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PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.376185>Available online at: <http://www.iajps.com>**Research Article****CLINICAL PROFILE OF PATIENTS WITH IRON DEFICIENCY ANEMIA AT TERTIARY CARE TEACHING HOSPITAL****Dr. Syed Zulfiquar Ali Shah*¹, Dr. Ghulam Hussain Baloch ¹, Dr. Zubair Ahmed Yousfani ²,
Dr. Shabber Agha Abbas ³, Dr. Zulfiquar Ali Qutrio Baloch ⁴, Dr. Sumera Bukhari ⁵ and Dr. Imran
Karim ¹**¹Department of Medicine, Liaquat University of Medical and Health Sciences (LUMHS)²Department of Surgery, Liaquat University of Medical and Health Sciences (LUMHS)³R-Endocrinology, Hamilton, NJ⁴Brandon Regional Hospital, Brandon, Florida⁵St. Francis Medical Center, Trenton, New Jersey**Abstract:****OBJECTIVE:** To evaluate the clinical profile of patients with iron deficiency anemia at tertiary care teaching hospital.**PATIENTS AND METHODS:** This descriptive case study of six months was conducted January 2016 to June 2016 at LUMHS Jamshoro Sindh Pakistan. All the patients with iron deficiency anemia were recruited and evaluated as far as etiology is concerned by taking 2 ml venous blood sample and send to laboratory for serum iron, ferritin and TIBC. The frequency / percentages (%) and means \pm SD computed for study variables.**RESULTS:** During six months study period total fifty individuals with iron deficiency anemia were recruited. The mean serum iron, ferritin and TIBC level in whole population was 37.97 ± 7.87 mcg/dL, 10.76 ± 1.42 (ng/mL) and 616.76 ± 12.72 mcg/dL while the mean age \pm SD for whole population was 48.87 ± 7.85 . Majority of the subjects (72%) belonged to rural areas of Sindh province and were males 27(54%). The common sign and symptoms observed were tiredness, GI discomfort and loss of weight while the etiology was identified in 42 (84%) patients with *Helicobacter pylori* 10(23.8%), chronic kidney 4 (9.5%) and liver diseases 5(11.9%) were predominant etiological factors.**CONCLUSION:** The chronic systemic disorders are responsible for iron deficiency anemia including *helicobacter pylori* being the most important cause.**Keywords:** *Helicobacter pylori*, Iron deficiency anemia, Chronic systemic disorders**Corresponding Author:****Dr. Syed Zulfiquar Ali Shah**

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INTRODUCTION:

Iron deficiency is the most common cause of anemia in the world, one of the most common disorders in clinical practice and is a major health issue in Pakistan [1]. The etiology of iron deficiency anemia (IDA) includes chronic blood loss, inadequate dietary iron intake and malabsorption [2]. Formerly the anemia in elderly patients was considered as normal physiological process [3]. However, now it is realized that it might be caused by underlying pathologic conditions [4]. Several studies had proved peak incidence of iron deficiency in elderly regardless of socio-economic status and dietary factors [5]. In Pakistan, nutritional deficiency and helminthiasis are the commonest clinical profile of iron deficiency anemia [6].

Endoscopic survey of Gastrointestinal (GI) tract usually performed to evaluate existence of any mucosal lesions including erosions, ulcers, neoplasm and angiodysplasias [7], although in 20-30% of cases no any etiology is identified while in adult study about IDA [8], endoscopic evaluation revealed the cause of anemia in only 45% [9,10]. Helicobacter pylori (*H. pylori*) a risk factor for peptic ulcer disease/ gastritis and gastric malignancy in which lesions bleed in overt or occult manner leading to IDA [11,12]. The prevalence of *H. pylori* is also high in Pakistan (53%) [13]. It has been observed that that HP infection can lead to Iron deficiency or anemia by iron uptake impairment or increasing demand for iron [14,15]. The association of *H. pylori* and gastritis was published by Dufour C, et al [16] in which subjects with refractory iron deficiency anemia had symptoms resolution following HP induced gastritis treatment. Several other studies also found reversal of iron deficiency after successful eradication of helicobacter pylori infection [17-19]. This study was being conducted to determine the characteristics, clinical presentation and etiological profile of iron deficiency anemia at tertiary care hospital Hyderabad Sindh Pakistan

PATIENTS AND METHODS:

The descriptive case series study was conducted from January 2016 to June 2016 at Liaquat University Hospital Hyderabad. The inclusion criteria were patients of ≥ 12 years of age, either gender had existence of anemia Hb < 13 g/dl (males) and < 12 g/dl (females but non pregnant), on peripheral blood smear there should be microcytic hypo chromic picture and iron studies (serum iron, serum ferritin and TIBC) typically shown iron deficiency anemia whereas the exclusion criteria were acute hemorrhage due to trauma, gastrointestinal or genitourinary bleed, patients on blood transfusion and iron supplement & anticoagulants therapy, the pregnant and lactating ladies. After taking informed consent the detail relevant history was taken and specific physical examination was performed. All the necessary investigations like, complete blood picture, stool for examination, liver / renal function test, serum albumin and total protein, X-ray chest, ultrasound of abdominal and pelvis, thyroid function testing, upper GI endoscopy including biopsy for helicobacter pylori, Serum IgA tissue transglutaminase antibodies for celiac disease, colonoscopy, bone marrow aspiration and biopsy, mantoux test and hemoglobin electrophoresis were advised accordingly. Serum iron and TIBC were evaluated by using calorimetric method while serum ferritin by ELISA using ferritin enzyme immunoassay kit. The proforma was designed to collect the data and analyzed in SPSS 16, the frequency, percentages and mean \pm SD was computed.

RESULTS:

During six months study period total fifty individuals with iron deficiency anemia were recruited. The mean serum iron, ferritin and TIBC level in whole population was 37.97 ± 7.87 mcg/dL, 10.76 ± 1.42 (ng/mL) and 616.76 ± 12.72 mcg/dL. Majority of the subjects (72%) were belonged to rural areas of Sindh province. The demographical clinical and etiological presentations of the study population are shown in Table 1 and 2.

Table 1: The Demographical, Clinical & Etiological Profile of Population

Age (yrs)	N = 50	Percentages (%)
12-19	05	10
20-29	10	20
30-39	08	16
40-49	10	20
50-59	12	24
60 +	05	10
Mean age \pm SD	48.87 \pm 7.85	
GENDER		
Male	27	54
Female	23	46
B.M.I		
<18	12	24
18-24	30	60
\geq 25	08	16
Mean BMI \pm SD	22.62 \pm 1.42	
SIGN & SYMPTOMS		
Tiredness	42	84
Gastrointestinal discomfort	22	44
Loss of weight	16	32
Chronic diarrhea	13	26
ETIOLOGY		
No (Unexplained anemia)	08	16
Yes (etiology identified)	42	84

Table 2: The Detected Etiologies in Studied Population

ETIOLOGICAL DISORDERS	N = 42	PERCENTAGES (%)
Helicobacter pylori infection	10	23.8
Chronic kidney disease	04	9.5
Chronic liver disease	05	11.9
Inflammatory bowel diseases	02	4.7
Malignancy	03	7.1
Hypothyroidism	03	7.1
Intestinal tuberculosis	04	9.5
Connective tissue / autoimmune disorders	03	7.1
Chronic malaria	03	7.1
Diabetic foot	03	7.1
Celiac disease	02	4.7

DISCUSSION:

The current series was small hospital based study on demographic, clinical and etiological profile of individuals with IDA. Our observations also emphasize the importance of gastrointestinal endoscopy in assessing iron deficiency anemia. Our study population with inflammatory bowel and celiac disease, intestinal tuberculosis and carcinoma stomach had vague gastrointestinal symptoms. As a diagnostic algorithm the gastrointestinal endoscopy was performed on them helped in detection of these disorders. Therefore it is recommended that if gastroduodenoscopy is negative, then colonoscopy along with biopsies should be performed to evaluate the cases of iron deficiency anemia. In present study male population was predominant and majority of patients were middle aged or elderly, the findings are consistent with the study by Yun GW, et al [20]. The fatigability was the most common presentation of patients in our study, although dyspepsia (gastrointestinal discomfort) was also an important symptom and majority of the dyspeptic patients (70%) had *H. pylori* infection. Ten (23.8%) patients with iron deficiency anemia were positive for *H. pylori* infection and there is growing evidence of causative association between *H. pylori* and iron deficiency anemia [19]. Chronic gastritis, achlorohydrria, decreases ascorbic acid secretion and bacterial competition with the host for iron are postulations for *H.pylori* infection and IDA[21]. Therefore it is mandatory evaluating and eradication of *H. pylori* in subjects with IDA, especially individuals with no root cause for anemia. Similar recommendations had been made by Dubois S, et al [22]. In our series no cause for IDA was identified in eight patients despite detail evaluation and is consistent with the rate of unexplained iron deficiency anemia reported by former series [23-25]. The present study had found a significant reduction in serum ferritin levels and raised TIBC in subjects with iron deficiency anemia including *H.pylori* infective individuals. The observations are consistent with the study by Kis AM et al and Yuan W, et al[36,27]. Thin sample size and hospital based survey are some of the limitations of current study. The study however does suggest that constitutional / chronic systemic disorders are the commoner causes of iron deficiency anemia with growing evidence of

association of *H. pylori* infection and iron deficiency anemia.

CONCLUSION:

It was concluded that chronic systemic disorders are responsible for iron deficiency anemia including helicobacter pylori being the most important cause. The gastrointestinal endoscopy is an important tool to evaluate the root cause for iron deficiency anemia. The future advance multidisciplinary studies are needed to be conduct at various tertiary care hospitals to determine the associations of other chronic diseases with iron deficiency anemia.

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