evaluation for dyspepsia.

4.7.2. Exclusion criteria

-Those patients <18-years-old

-Patient records with incomplete information mainly with no diagnosis or endoscopic procedure

-Patients who had undergone endoscopic procedure for other indication other than dyspepsia (UGIB, Aclasia.)

- Patients with underlying liver disease or cirrhosis

4.8. Study variables

4.8.1. Dependent variable:

- Endoscopic outcome.

Normal;

Major lesion

(Ulcer disease. Gastric mass & High grade Erosive GERD)

Minor lesion

(Gastropathy, GERD (Normal or LA grade 1 Esophageal Erosion)

4.8.2. Independent variables:

- Age (old age >=60 & young (<60)

-Gender (Male vs Female)

-Weight loss

-Persistent vomiting

-Iron deficiency anemia (IDA)

- H.Pylori infection

4.7. Data collection

After structured questionnaire (**Annex I**) was prepared, data collected from electronic /computer Data of upper GI Endoscopy procedure registration of the hospital. The checklist was adopted from different literatures. Data extracting structured English version questionnaire, adopted and modified from different literatures was used. Data collection was done by P.I to avoid error while filling the questioner.

.

4.8. Data Quality Assurance

The investigator filled the questionnaire using patient data from chart or Electronic recordings

4.9. Data Analysis and Interpretation

Data analysis

Data was analyzed using Statistical package for social science (SPSS) version 25. Chi-square test was used to test the association between variables and a p value of ≤ 0.05 was considered indicative of statistically significant difference. The data analysis was done using descriptive statistics.

4.9. Operational Definition

Patient identification number; it is the hospital code written on patient chart.

A**larm symptoms: -**

Symptoms, which may have Positive predictive value for an upper gastrointestinal tract malignancy or PUD and include Unintentional weight loss, Progressive dysphasia, Odynophagia, Unexplained iron deficiency anemia, Persistent vomiting and Palpable mass or lymphadenopathy.

Endoscopic findings — Upper endoscopy may be normal in patients with GERD, or there may be evidence of esophagitis of varying degrees

Grading the severity of esophagitis – Erosive esophagitis is graded according to its severity to guide management.

Los Angeles classification – The Los Angeles classification grades esophagitis severity by the extent of mucosal abnormality, with complications recorded separately.

-Grade A – One or more mucosal breaks each ≤5 mm in length with more normal looking mucosa

-Grade B – At least one mucosal break >5 mm long, but not continuous between the tops of adjacent mucosal folds

-Grade C – At least one mucosal break that is continuous between the tops of adjacent mucosal folds, but which is not circumferential

-Grade D – Mucosal break that involves at least three-fourths of the luminal circumference

High grade Erosive GERD used to refer esophageal erosion with severity more than LA B mucosal erosion (LA >=Grade B Esophageal erosion)

Major endoscopic findings:-Includes Structural lesion; like Ulcer Disease, High grade erosive GERD (LA >=Grade B Esophageal erosion) & Gastric mass

Minor endoscopic findings:-Includes Structural lesion, like; Gastropathy (gastritis), (GERD with Normal or LA grade 1 Esophageal mucosal Erosion)

Gastropathy

Is nonspecific term used to define mucosal or epithelia changes which include erythematous or edematous macroscopic changes with histological evidence for inflammatory changes unlike Gastritis in Our set up the former is used as equivalent term to denote Gastritis as biopsy and histological diagnosis of gastritis is rarely used.

Test and treat for Helicobacter pylori

Eradication therapy given for Patients who test positive for H.Pylori based on local h.pylori prevalence date.

4.10. Ethical consideration

Ethical clearance was obtained from the Department of Internal Medicine and Research and Publications Committee of the School of Medicine, College of Health Sciences, Addis Ababa University. As part of IRB guidelines, a waiver of consent is submitted for retrospective data for which getting a written consent is not possible. Confidentialities of the information gathered assured by avoiding the name and address of the patients in the questionnaire.

4.11. Dissemination of the result

As this study was done for fulfillment of residency training, the result will be presented for defense and the research output will be submitted for scientific reviewers for possible publication on scientific journals.

Results

270 patients who underwent endoscopy for dyspepsia recruited. With F: M ratio of 1:1.41

Age ranges from 17-76; nearly 50 percent of patients are in the age group from 26-45

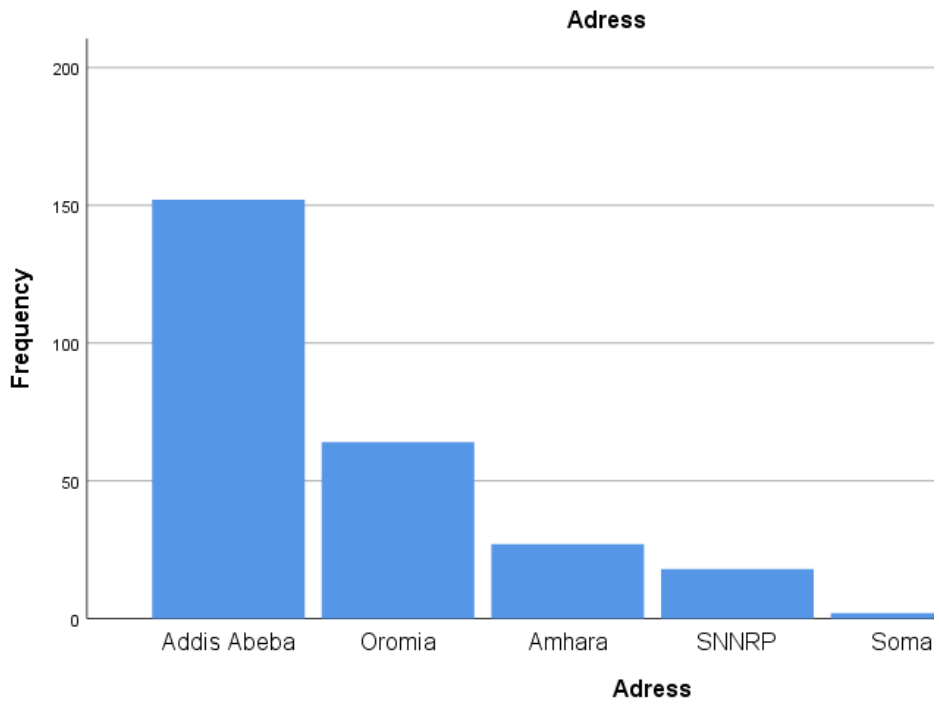
The mean age of the study participants was 38.8 year (Table.1). Males constituted 58% and Female were 42% of the study participants.

Table. 1: Age distribution of the study participants

Age group (years)	**Number(frequency)**	**Percentage**
<25	52	19.3
26-45	134	49.6
46-59	64	23.7
>60	20	7.4
Total	270	100
Mean/SD(years)	38.8.2/13.58	
Sex		
Male	158	58.5
Female	112	41.5

2. Distribution by Address

Majority of the study population 56 % were from the capital city Addis Ababa and the rest from regions as displayed



Presenting Symptom

Epigastric pain is the commonest presenting symptom reported by 160 (59.3%) of patients with dyspepsia followed by Retrosternal burning pain /Regurgitation and Bloating.
37% of the study population has alarm symptoms the commonest was weight loss, followed by persistent vomiting and IDA.
The minimum duration of symptom before endoscopic procedure is 3 months in nearly 90 percent of patients.

Treatment received includes Proton pump inhibitor (97.4), Triple therapy (33%), Tricyclic antidepressant (4.1 %) and antacid 3.3 %

Treatment outcome.
Treatment outcome is unknown in 42% of case, no change in 32 % and improved in 26 %

H. pylori test result

Helicobacter Pylori test result was found for 249 or 92 % among 270 patients and among those patients with H. Pylori test 94 (37.8 %) were positive for H. pylori and the test modality was stool antigen test.

H. pylori Eradication

H. Pylori Eradication given for 95 patients and among these patients post eradication H. pylori stool antigen was negative in 75.8% and result was not documented the remaining 24 % of cases.
12. Laboratory
CBC profile was assessed and 82% of patents have normal result and 7.4 % of patients had hemoglobin <12 mg/dl of which 30 % of them had Iron deficiency anemia with MCV of <78 fl

Risk factors

In 37 % of patients, Risk factor was not documented and among the documented ones, pylori (30%), Medication (NSAIDS, Prednisolone) 6% and Alcohol 3% respectively .17 percent of patient have no identified risk factor for dyspepsia.

Indications for Upper GI Endoscopy are Persistence of symptoms 75 %(204), combinations of alarm symptoms 18 %(48) and Age >60 year + new onset dyspepsia 7 % (18).

Table:2

Distribution of endoscopic findings in patients with dyspepsia (N=270)

Endoscopic diagnosis	**Number**	**Percent**
Gastropathy/Gastritis	**90**	**33**
Normal	**79**	**29**
GERD (normal/ LA grade A)	**27**	**8.7**
High grade erosive GERD	**16**	**5**
Duodenal ulcer	**35**	**13**
Gastric ulcer	**8**	**3**
Gastric mass	**6**	**2.2**
Other	**9**	**3.3**

Endoscopic findings

191 (70.74%) of the 270 subjects with dyspepsia had organic or abnormal endoscopic findings. **Major endoscopic findings**; Ulcer disease, (duodenal and gastric ulcer) 43(16%), Erosive GERD (>=LA grade B esophageal erosion) = 16 and gastric mass = 6
Minor endoscopic lesion; includes Gastropathy or gastritis 90 (33 %), GERD (normal/ LA grade A) =21(7.8%) patients,

Post Endoscopy recommendation are trial of PPI and H.pylori test 46%, to consider functional dyspepsia 22% ,trial of PPI and life style modification 17 %.

Biopsy result

Biopsy done for 22 subjects and the commonest histopathological diagnosis was chronic atrophic gastritis

1.1Normal endoscopy finding

79/29 % of patients have normal endoscopic diagnosis of which 33 % of them are positive for H.pylori

1.2. Abnormal Endoscopic findings

1.2.1 Major Endoscopic Lesion;

Includes Ulcer Disease, Gastric mass & high grade erosive GERD

A. Ulcer Disease (duodenal +gastric ulcer)
   Among abnormal endoscopic findings 43(22%) were diagnosed with peptic ulcer disease (duodenal +gastric ulcer), and among them 26 (60.5 %) were infected with H. pylori

Table 3: Bivariate logistic regression for major Endoscopic lesions showing the association of independent variables

	Ulcer Disease		Gastric mass		High grade erosive GERD
	COR (95%, CI)	p-value	COR (95%, CI)	P value	P value
Weight loss	3.329 [2.54-4.363]	0.000	13.760 [5.011-37.789]	0.014	0.492
Persistent vomiting	3.527 [2.745-4.584]	0.000	14.566 [6.669-31.682]	0.046	0.924
IDA	3.097 [2.472-3.879]	0.000	21 [9.160-48.163]	0.000	0.915
H.pylori infection	2.615 [1.664-4.11]	0.002	46 [11.333-186.705]	0.000	0.052

B. EROSIVE GERD

The correlation between the incidence of erosive GERD and Alarm symptom ((iron deficiency anemia, vomiting and weight loss)

1.2.2 Minor Endoscopic Lesion

A. Gastropathy

Gastropathy/ (Gastritis) is the commonest endoscopic diagnosis 90(47 %) among this, 26 (29%) were infected with H. pylori

Discussion

Several studies have documented the organic causes for dyspepsia and endoscopic finding were different from site to site and depending on risk factors and socio economic status of the area. In resource-limited settings, Ethiopia, where access to endoscopy service is limited, it is very important for clinicians to know common causes of dyspepsia and frequency common risk factors i.e. H. pylori infection and predictive value of alarm symptom for significant endoscopic findings.

In this study, 1/3rd of patients had normal endoscopic diagnosis and 2/3rd (70 %) of the dyspeptic patients had abnormal endoscopic finding with possible organic causes for dyspepsia symptom. Gastropathy (Gastritis)and peptic ulcer diseases were among the commonest finding , this is consistent with the findings of the studies done in Nigeria, Taanzania[12],[20]. Where organic causes of dyspepsia were documented in 74 and 94 percent respectively.

In this study, about one-thirds of the dyspeptic patients had H. pylori infection, which is lower Compared to findings of a previous study in Tanzania[12],previous study in Ethiopia were h.pylori infection were 80 % (Asrat et al., 2004) other studies done in Africa). This lower prevalence of the infection is probably due to the higher rates of h pylori treatment or better socioeconomic conditions. In this study, epigastric pain was the most common complaint among patients with dyspepsia similar to study done in Uganda[21]. Ulcer diseases were found to have statistically significant association with H. pylori infection, OR=2.615 95% CI (1.664-4.11),p-value 0.000 Alarm symptom (iron deficiency anemia and persistent vomiting) $p < 0.05$ consistent to study done in Tanzania [12] & Nigeria[20].

In this study Gastropathy/ (Gastritis) is the commonest endoscopic diagnosis 90(47 %) among this, 26 (29%) were infected with H. pylori and the association of H.pylori infection with Gastropathy is statistically significant OR=1.937 95 % CI (1.265-2.968), p-value 0.002 ,which is consistent to other studies done in Tanzania[12].
The correlation of Alarm symptom (Weight loss, IDA and vomiting) and Gastrpathy is statistically significant p<0.05).

In this study, GERD was diagnosed in 13 % of the patients with dyspepsia higher than previous Study done Kenya (1998). Similarly, an increase in prevalence of GERD has been reported from study done in Tanzania[12], and Kenya (2004), São Paulo (2014) (22,23. This change in pattern of Upper GI diseases in our setup and can be attributed to change in life style and social economic Status of the population .The association of H.pylori with GERD is statistically significant value<0.05).

Limitation of Study

The study is conducted in a single center and it may not depict the actual endoscopic outcome of patients with dyspepsia in primary and referral hospital across the country the retrospective nature of study design makes it difficult know the effect of treatment and endoscopic outcome after the initial intervention.

Conclusion

This study showed that 70 percent of patients had abnormal Endoscopic outcome and of this ulcer disease is the major endoscopic outcome with strong associations with Helicobacter pylori infection and GERD diagnosis is also shown to be frequent endoscopic diagnosis among our dyspeptic patient.

Recommendations

In resource-limited setup like our country owing to prevalence and strong associations of h.pylori with major endoscopic lesion and limited Endoscopic service test and treat strategy should be optimized. The increasing frequency of diagnosis of GERD requires for further studies in the field possibly prospective study to see the contributing risk factors.

REFERENCE

1. Global prevalence of, and risk factors for, uninvestigated dyspepsia_ a meta-analysis _ Gut.
2. Initial poor quality of life and new onset of dyspepsia_ results from a longitudinal 10-year follow-up study _ Gut.
3. Lacy BE, Weiser KT, Kennedy AT, Crowell MD, Talley NJ. Alimentary Pharmacology and Therapeutics Functional dyspepsia : the economic impact to patients. 2013;(April):170-177. doi:10.1111/apt.12355
4. Predictive value of alarm features in a rapid access upper gastrointestinal cancer service.
5. Appropriateness of indications for diagnostic upper gastrointestinal endoscopy_ Association with relevant endoscopic disease - ScienceDirect.
6. Appropriateness of the indication for upper endoscopy_ a meta-analysis.
7. Prevention of overuse_ A view on upper gastrointestinal endoscopy.
8. Appropriateness and diagnostic yield of upper gastrointestinal endoscopy in an open-access endoscopy system.
9. Approach to Treatment of Dyspepsia in Primary Care_ A Randomized Trial Comparing _Test-and-Treat_ With Prompt Endoscopy _ Gastroenterology _ JAMA Internal Medicine _ JAMA Network.
10. Moayyedi PM, Lacy BE, Andrews CN, Enns RA, Howden CW, Vakil N. ACG and CAG Clinical Guideline : Management of Dyspepsia. *Nat Publ Gr*. 2017;(May 2016):1-26. doi:10.1038/ajg.2017.154
11. Manappallil RG, Alexander T. O R I G I N A L A RTICL E Clinical and endoscopic evaluation of dyspeptic patients attending a tertiary care hospital in South India : A prospective study. 2017;8(1). doi:10.3126/ajms.v8i1.15932
12. Ayana SM, Swai B, Maro VP, Kibiki GS. Upper gastrointestinal endoscopic findings and prevalence of Helicobacter pylori infection among adult patients with dyspepsia in northern Tanzania. 2014;16(1):1-9.

3
+

13. Wallace MB, Durkalski VL, Vaughan J, et al. Age and alarm symptoms do not predict endoscopic findings among patients with dyspepsia : a multicentre database study. 2001:29-34.
14. Nicholas J. Talley, M.D., and Alexander C. Ford MDD. Functional Dyspepsia. 2015:1853-1863. doi:10.1056/NEJMra1501505

15. "Alarm Symptoms" in Patients with Dyspepsia_ a Three-year Prospective Study from General Practice_ Scandinavian Journal of Gastroenterology_ Vol 37, No 9.
16. Modification of christensen urease test as an inexpensive tool for detection of Helicobacter pylori - ScienceDirect.
17. Gado A. Alexandria University Faculty of Medicine Endoscopic evaluation of patients with dyspepsia in a secondary referral hospital in Egypt. *Alexandria J Med*. 2015;51(3):179-184. doi:10.1016/j.ajme.2013.10.001
18. Oling M, Odongo J, Kituuka O, Galukande M. Prevalence of Helicobacter pylori in dyspeptic patients at a tertiary hospital in a low resource setting. *BMC Res Notes*. 2015:4-9. doi:10.1186/s13104-015-1184-y
19. Impact of open-access endoscopy on detection of early oesophageal and gastric cancer 1994 - 2003_ population-based study.
20. Use of alarm features in predicting significant endoscopic findings in Nigerian patients with dyspepsia.
21. Jafari-heidarloo A, Majidi H, Mehryar HR, Hoseini-azar MR, Hasani L. Evaluation of the endoscopic findings in patients with dyspepsia. 2019;7(1):12-17. doi:10.15171/jarcm.2019.003

Annexes

Annex-I

Research Questionnaire

This questionnaire is intended for collecting information regarding the clinical characteristics of patients with dyspepsia undergone upper GI Endoscopy.

Date: ……. **Card No.:** ..... and **I Care No.:** ……

- **Part – I: *Demographic data***

I Care…….…….

1. Sociodemographic characteristics

1.1. Age: _____

1.2. Sex: Male ☐ Female☐

1.3. Address: _____

A.A ☐ SNNP ☐ OROMIA ☐ AMHARA ☐ TIGRAY ☐ Somali ☐ Other specify ……..

- **Part – II: Regarding to symptom**

2.1 Main presenting symptom/sign (one patient can have more than one symptom/sign)

Epigastric pain ☐ Early satiation ☐

Postprandial fullness Vomiting ☐

Bloating ☐

2.2 Retrosternal burning pain / Regurgitation

Yes ☐ no ☐

3. Duration of Symptoms _____

A. < 1 month ☐ B. 1-3 month ☐ C > 3 month ☐ D Not known ☐

4. Alarm symptoms or sign

4.1 YES NO

4.2 If yes

Weight loss ☐ Progressive dysphagia ☐

Persistent vomiting ☐ Odynophagia ☐

Unexplained IDA ☐ Palpable mass or lymphadenopathy ☐

- Part – III: Treatment

5. Treatment given

A Empiric therapy with histamine H2 receptor antagonists

B. Empiric therapy with proton pump inhibitor

C. Triple therapy

D Other specify

6. If the answer for Qn nu 5 is yes what is the effect of treatment on symptom?

A. Improved ☐ B. no change ☐ C. Worsened ☐ unknown ☐

7. Did H.pylori eradication treatment given A, Yes B Not Documented C No

8. Post Eradication therapy H.Pylori test RESULT

Positive ☐ Negative ☐ Not documented

9. History of investigation with H.pylori (Stool antigen test) A, yes ☐ B NO ☐

9.1 If yes outcome …….

Positive ☐ Negative ☐ Not documented ☐

10. Risk factors
1. Alcohol ☐ 2. Smoking ☐ 3. Medications ….. 4 other specify……5 not documented

11. Co morbidities /underlying systemic disease

1. Cardiac disease ☐ 2. Diabetes ☐ 3.CKD ☐ 4.Cirrhosis 5. ☐ other specify 6. Not documented

- **Part – IV: Investigation**

12. Laboratory
Hgb< 7 gd/l ☐ 7-9 gm dl ☐ 9-12 gm/dl ☐ normal ☐ not documented ☐

12.1. If Hgb < 12 A. MCV <78 FL B.78-98 FL C > 100 Fl

13. Indication for upper GI Endoscopy

1.☐Age ≥ 60 years + new onset dyspepsia symptoms

2.☐ Constellations of alarm symptom
3.☐ Persistence of symptoms despite therapy

4.☐ Other specify ……..

14. Endoscopic Diagnosis

Normal ☐
Hernia ☐
Esophigial erosion ☐
Deudenal Ulcer ☐
Gastropathy ☐
Gastric ulcer ☐
Gastric Mass ☐
GERD ☐
Other ☐

15. Recommendation following endoscopic study

1 Trial of life PPI and life style modification ☐
2. Consider functional dyspepsia ☐

3. PPI and H.pylori test ☐
4.Follow Biopsy result ☐
5 other……

16. Biopsy Result

Declaration

I, the undersigned, declare that this postgraduate thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been duly acknowledged.

Postgraduate Candidate: Endashaw.Kefyalew (MD)
Signature: _____
Date of submission: December 28, 2020

This thesis has been submitted with my approval as advisor.
Advisor: Amir Sultan (MD, Internist, Consultant Gastroenterologist)
Signature: _____
Date: _____
Place: Addis Ababa, Ethiopia.

THE END