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The value of Oesophageogastroduodenscopy (OGD) in Assessment of Anemic Patients

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Abstract

Background Endoscopic evaluations are commonly included within work up of unexplained anemia.

Objectives Defining the value of the oesophageogastroduodenscopy as routine investigation in anemic patients in concern with gross pathological findings, as well as determining its importance in state of anemia in relation to age and gender.

Methods It is a retrospective study reviewed 89 anemic patient reports, at the Oesophageogastroduodenscopy clinic, Al-Imammian Al-Kadhimain Medical City throughout the period between Oct 2011-Jan 2013. The following data had been reported from the patients files and included; gender, age, referral indication (which should be anemia with or without accompanying symptom) and their gross endoscopic pathological findings.

Results The mean age was 46±17.36 years with range of 13-80 years. Male to female ratio (1:1.23). Majority of patients 50.6 %were referred due to lack of obvious cause to their anemia in absence of gastrointestinal symptoms. The most frequent finding is normal report in 33.7% followed by gastritis in 18%. Almost 82.5% of male patients were reported to have abnormal oesophageogastroduodenscopy in comparison to female patients (53.06%) ($p = 0.003$). Male patients at or under 45 years is statistically highly significant to undergo screening for the cause of anemia by endoscopy in comparison to same age matched counterpart females ($p = 0.015$).

Conclusion It is important to apply practical algorithm in deciding the indication and value of referral anemic patients for oesophageogastroduodenscopy clinic considering young male patients and those with gastrointestinal tract symptoms as priorities after attempting to exclude all other possible causes, otherwise there will be no further yield by endoscopy in addition to exhaustion of resources.

Keywords Unexplained anemia, oesophageogastroduodenscopy

List of abbreviation: OGD = oesophageogastroduodenscopy, IDA = iron deficiency anemia, GI = gastrointestinal, GIT = gastrointestinal tract.

Introduction

Anemia diagnosis may be simply proved clinically, however; tasks must be directed toward confirmation of state and type of anemia to start with, and then directed to define the underlying possible etiology. Endoscopic procedures like oesophageogastroduodenscopy (OGD) is labeled as an essential investigation to determine the cause of anemia like in iron deficiency anemia (IDA) or megaloblastic anemia..etc [(1)]

The commonest cause of anemia world wide is iron deficiency and chronic blood loss is reported to be the most possible underlying reason [(2)]. Chronic gastrointestinal (GI) blood loss whether overt or occult [(3)] may be the earliest feature of gastrointestinal (GI) malignancy especially at old age men and post menopausal women up to 40 % and must be always excluded during work up [(4)]

IDA comprises approximately 4-13% of referrals to endoscopic clinic, with a nearly

equal prevalence in men and post-menopausal women 2-5% [5]. The indication of this referral is evaluate the GI tract (GIT) for bleeding lesions [6] however up to 35% of these referral may be inappropriate [7].

Studies had demonstrated that advanced age, male gender, previous non-steroidal anti-inflammatory drugs (NSAIDs) use, diarrhea or positive fecal occult blood test were considered clues to look for endoscopic lesions in patients with IDA with and without GI symptoms [8,9]. Studies have concluded that prevalence of endoscopic lesions in patients with IDA without GI symptoms is between 48-71% [10,11].

The objective of this study is to defining the value of the OGD as routine investigation in anemic patients in concern with gross pathological findings, as well as determining its importance in state of anemia in relation to age and gender.

Methods

This retrospective study had reviewed the data of 89 patient reports, throughout the period between Oct 2011-Jan 2013, who referred for OGD Clinic, Al-Imammian Al-Kadhimain Medical City to define the possible explanations for their anemia presentation. They were selected randomly depending on their registration files.

The gender, age, referral indication (which should be anemia with or without accompanying symptom) and their gross endoscopic pathological finding on OGD reports were reported from the patients' files.

Procedure of endoscopy had performed by different gastroenterology specialists with different endoscopic tools.

The files which not contain some of these data had been excluded. This study had been followed the guidelines and approved by the Institute Review Board of the College of Medicine, Al-Nahrain University.

Statistical package for the social sciences (SPSS) program had been used for statistical analysis and included student t test, ANOVA, Fisher Exact test; p value of < 0.05 considered the least significant level.

Results

Eighty nine patients were enrolled in this retrospective study. Female patients constituted 55% (49/89) as male to female ratio (1:1.23)

The mean age was 46±17.36 years with range of 13-80 years. The distribution of patients in term of different age interval demonstrated that 20.2% were presented between 51-60 years while only 6.7% within group of 71-80 years (Table 1).

Table 1. Patients distribution according to their age interval

Interval (year)	Frequency (N %)
11 - 20	7 (7.9)
21 - 30	14 (15.7)
31 - 40	16 (18.0)
41 - 50	14 (15.7)
51 - 60	18 (20.2)
61 - 70	14 (15.7)
71 - 80	6 (6.7)
Total	89 (100)

Majority of patients were referred to endoscopic clinic due to unexplained anemia in absence of GIT symptoms 50.6% (45/89). Those were labeled as pallor, IDA or megaloblastic anemia, while the presence of abdominal pain on the top of diagnosis of anemia showed to be as a second reason for endoscopic screening (Table 2).

Gross endoscopic finding were listed in table 3. The most frequent finding is normal report in 33.7% (30/89) followed by gastritis in 18% (16/89). Only 3 patients had reported as atrophied dueodenal mucosa with suspicion of celiac disease while malignancy documented in 4.5% (4/89). Combination of different finding as most likely gastroesophageal reflux disease and gastritis, gastrodeudentis or gastric ulcer were seen at 5/89 patients.

Table 2: Causes of referral and indications of oesophageogastroduodenscopy

Indications (presentation of anemia at time of referral)	Frequency (N %)
Unexplained anemia	32 (36)
Iron Deficiency anemia	10 (11.2)
Megaloblastic anemia	3 (3.4)
Abdominal pain	13 (14.6)
Weight loss	9 (10.1)
Diarrhea	7 (7.9)
Organomegally	5 (5.6)
Dyspepsia	4 (4.5)
Jaundice	3 (3.4)
Dysphagia	3 (3.4)
Total	89 (100)

Table 3. Gross finding on oesophageogastroduodenscopy

Gross Finding	Frequency (N %)
Normal OGD	30 (33.7)
Gastritis	16 (18)
Gastroduodenitis	8 (9)
GERD	7 (7.9)
Hiatal hernia +/- Lax cardia	6 (6.7)
Erosions	4 (4.5)
Gastric Malignancy	4 (4.5)
Gastric Ulcers	3 3.4)
Atrophied duodenal mucosa (suspicion of celiac sprue)	3 (3.4
Varicies	2 (2.2)
Polyps	1 (1.1)
Combinations of above findings	5 (5.6)
Total	89 (100)

Those fifty nine patient out of 89 who identified to have abnormal endoscopic finding, twenty two (37.3%) of them were denied any GIT manifestation during referral and there were no obvious cause of anemia, while the rest 62.7% had been suffered from different GIT symptoms in addition to anemia. In contrary those 30 patients who proved to have normal endoscopy report, unexplained anemia was the only reason beyond referral despite absence of other abdominal symptoms in 33.3% of them which is of no statistical significance (p = 0.713)

However, almost 82.5% of male patients were reported to have abnormal OGD in comparison to female patients who discovered to have any form of abnormalities at endoscopy (53.06%) and this is statistically highly significant (p = 0.003). Concerning age distribution, patients who aged 45 year or less were presented as 55.05% (49/89). It is found that 61.22% of them showed abnormal endoscopic reports which are less than what discovered in patients aged

more than 45 years where 72.5% had abnormal gross endoscopy for both genders but in non statistical significance (p = 0.263) as shown in table 4.

Table 4. Relationship between endoscopic findings and both gender and age

OGD findings	Male		Female		Total	
	No.	%	No.	%	No.	%
Abnormal	33	82.5	26	53.06	59	66.29
Normal	7	17.5	23	46.94	30	33.71
Total	40	100	49	100	89	100.00
p value	0.003					
OGD findings	**≤45 years**		**>45 years**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Abnormal	30	61.22	29	72.5	59	66.29
Normal	19	38.78	11	27.5	30	33.71
Total	49	100	40	100	89	100.00
p value	0.263					

OGD = oesophageogastroduodenscopy

Analysis the role of both factors age and gender simultaneously with results of OGD reveals that male patients at or under 45 years is statistically highly significant to undergo screening for the cause of anemia by endoscopy in comparison to same age matched counterpart females (p 0.015) but this significance is lost above this age between them (p = 0.273) as shown in table 5.

Table 5. Significance of age and gender in relation to endoscopy results

Parameter			Male		Female		Total		p value
			No.	%	No.	%	No.	%	
≤45 years	OGD	Abnormal	13	86.67	17	50.00	30	61.22	0.015
		Normal	2	13.33	17	50.00	19	38.78	
		Total	15	100.00	34	100.00	49	100	
>45 years	OGD	Abnormal	20	80.00	9	60.00	29	72.5	0.273
		Normal	5	20.00	6	40.00	11	27.5	
		Total	25	100.00	15	100.00	40	100	

Discussion

Anemia is public health problem and reported as one of commonest presentation in clinical presentation [12]. Evaluation of the gastrointestinal tract is indicated in anemic patients, even in the absence of GII symptoms [13]. Wang et al [14] as well as Rocky [6] had considered that upper endoscopy (OGD) more important than lower endoscopy (30% and 6.7%) in evaluation of anemia respectively.

Normal endoscopy was demonstrated in 33.7 % (as the most predominant finding) and this is around 2 times higher than Çetinkaya et al [15] report (18.75%). While other contributing causes of anemia were gastritis and gastroduendenitis in 27% which were similar to Wang et al [14] finding who did report the most common etiology as gastritis. However; gastric carcinoma or polyp are not so common causes in both studies.

Surprisingly hiatus hernia and gastro-esophageal reflux disease had reported significantly in this study (14.6%) which differs than what found by Wang et al [14]. These findings may not explain the actual cause of anemia and therefore a thorough search for the proper cause is highly indicated in these examples.

Celiac disease was suggested to be possible underlying cause of anemia according to characteristic gross features of atrophied duodenal mucosa in only 3.4% of patients which is definitely need to be confirmed by serological and histopathological manifestation but it is lower than Corazza et al [4] report who identify this cause in 10% of anemia cases celiac; although other authors had described that in only 2%-3% [15,16].

British Society of Gastroenterology guidelines recommend that a minimum of 90% of patients with asymptomatic IDA (other than menstruating women) should be screened for coeliac disease (by serology) and should undergo an upper GI endoscopy [7].

One third (33.7%) of revised endoscopic reports had confirm no obvious abnormality and this can indicate earlier referral for endoscpy even before exclusion of other causes unlike other authors conclusion [8,14-16] that showed high prevalence of GI findings in patients who diagnosed already as cases of IDA at time of referral and therefore in presence of unexplained IDA, endoscopic evaluation of the GIT may be mandatory even when GI symptoms are absent [8,16], as well as lower endoscopy must be complementary to non revealing upper endoscopy.

When taking the age and gender as landmarks for endoscopic screening to identify the anemia possible cause, it may be concluded that anemic young male patients are more likely to be considered for this investigation according to this study that identified 86.6% of them will reveal the possible cause.

Unlike anemic female patients with equivalent age patient where definite abnormality detected in only 50% in statistical significance ($p = 0.015$).

There were several limitations in this study like being retrospective and depending on referral letters taking in consideration of upper endoscopy only and registering the gross features rather than histopathological manifestations.

This study shed a light that many referral of anemia cases to OGD clinic may be either unnecessary or at least being requested before attempting to search for other causes of anemia which is also reported by other authors as well as at other countries [7,17].

In conclusion it is important to apply practical algorithm in deciding the indication and value of referral anemic patients for OGD clinic considering young male patients and those with GIT symptoms as priorities after attempting to exclude all other possible causes, otherwise there will be no further yield by endoscopy in addition to exhaustion of resources.

The advances in knowledge from this work is to improve evaluation of anemia, define the need of referring anemic patients to endoscopy clinic and identify the importance and the drawback of considering endoscopy as routine investigation in anemia in relation to age and gender.

In conclusion, this paper improve the indications for referring patients to endoscopy clinic from health and economic point of view and helping in planning algorithm for investigations priorities in case of unexplained anemia.

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Author contribution

Dr. Al-Tameemi makes the design, analyze the study in addition to patient care; and Dr. Mahdi reviewed and reports the records of endoscopy.

Conflict of interest

The authors declare no conflict of interest.

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