

Original Research Article

Trends and patterns of diagnosis by upper GI endoscopy in dyspeptic patients: A retrospective study

T. Babu Antony¹, S. Vijayasarathy^{2*}

¹Assistant Professor, ²M.S. Post Graduate

Department of General Surgery, Govt. Stanley Medical College, Chennai, Tamil Nadu, India

*Corresponding author email: vijayasarathy1988@gmail.com

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Abstract

Background: Dyspepsia is described as recurrent upper abdominal discomfort and epigastric fullness after meals, often described by the patients as indigestion. The assessment of trending diagnostic patterns in upper GI endoscopy is important to validate the priority of endoscopic evaluation over other modalities of investigation for dyspepsia. The significant patterns may form a platform for new epidemiological studies to re-assess the risk factors and distribution of diseases causing dyspepsia in South Indian population.

Aim: A retrospective study was done to assess the trends of diagnosis in upper GI endoscopy in adult dyspeptic patients in South Indian population.

Materials and methods: Endoscopy database records of 3271 consecutive patients who underwent upper GI endoscopy between January 2014 and March 2016 were retrospectively analyzed from upper GI endoscopy register. The data was subjected to statistical analysis and compared with that of previous similar studies. Suspected malignant lesions were confirmed with histopathology reports.

Results: Positive yield was 80.6%. Gastritis (51%), duodenitis (22%) and hiatus hernia (9%) were the leading endoscopy diagnoses. Esophageal growth was 3 times more common in females ($p=0.009$). Growth in stomach was reported in 2.3% patients. Carcinoma stomach was significantly higher in age above 40 years ($p=0.0009$). There was a positive correlation between Ca stomach and increasing age. The cumulative frequencies of gastric cancer by age group were as follows: 7 of 1000 OGDs in patients less than 40 years of age and 40 of 1000 OGDs in patients greater than 40 years of age.

Conclusion: The results conclude that gastric malignancy is significantly higher in age >40 years. This recommends a routine upper GI endoscopy for patients >40 years. Esophageal growth is significantly higher in females warranting an epidemiological study on association with possibly

dietary pattern and religion in these subjects. Frequent retrospective and prospective studies on yield of upper GI endoscopy are warranted to keep an early check on any alarming trends of significant diseases.

Key words

Dyspepsia, Gastritis, Upper GI endoscopy, Carcinoma stomach, Esophageal carcinoma, Retrospective study.

Introduction

Dyspepsia is a chronic or recurrent pain or discomfort centered in the upper abdomen. Dyspepsia is described as recurrent upper abdominal discomfort and epigastric fullness after meals, often described by the patients as indigestion. The various causes for dyspepsia include gastritis, peptic ulcer disease, esophagitis, gastro esophageal reflux disease (GERD) and gastric carcinoma which could only be diagnosed by an upper GI endoscopy confirmed by biopsy. The assessment of trending diagnostic patterns in upper GI endoscopy is important to validate the need for priority of endoscopic evaluation over other modalities of investigation for dyspepsia. The significant patterns may form a platform for new epidemiological studies to re-assess the risk factors and distribution of diseases causing dyspepsia in South Indian population. Frequent retrospective and prospective studies on yield of upper GI endoscopy are warranted to keep an early check on any alarming trends of significant diseases. This study attempted to provide an overview of general trends in yield of upper GI endoscopy in South Indian population. The sample in this study consisted of 3271 patients retrospectively analyzed for a period of 2 years.

Objectives

- To look for any significant pattern of disease by upper GI endoscopy
- To study the frequency of endoscopic diagnosis
- To study the age, sex and geographical distribution of diagnosis

- To compare the results with previous similar studies on yield of upper GI endoscopy
- To assess the appropriateness of endoscopic evaluation based on positive endoscopic findings
- To assess the need for routine endoscopy screening

Materials and methods

Patient selection

Endoscopy database records of 3271 consecutive patients who underwent upper GI endoscopy between January 2014 and March 2016 in were retrospectively analyzed.

Study area: Department of General Surgery, Govt. Stanley Hospital, Chennai, Tamil Nadu, India

Inclusion criteria

- Age > 15 years
- Both sexes
- With symptoms defining dyspepsia like
 - upper abdominal discomfort
 - abdominal fullness and bloating
 - early satiety
 - nausea and vomiting
 - loss of appetite

Exclusion criteria

- Age <15 years
- Patients with inadequate preparation
- Patients with known malignancy
- Patients with acute conditions like Upper GI bleed
- Patients with terminal illness/high risk co-morbidity

Period of study: 2 years and 3 months.

Data including patient details, findings and diagnosis were collected from Upper GI endoscopy register. The data was tabulated and frequency of endoscopic diagnosis was determined. The data was subjected to statistical analysis and compared with that of previous similar studies based on yield of upper GI endoscopy in dyspeptic patients.

Diagnosis criteria

Esophagitis: Mucosal break in the esophagus/ mucosal edema/patches of exudates/ ulceration/ erythema

Gastritis: Multiple punctate erosions/ smooth umbilicated areas with no scarring

Benign gastric ulcer: Ulcer with flushed edges and normal surrounding mucosal folds/symmetrical smooth margin and clean base/punched out ulcers

Malignant gastric ulcer: Ulcer with proliferative growth/raised edges/loss of surrounding mucosal folds/irregular ulcer margins with lumpy hemorrhagic base.

Duodenitis: Mucosal congestion with spotty white exudates

Hiatus hernia: Z line 2cm above the diaphragmatic hiatus

Esophageal growth: Ulceroproliferative growth/irregular ulcer with raised edges

Results

The endoscopic findings of 3271 patients with dyspepsia were studied. Out of 3271 patients, 2007 (61%) were males while 1264 (38%) were females (**Table - 1, Figure - 2**). Sixty percent were in the age group of 20-50 years (**Table - 1, Figure - 1**). The endoscopic findings were normal in 633 (19.4%) patients (**Table - 2**). The abnormal findings included gastritis in 1671 (51%) patients, duodenitis in 718 (22%) patients, lax LES in 526 (16%) patients, hiatus hernia in 296 (9%) patients, fundal gastritis in 235 (7.2%) patients, esophagitis in 144 (4.4%) patients, gastric ulcer in 141 (4.3%) patients, carcinoma stomach in 75 (2.3%) patients while reflux

esophagitis and esophageal candidiasis were found in 1% each. Positive yield was 80.6%. Gastritis (51%), duodenitis (22%) and hiatus hernia (9%) were the leading endoscopy diagnoses (**Table - 2, Figure - 3**).

Table - 1: Age and sex distribution of diagnosis.

	Count	Column N %
Age (Years)		
<20	152	4.6%
21-30	664	20.3%
31-40	868	26.5%
41-50	744	22.7%
51-60	545	16.7%
61-70	227	6.9%
>71	71	2.2%
Total	3271	100.0%
Sex		
Male	2007	61.4%
Female	1264	38.6%

Benign gastric ulcer was diagnosed significantly higher in age >40 years ($p < 0.001$) (**Table - 3, Figure - 4**). Duodenitis was significantly higher in age <40 years ($p < 0.0001$) (**Table - 4**). Duodenal ulcer was of higher incidence in males ($p < 0.002$) (**Table - 5**). Esophageal growth was 3 times more common in females ($p = 0.009$) (**Table - 6**).

OG junction growth was diagnosed higher in age >40 years, highest in age >60 years ($p < 0.001$) (**Table - 7**). Growth in stomach was reported in 2.3% patients. Carcinoma stomach was significantly higher in age above 40 years ($p = 0.0009$) (**Table - 8, Figure - 5**).

There was a positive correlation between Carcinoma stomach and increasing age. The cumulative frequencies of gastric cancer by age group were as follows: 7 of 1000 OGDs in patients less than 40 years of age and 40 of 1000 OGDs in patients greater than 40 years of age. It was more common in males but significant association could not be made.

Table - 2: Distribution of diagnosis.

Diagnosis	Count	%
Gastritis	1671	51.1
Duodenitis	718	22
Lax LES	526	16.1
Hiatus hernia	296	9
Fundal gastritis	235	7.2
Bile reflux gastritis	228	7
Esophagitis	144	4.4
Gastric ulcer	141	4.3
Duodenal Ulcer	84	2.6
Growth in stomach	75	2.3
Esophageal Candidiasis	38	1.2
Reflux esophagitis	38	1.2
Esophageal growth	23	0.7
Esophageal varices	18	0.6
Polyps	17	0.5
OG junction growth	16	0.5
Fundal varices	10	0.3
Barett's esophagus	6	0.2
Vocal cord palsy	5	0.2
Erosive gastritis	4	0.1
Worms in duodenum	4	0.1
Periampullary growth	4	0.1
Bile reflux duodenitis	4	0.1
Atrophic gastritis	3	0.1
Portal hypertensive gastropathy	3	0.1
Esophageal stricture	2	0.1
Biopsy taken	78	2.4
Normal study	633	19.4

Discussion

Tachi K, Nkrumah KN, et al. [1] reported a positive yield of 62.7% with gastritis, 121 (32.3%), duodenal ulcer, 48 (12.5%) and oesophagitis, 36 (9.6%) being the leading endoscopy diagnoses. Carcinomas in their study were reported only after 45 years and 18 (81.8%) of the cases had alarming symptoms.

Our institutional study reports a positive yield of 80% with higher incidence of gastritis (51%) but

comparatively lesser incidence of duodenal ulcer (2.6%) and esophagitis (4.4%). This may be possibly attributed to varying dietary patterns and H. pylori distribution.

Independent predictive factors of positive endoscopic findings were male gender, age over 45 years, lower education level, and referral by an endoscopist according to a study by Chan YM, Goh KL, et al. [2]. In a different study by Wai CT, Yeoh KG, et al. [3]; they reported a positive correlation between disease frequency and increasing age. In this study, positive endoscopic findings were more common in males. However there was no significant association between disease frequency and increasing age.

Cardin F, Zorzi M, et al. [4] stated that a diagnosis of cancer or gastric/duodenal ulcer was associated with male sex (odds ratio (OR) = 1.81, P=0.016), age above 41 years. They observed a linear relationship across age groups, with a 60% increase in the risk of disease with every 5-year increase in age (OR=1.59, P=0.002). Similarly in this study, benign gastric ulcer was diagnosed significantly higher in age >40 years (p<0.001). Duodenitis was significantly higher in age<40 years (p<0.0001). Duodenal ulcer was of higher incidence in males (p<0.002).

Nowshad Khan, Ghulam Shabbir, et al. [5] conducted an observational descriptive study in 2006 and reported endoscopic incidence of carcinoma stomach in 2% patients. In this study, growth in stomach was reported in 2.3% patients, confirmed by histopathology reports. Carcinoma stomach was significantly higher in age above 40 years (p=0.0009). There was a positive correlation between Ca stomach and increasing age. The cumulative frequencies of gastric cancer by age group were as follows: 7 of 1000 OGDs in patients less than 40 years of age and 40 of 1000 OGDs in patients greater than 40 years of age. It was more common in males but significant association could not be made.

Conclusion

The results conclude that gastric malignancy is significantly higher in age>40 years. This recommends a routine upper GI endoscopy for patients>40 years. Esophageal growth is significantly higher in females warranting an epidemiological study on association with

possibly dietary pattern and religion in these subjects. Frequent retrospective and prospective studies on yield of upper GI endoscopy is warranted to keep an early check on any alarming trends of significant diseases.

Table - 3: Age wise distribution of gastric ulcer.

Age (Years)	Gastric ulcer			
	No		Yes	
	Count	Row N %	Count	Row N %
<20	149	98.0	3	2.0
21-30	658	99.1	6	.9
31-40	843	97.1	25	2.9
41-50	704	94.6	40	5.4
51-60	511	93.8	34	6.2
61-70	205	90.3	22	9.7
>71	60	84.5	11	15.5

P<0.001

Table - 4: Age and sex distribution of duodenitis.

		Duodenitis			
		No		Yes	
		Count	Row N %	Count	Row N %
Age (Years)	<20	112	73.7	40	26.3
	21-30	501	75.5	163	24.5
	31-40	648	74.7	220	25.3
	41-50	588	79.0	156	21.0
	51-60	451	82.8	94	17.2
	61-70	192	84.6	35	15.4
	>71	61	85.9	10	14.1
Sex	Male	1556	77.5	451	22.5
	Female	997	78.9	267	21.1

P<0.0001, p=0.4

Table - 5: Age and sex distribution of duodenal ulcer.

		Duodenal ulcer			
		No		Yes	
		Count	Row N %	Count	Row N %
Age (Years)	<20	148	97.4	4	2.6
	21-30	650	97.9	14	2.1
	31-40	846	97.5	22	2.5
	41-50	725	97.4	19	2.6
	51-60	528	96.9	17	3.1
	61-70	221	97.4	6	2.6
	>71	69	97.2	2	2.8
Sex	Male	1942	96.8	65	3.2
	Female	1245	98.5	19	1.5

P=0.9, p=0.002

Table - 6: Age and sex distribution of esophageal growth.

		Esophageal growth			
		No		Yes	
		Count	Row N %	Count	Row N %
Age (Years)	<20	152	100.0	0	.0
	21-30	660	99.4	4	.6
	31-40	862	99.3	6	.7
	41-50	740	99.5	4	.5
	51-60	540	99.1	5	.9
	61-70	225	99.1	2	.9
	>71	69	97.2	2	2.8
Sex	Male	1999	99.6	8	.4
	Female	1249	98.8	15	1.2

P=0.4, P=0.009

Table - 7: Age and sex distribution of OG junction growth.

		OG junction growth			
		No		Yes	
		Count	Row N %	Count	Row N %
Age (Years)	<20	152	100.0	0	.0
	21-30	664	100.0	0	.0
	31-40	868	100.0	0	.0
	41-50	737	99.1	7	.9
	51-60	541	99.3	4	.7
	61-70	222	97.8	5	2.2
	>71	71	100.0	0	.0
Sex	Male	1993	99.3	14	.7
	Female	1262	99.8	2	.2

P<0.001, p=0.03

Table - 8: Age and sex distribution of Growth in stomach.

		Growth in stomach			
		No		Yes	
		Count	Row N %	Count	Row N %
Age (Years)	<40	1673	99.3	11	.7
	>40	1523	96.0	64	4.0
Sex	Male	1953	97.3	54	2.7
	Female	1243	98.3	21	1.7

P<0.0001, P=0.06

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Figure - 1: Age wise distribution.

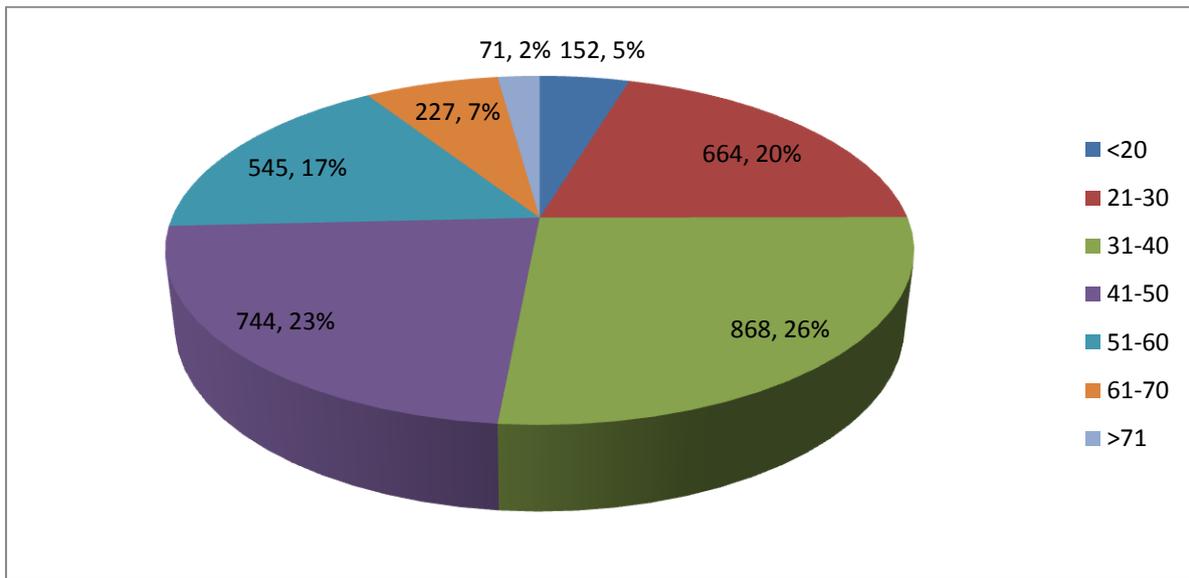


Figure - 2: Sex distribution.

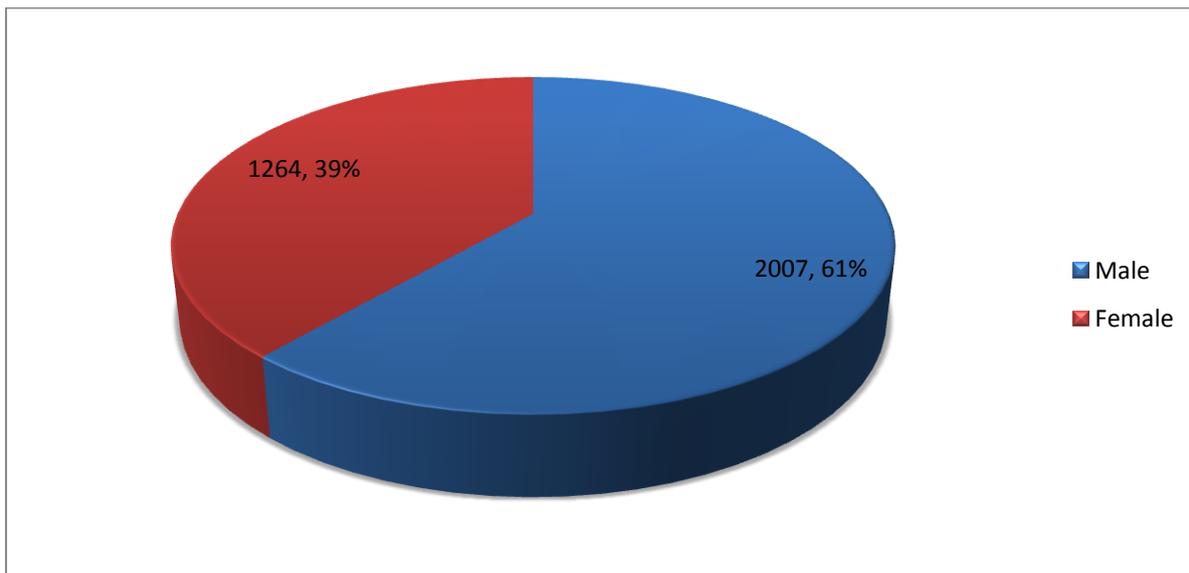


Figure - 3: Distribution of diagnosis.

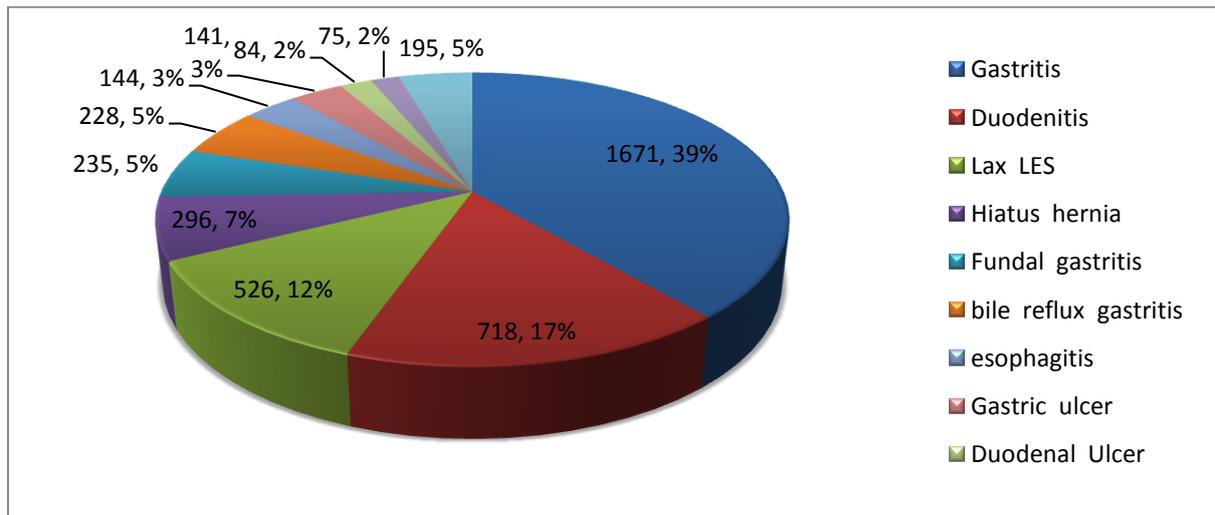


Figure - 4: Age wise distribution of gastric ulcer.

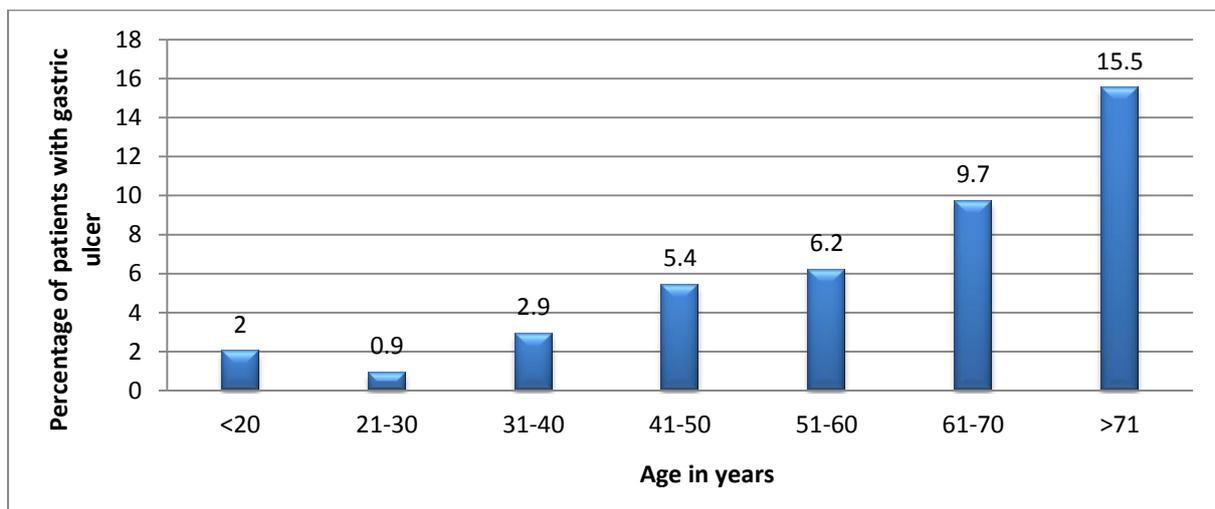


Figure - 5: Age wise distribution of Growth in stomach.

