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Original Article

Assessment of Prevalence of iron deficiency anemia in known population

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ABSTRACT:

Background: Iron deficiency results in anemia, impaired neurobehavioral performance, and decreased physical work capacity. The present study was conducted to assess the prevalence of iron deficiency anemia in known population. **Materials & Methods:** The present study was conducted on 1412 subjects. The Hemoglobin was estimated with autoanalyzer Sysmex Kobe Japan. Serum was separated with centrifuge and serum ferritin was estimated using chemiluminescence Immunoassay using twostep microparticle immunoassay. **Results:** In present study, out of 1412 subjects, age group 10-20 years had 512 subjects, 20-30 years had 234, 30-40 had 130, 40-50 had 405 and >50 years had 131. The prevalence of iron deficiency anemia found to be 49.7%. **Conclusion:** Iron Deficiency Anemia is common cause of anemia all over the world The prevalence found to be 49.7%.

Key words: Chemiluminescence, Hemoglobin, Iron.

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INTRODUCTION

Anemia is defined by a decrease in the total amount of hemoglobin or the number of red blood cells. Iron deficiency anemia is a form of anemia due to the lack of sufficient iron to form normal red blood cells.[1] It is the most common cause of anemia in the world.[1]

Iron deficiency anemia is typically caused by inadequate intake of iron, chronic blood loss, or a combination of both. Patients with anemia present similar clinical symptoms such as fatigue, breathlessness, dizziness, and headache. Anemia also increases the susceptibility to different kinds of infections and impairs the work capacity. Severity of symptom caused by anemia is paralleled with the severity of anemia. Severe anemia may predispose to infection and heart failure, while severe anemia during pregnancy may significantly contribute to both maternal mortality and morbidity.[2]

Despite considerable economic and scientific advancement world's quarter of population is anemic highest prevalence of anemia 47.4% is among the preschool children. IDA affects 43% of preschool children all over the world, especially in developing countries, which present prevalence rates four times higher than those found in industrialized countries. This high prevalence is associated with poor sanitation conditions, low socioeconomic conditions and high morbidity among infants.[3]

Iron deficiency results in anemia, impaired neurobehavioral performance, and decreased physical work capacity. In iron deficiency there are no mobilizable iron stores and in which signs of a compromised supply of iron to the tissues including the erythron are noted. The more severe stage of iron deficiency is associated with anemia.[4] The present study was conducted to assess the prevalence of iron deficiency anemia in study population.

MATERIALS & METHODS

The present study was conducted on 1412 subjects of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained before the study. General information such as name, age,

gender etc. was recorded. 5 ml of venous blood was collected from sterile venipuncture in 500micro liter tubes filled with EDTA K2. The Hemoglobin was estimated with autoanalyzer Sysmex Kobe Japan. Serum was separated with centrifuge and serum ferritin was estimated using chemiluminescence Immunoassay using two step microparticle immunoassay. Results were tabulated and subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

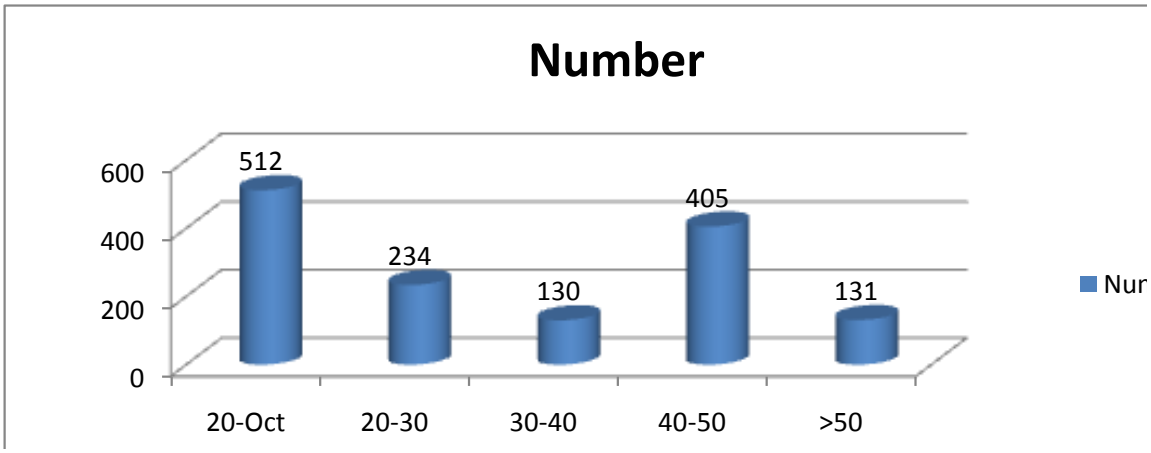
RESULTS

Table I Distribution of subjects

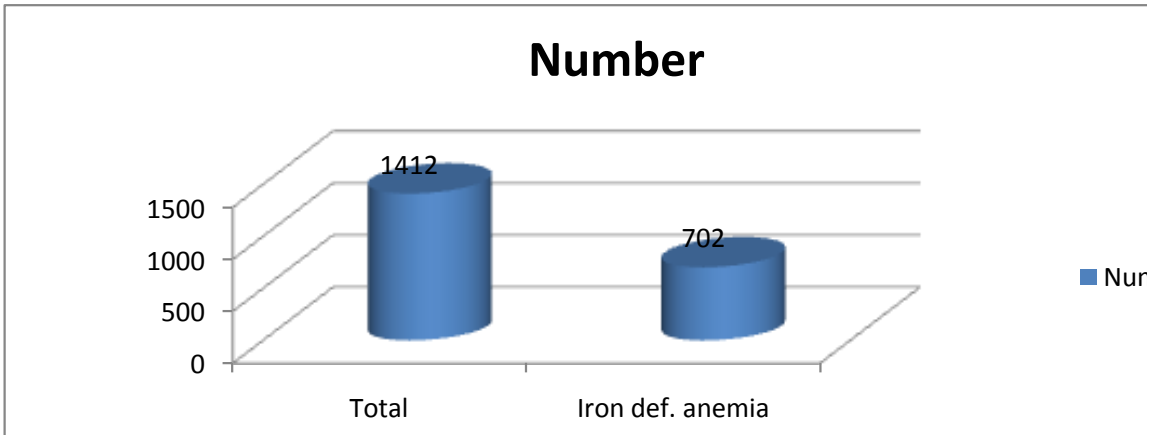
Age group (Years)	Number	P value
10-20	512	0.01
20-30	234	
30-40	130	
40-50	405	
>50	131	
Total	1412	

Table I, graph I shows that age group 10-20 years had 512 subjects, 20-30 years had 234, 30-40 had 130, 40-50 had 405 and >50 years had 131. The difference was significant (P- 0.01).

Graph I Distribution of subjects



Graph II Prevalence of iron deficiency anemia



Graph II shows that out of 1412 subjects, 702 had iron deficiency anemia.

DISCUSSION

Iron Deficiency Anemia affects 43% of preschool children all over the world especially in developing countries, in which the present prevalence rates of four times higher than those found in industrialized countries, this high prevalence is associated with poor sanitary conditions and low socio economic status and high morbidity among infants.[5]

Iron-deficiency anemia is characterized by the sign of pallor and the symptoms of fatigue, lightheadedness, and weakness. None of these symptoms are sensitive or specific. Pallor of mucous membranes in children suggests anemia with the best correlation to the disease, but in a large study was found to be only 28% sensitive and 87% specific in distinguishing children with anemia, hemoglobin and 49% sensitive and 79% specific in distinguishing severe anemia. Thus, this sign is reasonably predictive when present, but not helpful when absent, as only one-third to one-half of children who are anemic will show pallor.[6]

In present study, we included 1412 subjects. age group 10-20 years had 512 subjects, 20-30 years had 234, 30-40 had 130, 40-50 had 405 and >50 years had 131. The prevalence of iron deficiency anemia found to be 49.7%. Sharma et al[7] found that 185 males and 174 female school going children were examined, IDA was prevalent in 58.9% of males and 63.2 % in females, there was significant decrease in parameters of Hemoglobin, Serum Ferritin and Transferrin saturation and increase in Total Iron Binding Capacity in this group of population indicating prevalence of the Iron deficiency.

Miller et al.[8] in their study, one thousand five hundred and six patients were enrolled by 95 investigators data were analyzed for 1478 patients. A total of 28 patients were removed from the analysis because they were receiving folic acid alone during the first trimester of pregnancy, for the prevention of neural tube defects and therefore deemed to be outside the scope of assessing the prevention/treatment of iron deficiency. The mean age of the study population was 29.9 ± 5.1. Overall, investigators estimated that almost 60% of women were at moderate or significant risk of iron deficiency. Of note, the proportion of women classified with a moderate or significant risk of iron deficiency increased with increasing duration of pregnancy (48.4% [first trimester] vs 68.4% [third trimester]).

Moor et al.[9] assessed the iron nutritional status among 312 rural school girls of Delhi 17. The prevalence of anemia (Hb <12 g/dl) was 28% in girls who had attained menarche and 22% in girls who had not attained menarche. In another study by Sheshadri S among 1, 500 rural girls (10-19 yrs.) from 10 villages in Gujarat, the prevalence of anemia (Hb <12 g/dl) was reported to be 60%.

CONCLUSION

Iron Deficiency Anemia is common cause of anemia all over the world The prevalence found to be 49.7%.

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