

Indications and findings of upper gastrointestinal endoscopy (UGIE) in patients of Gizan, Saudi Arabia: A retrospective study

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Abstract

Objectives: The objectives of this study were to identify the common indications and findings of upper gastrointestinal (GI) endoscopy in patients presenting to King Fahd Central Hospital (KFCH) in Gizan town Southwest Saudi Arabia, and to furthermore, determine the associations between them and the common endoscopic findings and some selected clinical and demographic variables.

Patients and Methods: This was a retrospective study carried out at KFCH over an 11 year period from 1994 to 2005. All patients (3287), age of 12 years and above referred for endoscopy unit were enrolled in this study. Standardized form (sheet) was used to collect all relevant data including age, gender, and indications for the procedure, clinical examination and endoscopic findings.

Results: A total of 3287 patients were included in the study with a mean age of 45.3 years (SD $\pm$ 18.4); males patients comprised 70.1%. Indications for upper GI endoscopy included upper gastrointestinal (GI) bleeding (23.3%), with a significant difference between males and females (p -value = 0.000), Epigastric pain (15.7%), Acid Peptic Disease (APD) (14.4%), Dyspepsia (7.5%) and regular follow-up (6.5%). Among patients who underwent UGI E, (21.3%) had normal endoscopic findings.

Three common findings were; Oesoph Varices (15.2%), Gastritis (14.0%) and Oesophagitis (10%). Gender and age of patient were associated with a significantly high risk of Oesoph. Varices (OR=3.43 and 1.95 respectively; p -value < 0.001 for all).

Conclusion: The results of the study suggested that UGI bleeding was the main indication for UGI E in the vast majority of our patients. In addition to that three common diseases; Oesophageal Varices, Gastritis and Oesophagitis were the main findings of the UGI E among the study population. Preventive measures should be adopted to cope with the situation and to prevent complications of esophageal and gastritis diseases among the Gizan population.

Key words: Dyspepsia, indications, Gizan, Oesophageal Varices, Gastritis, Oesophagitis

Introduction

Upper gastrointestinal endoscopy (UGIE), or oesophagoduodenoscopy (EGD) is a simple procedure that is often performed with the patient lightly sedated [1&2]. The procedure provides significant information with high diagnostic value upon which specific treatment can be given. In certain cases, therapy can be administered directly through the endoscope. Serious complications rarely occur from upper gastrointestinal endoscopy [3-5].

UGIE is indicated for the evaluation of patients with upper abdominal symptoms that persist despite an adequate trial of therapy, as well as, in cases associated with other signs or symptoms that suggest serious organic disease such as weight loss, in patients who are over the age of 50 years [6]. Upper GI endoscopy is also indicated for the evaluation of dysphagia, odynophagia, and Oesophageal reflux that is persistent or recurrent despite adequate therapy, persistent vomiting of an unknown cause, or diarrhea [6]. The procedure is also common for screening patients for gastric cancer [7-9].

Gastrointestinal disorders are among the common causes of visiting health care facilities in Saudi Arabia and the number of patients attending endoscopy units for various gastro symptoms is increasing [10-13]. Dyspepsia was considered among the most common indications for upper gastrointestinal endoscopy [14-16], while other causes are also overwhelming [17-19].

The objectives of this study were to identify the common indications and findings on Upper endoscopy in patients presenting to King Fahd Central Hospital (KFCH) in Gizan, Southwest Saudi Arabia, and to study the associations between common endoscopic findings and some selected demographic and clinical variables.

Patients and Methods

This was a retrospective study carried out at King Fahd Central Hospital over a 11 year period from 1994 to 2005. King Fahd Central hospital is a tertiary hospital that serves Jazan region which is populated with nearly 1.5 million people. The endoscopy unit provides an open-access service and receives patients from outpatient clinics and other hospitals in the region. All patients (3287), age 12 years and above referred for endoscopy unit were enrolled in this study.

Standardized form (sheet) was used for extracting data from medical record department that includes; clinical data, demographic characteristics, indications for UGIE and findings for all patients undergoing upper endoscopy were recorded. Indications for UGI E were classified as; upper gastrointestinal bleeding; anemia; reflux symptoms heartburn and/or regurgitation; dysphagia, weight loss, anorexia, dyspepsia and other symptoms. In case of multiple indications the predominant one was chosen.

Data entry and statistical analyses were carried out with SPSS 17. Descriptive statistics based on frequency distributions and percentages were used for presenting the results. Chi-square tests/Fisher exact test were used to compare categorical variables and to assess some associations; two-proportion z-test was also utilized to compare some proportions. Logistic regression model was also used to evaluate factors associated with the common findings of UGIE. A p -value < 0.05 was considered to be statistically significant.

As per international guidelines and KFCH endoscopy guidelines, an informed written consent [20-21] was obtained from all adults. An informed written consent was obtained from guardians of all patients less than 18 years enrolled, as per ethical guidelines regulations in Saudi Arabia. Purpose, potential risk and benefits of the endoscopy have been communicated in Arabic language and consent was documented for all participants. The ethical approval for the current study was obtained from the ethical committee at the Faculty of Medicine, Jazan University. It should be noted that the study was based on the secondary data collected from the patient's files during the study period, so it does not deal with any personal data, since it was anonymous.

Results

A total of 3287 UGIE's were performed over the 11 year period of the study. Table 1 (next page) illustrates some background characteristics of the study population. The mean age of the participants was 45 years (SD=18.4). Around 38.7% of study participants were less than 40 years old, followed by 34.8% of participants who were in the age group 40 to 59 years old. The majority of study participants were Saudi 86.1%, compared to 13.9% who were non-Saudi. Only 5.8% of study subjects reported tobacco use. Male participants constituted 61.1%, of the study participants while those females were 38.9%.

According to Table 2, (page 6) the commonest indications for endoscopy among study participants were UGI bleeding (23.3%), with a significant difference between males and females (p -value=0.000), (29.2%) and (14.3%) respectively. Epigastric pain was the second indication (15.7%) also with a significant difference between male and female patients (p -value=0.000). Acid Peptic Disease (APD) was the third indication for UGIE (14.4%), followed by Dyspepsia (7.5%) and regular follow-up (6.5%). Other causes were Reflux Oesophagitis (5.5%), Dysphagia (4.3%), Abdominal pain (3.8%), Pers. Nausea/Vomiting (3.6%) and Anemia (3.2%).

Table 3 presents results on findings of upper GI endoscopy among the studied patients according to gender and age groups. The table suggests that endoscopic diagnoses revealed normal findings in 21.3% of patients. Normal findings for females were (31.0%) significantly higher than for male patients (15.5%), p -value = 0.000. Normal findings also differ significantly according to age groups (p -value = 0.000), and show a decreasing trend with increase in patient's age. Table 3 further confirmed that pattern of

Table 1: Age distribution, nationality and Tobacco use among study participants

Characteristics	Males No %	Females No %	Total No %
Age Groups			
<i>Less than 40 years</i>	692(34.4)	580(45.4)	1272(38.7)
<i>40-59</i>	761(37.9)	384(30.1)	1145(34.8)
<i>60 and above</i>	557(27.7)	313(24.5)	870(26.5)
<i>Mean</i>	47.0	42.7	45.3
<i>Median</i>	45.0	40.0	44.0
<i>Mode</i>	40.0	40.0	40.0
<i>SD</i>	17.9	18.8	18.4
Nationality			
<i>Saudi</i>	1643(81.7)	1187(93.0)	2830(86.1)
<i>Non-Saudi</i>	367(18.3)	90(7.0)	457(13.9)
Tobacco use			
<i>Users</i>	186(9.3)	6(0.50)	192(5.8)
<i>Not users</i>	507(25.2)	478(37.4)	985(30.0)
<i>Not stated</i>	1317(65.5)	793(62.1)	2110(64.2)
Total	2010(100.0)	1277(100.0)	3287(100.0)

Table 2: Causes of referral of the studied patients to the upper endoscopy unit according gender

Indications	Gender			Total No %
	Males No %	Females No %	P-value	
<i>UGI bleeding</i>	587 (29.2)	182(14.3)	0.0000	769(23.3)
<i>Epigastric pain</i>	282(14.0)	235(18.4)	0.0000	517(15.7)
<i>APD (Acid Peptic Disease)</i>	259(12.9)	213(16.7)	0.0025	472(14.4)
<i>Dyspepsia</i>	115(5.7)	132(10.3)	0.6455	247(7.5)
<i>Follow-up</i>	103(7.8)	36(4.5)	0.0000	139(6.5)
<i>Reflux Oesophagitis</i>	119(5.9)	63(4.9)	0.0000	182(5.5)
<i>Dysphagia</i>	80(4.0)	60(4.7)	0.3221	140(4.3)
<i>Abdominal pain</i>	75(3.7)	49(3.8)	0.8728	124(3.8)
<i>Pers. Nausea/Vomiting</i>	50(2.5)	69(5.4)	0.0000	119(3.6)
<i>Anemia</i>	57(2.8)	47(3.7)	0.1770	104(3.2)
<i>Chr. liver disease</i>	56(2.8)	12(0.9)	0.0003	68(2.1)
<i>Oesophageal varices</i>	50(2.5)	5(0.4)	0.0000	55(1.7)
<i>Malignancy</i>	24(1.8)	11(1.4)	0.3628	35(1.6)
<i>Oesophageal stricture</i>	23(1.1)	18(1.4)	0.5028	41(1.2)
<i>Heartburn</i>	6(0.3)	5(0.4)	0.6527	11(0.3)
<i>Anorexia</i>	2(0.1)	2(0.2)	0.6455	4(0.1)
<i>Other indications</i>	122(2.9)	138(8.6)	0.0000	260(5.2)
Total	2010(100)	1277(100)		3287(100)

Table 3: Findings of upper endoscopy among the studied patients according to gender and age groups

Findings	Gender			Age groups				Total* No %
	Males No %	Females No %	P-value	<40 No %	45-59 No %	60+ No %	P-value	
Normal	398(15.5)	478(31.0)	0.0000	454(30.3)	274(18.6)	148(12.9)	0.0000	876(21.3)
Oesophagitis	235(9.1)	172(11.1)	0.03662	169(11.3)	123(8.4)	115(10.0)	0.1130	407(10.0)
Oesoph. Varices	509(19.8)	115(7.4)	0.0000	137(9.1)	321(21.8)	166(14.4)	0.0000	624(15.2)
Oesoph. Stricture	47(1.8)	44(2.8)	0.03078	61(4.1)	6(0.4)	24(2.1)	0.0000	91(2.2)
Oesoph. Mass	18(0.7)	21(1.4)	0.034	6(0.4)	10(0.7)	23(2.0)	0.0000	39(0.9)
Oesoph. Ulcer	67(2.6)	30(1.9)	0.0000	24(1.6)	27(1.8)	46(4.0)	0.0000	97(2.4)
Hiatus hernia	151(5.9)	111(7.2)	0.09296	69(4.6)	89(6.1)	104(9.1)	0.0000	262(6.4)
Gastritis	340(13.2)	237(15.3)	0.05614	204(13.6)	193(13.1)	180(15.7)	0.1600	577(14.0)
Gastric Varices	31(1.2)	4(0.3)	0.00138	9(0.6)	14(1.0)	12(1.0)	0.2690	35(0.9)
Hypertensive Gastropathy (HG)	73(2.8)	21(1.4)	0.00214	13(0.9)	58(3.9)	23(2.0)	0.0000	94(2.3)
Gastric Ulcer	108(4.2)	45(2.9)	0.03486	40(2.7)	55(3.7)	58(5.0)	0.00001	153(3.7)
Gastric Mass	41(1.6)	26(1.7)	0.82588	18(1.2)	12(0.8)	37(3.2)	0.0000	67(1.6)
Duodenitis	163(6.3)	81(5.2)	0.15272	98(6.5)	97(6.6)	49(4.3)	0.0490	244(5.9)
Duodenal Ulcer	286(11.1)	83(5.4)	0.0000	127(8.5)	132(9.0)	110(9.6)	0.1480	369(9.0)
Gastric Erosion	46(1.8)	23(1.5)	0.47152	23(1.5)	15(1.0)	31(2.7)	0.0001	69(1.7)
Duodenal Erosion	40(1.6)	37(2.4)	0.0536	33(2.2)	28(1.9)	16(1.4)	0.5040	77(1.9)
Hyperemia of GE. J.	11(0.4)	8(0.5)	0.67448	8(0.5)	9(0.6)	2(0.2)	0.2520	19(0.5)
Gastric Atrophy	8(0.3)	7(0.5)	0.4654	5(0.3)	6(0.4)	4(0.3)	0.892	15(0.4)
Malignancy	1(0.0)	1(0.1)	0.71138	0(0.0)	1(0.1)	1(0.1)	0.414	2(0.0)

* Some patients have more than one disease.

endoscopic diagnoses shows the persistence of three common diseases; Oesoph Varices (15.2%), Gastritis(14.0%) and Oesophagitis(10%). Oesoph. Varices was significantly higher among males than females, and also significantly different among the three different age groups (p-value =0.0000). Gastritis increases with increase in age but with no significant differences between the different three age groups and gender. Regarding the other findings, Duodenal Ulcer was diagnosed in (9%) of

the patients and was significantly higher in males than females. Gastric Ulcer disease was diagnosed in only (3.7%) of the patients.

The results of logistic regression analyses for potential risk factors of three common endoscopic findings are shown in Table 4. The analysis revealed that gender, and patient's age was associated with a significantly high risk of Oesoph. Varices (OR=3.43 and 1.95 respectively and

Table 4: Logistic Regression Analyses for potential risk factors of common UGI findings among the study patients

Category	Oesoph. Varices			Gastritis			Oesophagitis		
	OR	95% C.I.	P-value	OR	95% C.I.	P-value	OR	95% C.I.	P-value
Gender									
Female*	1			1			1		
Male	3.43	2.76 -4.25	0.000	0.89	0.74-1.07	0.227	0.851	0.68-1.05	0.132
Age groups									
Less than 40*	1			1			1		
40-59	1.95	1.53-2.50	0.000	1.36	1.09- 1.70	0.006	1.0	0.77-1.28	0.964
60 and above	0.60	0.49-749	0.000	1.28	1.02- 1.61	0.028	1.27	0.97-1.66	0.089
Smoking status									
No*	1			1			1		
Yes	0.73	0.48-1.09	0.128	2.786	1.75-4.44	0.000	1.34	0.80-2.22	0.265
NSAID USE									
Yes*	1			1			1		
No	2.8	0.65-11.5	0.165	4.284	1.02-17.9	0.046	1.16	0.40-3.30	0.785

*Reference Category

P-value< 0.001 for all). The table also suggested that the most important independent predictors of Gastritis were patients' age, smoking status and NSAID use (OR = 1.36, 12.8, 2.786 and 4.284 respectively, p-value< 0.05 for all coefficients). None of the variables mentioned in the table were a significant predictor of Oesophagitis (p-value>0.05 for all).

Discussion

Gastrointestinal (GI) diseases are sources for substantial morbidity and mortality in developing as well as in developed countries [22]. Gastrointestinal disorders are among the common causes of visiting health care facilities in Saudi Arabia [10-13]. These types of diseases affect patients' quality of life; cause a significant reduction in work productivity and increased economic burden [23&24].

This is the first study that has dealt with UGI E in Gizan region. Previously published work on UGI endoscopy in Gizan investigated Barrett's oesophagus and oesophageal cancer [25]. The present study attempted to study the common indications and findings of upper endoscopy in patients in Gizan patients presenting to King Fahd Central Hospital. A total of 3287 UGI endoscopy were performed over the 11 year period of the study. The results of the study suggested that UGI bleeding was the indication for UGIE in the vast majority of our patients. Such a high proportion has not been reported before by the studies conducted in KSA [26, 27], while a similar trend can be observed from other West African and East African studies [28-29]. From this study, the next most common indication for UGI is Epigastric pain, which is also different from studies conducted in other parts of KSA[26, 27].

The differences in the commonest indication may be due to differences in the terminologies used. Epigastric pain is localized to the region of the upper abdomen. It is a common symptom of gastroesophageal reflux disease (GERD) or heartburn. On the other hand Acid Peptic Disease (APD) was reported as the third indication for undergoing UGIE. APD is a collective term used to include many conditions such as gastro-esophageal reflux disease (GERD), gastritis, gastric ulcer, duodenal ulcer, esophageal ulcer and Zollinger Ellison Syndrome (ZES). Other common reasons for UGIE among our patients were Dyspepsia, Reflux Oesophagitis, dyspepsia GERD symptoms, recurrent vomiting and anemia. Only 1.6% of our patients underwent UGIE for Malignancy. Although Dyspepsia is less encountered in our studies, it accounts for 15-77.5% of indications for UGIE in Saudi Arabia and other studies elsewhere [26, 30-34].

This study documented three common diseases reported by upper endoscopy procedures which are; OesophVarices, Gastritis and Oesophagitis. The results suggest that esophageal disease is common in Jazan region. Other studies in Saudi Arabia indicate the low prevalence of such diseases [12,26]. The finding that the prevalence of esophageal varices in Gizan differs from other parts of Saudi Arabia [26] draws question whether it is linked to schistosomiasis, which may be the underlying

cause of esophageal varices in the region, during the study time. Similar prevalence was reported in Sudan in which schistosomiasis is prevalent [35]. Suliman et al, 2010 attributed the increase of esophageal disorders to the changes in life style and nutritional habits in Saudi Arabia[33].

Gastritis is a well known heterogeneous pathological condition that is responsible for the incidence of many gastrointestinal diseases. Literature suggests that the prevalence of gastritis among adults in the Western world is estimated at 62%[36]. In the present study, Gastritis was the commonest pathology reported in our patients with prevalence of 14%, which is similar to other studies in Saudi and other Arabian countries [12,26, 35]. The difference between our results and western countries' prevalence regarding Gastritis may be attributed to life style and alcohol use, which is not prevalent in Saudi Arabia.

In the present study normal endoscopy was reported more commonly in females (31.2%) as compared to males (15.3%) showing that more females suffer from gastrointestinal symptoms in our setup. Although the rate of normal endoscopy is similar to other Saudi studies conducted during the past 20 years [10-12], it calls for more in-depth investigation, when compared to more recent Saudi and regional studies [26&35].

In this article an effort was made to document the reasons for and outcome of upper gastrointestinal endoscopy in Gizan region for the first time. The limitations of this study are that subjects were studied in a single hospital only. In addition, the fact that the study was based on a retrospective study design may not allow for proper causal inferences and study variables were limited to what was available in patients' files.

Conclusion

In conclusion the results of the study suggested that UGIE bleeding was the main indication for UGIE in the vast majority of our patients. In addition to that three common diseases; Oesophageal Varices, Gastritis and Oesophagitis were the main findings of the UGIE among the study population. Preventive measures should be adopted to cope with the situation and to prevent complications of esophageal and gastritis diseases among the Gizan population.

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Abbreviations

KSA	Kingdom of Saudi Arabia
UGIE	Upper gastrointestinal endoscopy
GI	Gastrointestinal
EGD	Oesophagogastroduodenoscopy
KFCH	King Fahd Central Hospital
APD	Acid Peptic Disease
Oesoph	Oesophageal
SD	Standard Deviation
HG	Hypertensive gastropathy
GERD	Gastro-esophageal reflux disease
ZES	Zollinger Ellison Syndrome
CI	Confidence Interval
SPSS	Statistical Package for Social Sciences
NSAIDS	Nonsteroidal anti-inflammatory drugs
GE. J.	Gastroesophageal Junction

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Chronic obstructive pulmonary disease may be one of the terminal endpoints of the sickle cell diseases

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Abstract

Background: Sickle cell diseases (SCDs) are chronic destructive processes on vascular endothelium initiating at birth all over the body. We tried to understand whether or not there is an association between chronic obstructive pulmonary disease (COPD) and severity of the SCDs.

Methods: All patients with the SCDs were taken into the study.

Results: The study included 411 patients with the SCDs (199 females and 212 males). There were 60 patients (14.5%) with the COPD. Mean age of the patients was significantly higher in the COPD group (33.0 versus 29.5 years, $P=0.005$). The male ratio was significantly higher in the COPD group, too (80.0% versus 46.7%, $P<0.001$). Smoking was also higher in the COPD group, significantly (36.6% versus 9.9%, $P<0.001$). Parallel to the smoking, alcoholism was also higher among the COPD cases, significantly (3.3% versus 0.8%, $P<0.05$). Beside these, transfused red blood cell units in their lives (69.1 versus 32.9, $P=0.001$), priapism (10.0% versus 1.9%, $P<0.001$), leg ulcers (26.6% versus 11.6%, $P<0.001$), digital clubbing (25.0% versus 7.1%, $P<0.001$), coronary heart disease (26.6% versus 13.1%, $P<0.01$), chronic renal disease (16.6% versus 7.1%, $P<0.01$), and stroke (20.0% versus 7.9%, $P<0.001$) were all higher among the COPD cases, significantly.

Conclusion: SCDs are chronic catastrophic processes on vascular endothelium particularly at the capillary level, and terminate with accelerated atherosclerosis induced end-organ failures in early years of life. COPD may be one of the terminal endpoints of the diseases.

Key words: Sickle cell diseases, chronic obstructive pulmonary disease, chronic endothelial damage