

Original article :

Evaluation of Correlation of Severe Iron Deficiency Anemia and Esophageal Gastro Duodenoscopy

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Abstract

Background: Anemia is common among general population in India. Iron deficiency is a common cause of anemia either due to poor intake or chronic blood loss. Iron deficiency anemia is usually due to chronic gastrointestinal (GI) blood loss when there is no obvious source of bleeding. The present study was undertaken to evaluate the correlation of severe iron deficiency anemia and esophageal gastro duodenoscopy.

Materials and methods: We selected 35 patients with severe anemia which reported to outpatient clinic of the department. The patients with severe anemia (haemoglobin < 8g/dl) were included in the study. A detailed and meticulous clinical history of each patient with thorough physical examination was obtained. Relevant laboratory and biochemistry investigations were obtained from significant patients. Upper gastrointestinal endoscopy was performed on the study group patients and findings were correlated with severe iron deficiency anemia.

Results: The total number of patients in the study was 35. The number of male patients was 22 and number of female patients was 13. The mean age of the patients was 49.23±14.8 years. Mean Hb value of the patients was 6.2±1.2 %. The positive findings on endoscopy were observed in 57.15%. The maximum finding seen was Endoscopic gastritis.

Conclusion: From the above results, we conclude that there are significant endoscopic findings observed in patients with severe iron deficiency. It is recommended to use upper GI endoscopy in evaluation of patients with severe anemia.

Keywords: Anaemia, Endoscopy, Gastrointestinal Endoscopy.

INTRODUCTION

Anaemia is common among general population in India. Iron deficiency is a common cause of anemia either due to poor intake or chronic blood loss. Iron deficiency anemia is usually due to chronic gastrointestinal (GI) blood loss when there is no obvious source of bleeding. The standard of care for these patients with iron deficiency anemia includes evaluation of the gastrointestinal (GI) tract for bleeding lesions.^{1,2} Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of

patients with iron deficiency anemia may delay the diagnosis of GI tumors especially colorectal cancer.² In 20% of patients with iron deficiency anemia, a routine upper and lower GI endoscopy may not ascertain GI cause during hospital admission. Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of patients with iron deficiency anemia may delay the diagnosis of GI tumors especially colorectal cancer.^{3,4} In 20% of patients with iron deficiency anemia a routine upper and lower GI endoscopy may not ascertain GI cause during hospital

admission.^{5,6} The available literature, in heterogeneous groups including old age patients and postmenopausal women with iron deficiency anemia, has shown GI lesions in 40 – 70%.^{7, 8} Hence, the present study was planned to evaluate the correlation of severe iron deficiency anemia and esophageal gastro duodenoscopy.

MATERIALS AND METHODS

The study was conducted in the department of general medicine of Major S D Medical College, Farrukhabad, Uttar Pradesh, India. The ethical clearance for the protocol of the study was approved from the ethical committee of the institute. For the study, we selected 35 patients with severe anaemia which reported to outpatient clinic of the department. The patients with severe anemia (Haemoglobin < 8g/dl) were included in the study. The patients with contraindications to endoscopy such as pregnancy, and asthmatic patients were excluded from the study. An informed written consent was obtained from the participants of the study after explaining them the protocol and procedure of the study, verbally. A detailed and meticulous clinical history of each patient with thorough physical examination was obtained. Relevant lab and biochemistry investigations were obtained from significant patients. Upper gastrointestinal endoscopy was performed on the study group patients and findings were correlated with severe iron deficiency anemia.

RESULTS

The total number of patients in the study was 35. The number of male patients was 22 and number of female patients was 13. The mean age of the patients was 49.23 ± 14.8 years. Mean Hb value of the patients was 6.2 ± 1.2 %. The positive

findings on endoscopy were observed in 57.15% (n=20). The maximum finding seen was Endoscopic gastritis (n=11). The least finding seen were Fundal varix (n=1). The results see were statistically significant with p-value less than 0.05 (table 1 & graph 1).

DISCUSSION

Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of patients with iron deficiency anemia may delay the diagnosis of GI tumors especially colorectal cancer. In 20% of patients with iron deficiency anemia, a routine upper and lower GI endoscopy may not ascertain GI cause during hospital admission. The present study was conducted to evaluate the interrelation between severe iron deficiency anemia and esophageal gastro duodenoscopy. We observed that endoscopy findings were observed in 57.14% patients with erosive gastritis to be the most common finding. The results were significant. Van Mook WN et al⁹ determined the outcome of esophagogastroduodenoscopy (EGD) after a prior negative colonoscopy in outpatients without gastrointestinal complaints, referred due to iron deficiency anemia. Thirty-five patients (22 female and 13 male) with a median age of 71 years were studied over a 2-year period. Anemia was defined as a hemoglobin (Hb) level below 7.4 mmol/l in women or below 8.0 mmol/l in men and iron deficiency if one of the following was present: ferritin level equal to or below 20 µg/l for men and equal to or below 10 µg/l for women, a serum iron concentration equal to or below 45 µg/dl (8.1 µmol/l) with a transferrin saturation of 10% or less, or the absence of iron stores in bone marrow biopsy specimens. Patients with prior gastrointestinal disease or surgery, gastrointestinal symptoms, or other obvious causes of blood loss

were excluded. Lesions that were considered to be potential sources of blood loss were clearly defined. The mean Hb level of the 35 patients studied was 5.5 mmol/l (range 1.8-7.8 mmol/l). Abnormalities were found in 10 patients (28.6%), all of which were benign. Erosive and ulcerative lesions in the stomach, in a hiatal hernia, or in the esophagus were diagnosed in eight patients, benign villous adenoma was seen in one patient, and celiac disease in another, although duodenal biopsies were taken in only 15 patients. Erosions and/or ulcerations were found in four of 11 patients (36%) using NSAIDs and/or salicylates (ASA). Seventy percent of the lesions were found in elderly patients (>65 years), 56% of whom were using NSAIDs and/or ASA. It was concluded that EGD should always be performed in patients with iron deficiency anemia after a negative colonoscopy, although upper gastrointestinal malignancy will probably be an infrequent finding. The presence of a significant, treatable lesion is most likely in the elderly and in those with a history of NSAID or ASA use. Routine duodenal biopsies should be performed to further increase the outcome of EGD. Wilcox CM et al¹⁰ evaluated iron deficiency, little data is available regarding the underlying causes, yield of evaluation, and long-term outcome for those in whom gastrointestinal and systemic symptoms and signs are absent. In- or out-patients seen by the gastroenterology consultative service at a large inner-city hospital over a 56-month period were considered eligible for the study when iron deficiency (serum ferritin <50 ng/mL) was documented. Exclusion criteria included: any gastrointestinal or systemic symptoms/signs, radiographic or endoscopic examinations of the gastrointestinal tract within 3 and 5 years, respectively, or obvious source of blood loss. Patients underwent colonoscopy and if no

lesions other than carcinoma were found, upper endoscopy was then performed with a pediatric colonoscope. Fifty-two patients were evaluated. At the time of evaluation, the mean hematocrit was 25% +/- 7% (range, 14% to 42%). Overall, 23 patients had an identifiable gastrointestinal lesion considered the cause of iron deficiency, including: colonic carcinoma, 11 (21%); colonic and/or esophagogastric/duodenal vascular ectasias, 9 (17%); and gastric carcinoma, colonic polyposis, and colonic ulcers in 1 patient each. Long-term follow-up (median 24 months, range 2 to 63 months) identified only 1 patient with a cause found (colonic carcinoma), and in this patient, complete colonoscopy was not technically possible at the time of initial evaluation. There were no clinical or laboratory features that distinguished patients with an etiology for iron deficiency to the idiopathic group. The authors concluded that approximately half of patients with iron deficiency in whom gastrointestinal or systemic signs or symptoms are absent have an underlying gastrointestinal lesion. Nevertheless, despite a thorough endoscopic evaluation, some patients will have no etiology found; the prognosis for these patients is excellent.

Fireman Z et al¹¹ determined the yield of endoscopy evaluations in premenopausal women with iron deficiency anemia. Upper and lower gastrointestinal endoscopic examinations were conducted in 45 premenopausal women with iron deficiency anemia not related to gynecologic or nutritional causes. Forty-three of the 45 women fulfilled the entry criteria and were enrolled. Their mean age was 35 +/- 15 years and their mean hemoglobin level 9.3 +/- 2.3 g/dl. Twenty-eight upper gastrointestinal lesions were demonstrated in 24 of the 43 patients (55.8%): erosive gastritis in 12 (27.9%), erosive duodenitis in 4 (9.3%), erosive esophagitis in 3 (7.0%), hiatus hernia (with Cameron lesions) in 3 (7.0%), active duodenal

ulcer in 1 (2.3%) and hyperplastic polyp (10 mm) in 1 (2.3%). Five lower gastrointestinal lesions were detected in 5 patients (16.3%): 2 (4.6%) had adenocarcinoma of the right colon, 2 (4.6%) had pedunculate adenomatous polyp > 10 mm, and 1 (2.3%) had segmental colitis (Crohn's disease). One patient (2.3%) had pathologic findings in both the upper and lower gastrointestinal tracts. Their findings of a gastrointestinal source of chronic blood loss in 28 of 43 premenopausal women with iron deficiency anemia (65.1%) suggest that this population will benefit from bi-directional endoscopic evaluation of the gastrointestinal tract. Gordon SR et al determined the prevalence of various etiologies of iron deficiency anemia in patients over the age of 50 yr in order to better define the role of endoscopy in the evaluation of these patients and to see whether historical features are predictive of subsequent diagnostic findings. They retrospectively reviewed the records of all patients referred for endoscopic evaluation of anemia between 1986 and 1990. To be included in the study, patients had to meet the following criteria: they must be more than 50 yr old and must have anemia and documented iron deficiency. Data collected included historical features, endoscopic or radiological procedures performed, and diagnostic findings. Of a total of 375 patients referred, 170 patients (119 men, 51 women), with a mean age of 69 yr, met the inclusion criteria. A lower gastrointestinal source of iron deficiency was

identified in only 30 patients (18%), with carcinoma of the colon (9%), colitis (4%), and arteriovenous malformations (3%) being most common. An upper gastrointestinal source of iron deficiency was identified in 70 patients (41%). Peptic ulcer disease (15%), erosive esophagitis (8%) or gastritis (7%), previous partial gastrectomy (6%), and sprue (3%) were found most often. The etiology of iron deficiency was not identified in 70 patients (41%).

In addition, historical features, including gastrointestinal symptoms, fecal occult blood testing, or a history of smoking, excessive alcohol intake, or use of nonsteroidal anti-inflammatory drugs, were poor predictors of diagnostic findings. They concluded that a minority of patients over 50 yr of age have a colonic etiology for iron deficiency. Upper gastrointestinal sources of iron deficiency are prevalent and are frequently asymptomatic, but often they can be identified by upper endoscopy. Therefore, esophagogastroduodenoscopy with small bowel biopsies should be included in the evaluation of iron deficiency anemia in older patients, especially when a colonic source has not been identified.¹²

CONCLUSION

From the above results, we conclude that there are significant endoscopic findings observed in patients with severe iron deficiency. It is recommended to use upper GI endoscopy in evaluation of patients with severe anemia.

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Table 1: Number of patients with various endoscopic abnormal findings

Endoscopic abnormal findings	No. of patients	p-value
Erosive gastritis	11	0.002
Peptic ulceration	3	
Esophageal varicies	2	
Fundal varix	1	
Ca stomach	3	
Total	20	