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Original Research

Assessment of prevalence of iron deficiency anemia among known population

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ABSTRACT
Background: Iron is a trace element that is required for numerous cellular metabolic functions. The present study was undertaken to assess prevalence of iron deficiency anemia among known population. **Materials & Methods:** 200 patients reporting to the department for routine medical check-up. Complete demographic details of all the subjects were obtained. Blood samples were obtained from all the subjects were sent for assessment of hematological profile. In males, mean haemoglobin concentration of less than 13 g/dL and among females, mean haemoglobin levels of less than 12 g/dL was taken as criteria for defining anaemia. All the records were noted in Microsoft excel sheet and were subjected to analysis by SPSS software. **Results:** Iron deficiency anemia was found to be present in 8 percent of the patient's population in the present study .i.e. 16 patients were affected by this pathology. Among these iron deficiency anemia patients, 62.5 percent of the patients were females while the remaining 37.5 percent of the patients were males. Majority of the patients with iron deficiency anemia belonged to the age group of 40 to 50 years. **Conclusion:** Iron deficiency is one of the most prevalent nutritional deficiencies disorder worldwide. Hence; understanding the pathophysiology and diagnosis is important so that early treatment protocol could be planned.
Key words: Anemia, Iron deficiency, Prevalence.

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INTRODUCTION

Iron is a trace element that is required for numerous cellular metabolic functions. As iron is toxic when present in abundance, tight regulation is required to avoid iron deficiency or iron overload. The adult body contains 3–4 g of iron. The usual Western diet contains approximately 7 mg of iron per 1000 kcal; however, only 1–2 mg is normally absorbed each day. It is essential for cellular growth and differentiation, oxygen binding, transport and storage, enzymatic reactions, immune function, cognitive function, mental and physical growth etc.[1- 3] So, deficiency of iron due to either physiological or pathological reason can affect mental and physical growth resulting in decreased learning capacity and work productivity. IDA is characterized by a defect in haemoglobin synthesis, resulting in hypochromic and microcytic red blood cells. Iron deficiency can result either due to less nutritional supply, increased demand or blood loss due to any reason.[4- 7] Hence; under the light of above mentioned data, the present study was undertaken to assess prevalence of iron deficiency anemia among known population.

MATERIALS & METHODS

The present analysis was planned with the aim of assessment of prevalence of iron deficiency anemia among known population.

Sample size: 200 patients reporting to the department for routine medical check-up
Ethical clearance: Obtained before the starting of the study
Inclusion criteria: Subjects within the age group of 25 to 60 years, Subjects with negative history of any known drug allergy or any other systemic illness

Complete demographic details of all the subjects were obtained. Blood samples were obtained from all the subjects were sent for assessment of hematological profile. In males, mean haemoglobin concentration of less than 13 g/dL and among females, mean haemoglobin

levels of less than 12 g/dL was taken as criteria for defining anaemia (WHO criteria).[8] All the records were noted in Microsoft excel sheet and were subjected to analysis by SPSS software. Chi- square was used for assessment of level of significance.

RESULTS

In the present study, analysis of a total of 200 subjects who came for routine medical check-up was done. 46.8 years was the mean age of the total subjects. Iron deficiency anemia was found to be present in 8 percent of the patient's population in the present study .i.e. 16 patients were affected by this pathology. Among these iron deficiency anemia patients, 62.5 percent of the patients were females while the remaining 37.5 percent of the patients were males. Majority of the patients with iron deficiency anemia belonged to the age group of 40 to 50 years.

Table 1: Prevalence of iron deficiency anemia

Parameter	Number of patients	Prevalence Percentage
Males with iron deficiency anemia	6	37.5
Females with iron deficiency anemia	10	62.5
Total patients with iron deficiency anemia	16	100

Table 2: Age-wise distribution of patients with iron deficiency anemia

Age group (years)	Number of patients	Percentage of patients
25 to 40	4	25
40 to 50	7	43.75
50 to 60	5	31.25
Total	16	100

DISCUSSION

Anemia is a condition characterized by a decreased number of red blood cells and has serious implications for the health, cognitive development, and productivity of adults and children worldwide. As of 2010, the global prevalence of anemia was approximately 32.9%, and this burden was borne primarily by women and children in low- and middle-income countries in Africa and south Asia. Despite recent economic growth and prevention efforts, anemia remains particularly pervasive in India and is the largest cause of countrywide disability.[6- 8]

Iron deficiency anemia (IDA) accounts for about 50% cases of anemia. Other factors responsible for anemia during pregnancy are gestational age, parity, consecutive birth interval, history of excess bleeding during menstruation, intestinal parasitic infection, malaria, chronic illness, and blood loss during pregnancy. Low dietary intake and poor biological availability of iron in phytate and fiber-rich Indian diet are other contributing factors.[9, 10]In the present study, analysis of a total of 200 subjects who came for routine medical check-up was done. 46.8 years was the mean age of the total subjects. Iron deficiency anemia was found to be present in 8 percent of the patient's population in the present study .i.e. 16 patients were affected by this pathology. According to the World Health Organization (WHO), there are two billion people with anaemia in the world and half of the anaemia is due to iron deficiency. Anaemia is a late indicator of iron deficiency, so it is estimated that the prevalence of iron deficiency is 2.5 times that of anaemia. The estimated prevalence of anaemia in developing countries is 39% in children <5 years, 48% in children 5–14 years, 42% in women 15–59 years, 30% in men 15–59 years, and 45% in adults >60 years. These staggering figures have important economic and health consequences for low- and middle-income countries. Anaemia and iron deficiency lead to substantial physical productivity losses in adults. Iron deficiency during pregnancy is associated with maternal mortality, preterm labour, low birth-weight, and infant mortality. In children, iron deficiency affects cognitive and motor development and increases susceptibility to infections.[11-13]

In the present study, among these iron deficiency anemia patients, 62.5 percent of the patients were females while the remaining 37.5 percent of the patients were males. Majority of the patients with iron deficiency anemia belonged to the age group of 40 to 50 years.Siva PM et al estimated prevalence of anaemia and its associated factors among adolescent girls of central Kerala, India. A cross-sectional study was conducted among 257 adolescent girls of ettumanoor panchayat. A pre-designed and pre-tested proforma was used to obtain data regarding socio-demographic details and factors associated with anaemia. Relevant clinical examination of participants were done. Blood samples were analysed using an auto-analyser and stool examination for ova or cyst was done under microscopy. Diagnosis of anaemia was established when haemoglobin was less than 12gm/dl. The prevalence of anaemia was 21%. Risk factors associated with anaemia in the univariate analysis were presence of ova or cyst in stool and number of pads per day during menstruation. Protective factors were hand washing after toileting, hand washing before food intake, foot wear usage and jaggery consumption. The factors which were significant in logistic regression were worm infestation, number of pads per day, washing hands before food intake and foot wear usage. Worm infestation and number of pads per day during menstruation were found to be risk factors for anaemia.[14]

CONCLUSION

Under the light of above obtained results, the authors concluded that Iron deficiency is one of the most prevalent nutritional deficiencies disorder worldwide. Hence; understanding the pathophysiology and diagnosis is important so that early treatment protocol could be planned.

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