

## Original Article

### Assessment of Prevalence of Anemia in Known Population- A Clinical Study

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#### ABSTRACT:

**Background:** 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. The present study was conducted to assess the prevalence of anemia in known population. **Materials & Methods:** The present study was conducted on 96 subjects. In all subjects, 5 ml of venous blood was collected from sterile venipuncture in 500 micro litre tubes filled with EDTA K2. The Hemoglobin was estimated with autoanalyzer. Serum ferritin level was assessed. **Results:** Out of 96 subjects, males were 24 and females were 72. The difference was significant (P- 0.01). Age group 11-20 years had 4 males and 10 females, 21-30 years had 7 males and 21 females, 31-40 years had 8 males and 20 females, 41-50 years had 3 males and 15 females and 51-60 years had 2 males and 6 females. The difference was significant (P- 0.05). 55 subjects had hemoglobin of 8 gram % and 17 had hemoglobin of 9 gram %. The difference was significant (P- 0.05). Serum ferritin level of 88ng/ml was seen in 14 males and 22 females, 70 ng/ml of serum ferritin was seen in 10 males and 50 females. The difference was significant (P- 0.05). **Conclusion:** Iron deficiency anemia is quite common in females as compared to males. The common cause is blood loss through menstruation cycle. Other possible causes are nutritional deficiency etc.

**Key words:** Iron, Menstruation, Serum ferritin.

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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. Iron deficiency anemia is typically caused by inadequate intake of iron, chronic blood loss, or a combination of both.<sup>1</sup> It is the most common cause of anemia in the world. 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.<sup>2</sup>

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. Because anemia is most common indicator to screen iron deficiency the terms anemia and iron deficiency anemia are sometimes used interchangeably.<sup>3</sup> It 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.<sup>4</sup> The present study was conducted to assess the prevalence of anemia in known population.

#### MATERIALS & METHODS

The present study was conducted in the department of Physiology. It comprised of 96 subjects of both genders. All were informed regarding the study and written consent was

obtained. General information such as name, age, gender etc. was recorded in case history performa. In all subjects, 5 ml of venous blood was collected from sterile venipuncture in 500 micro litre tubes filled with EDTA K2. The Hemoglobin was estimated with autoanalyzer. Serum was separated with centrifuge and serum ferritin was estimated

using chemiluminescence immunoassay using Abbott architect two step microparticle immunoassay. Serum ferritin level was assessed. 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

Total- 96		
Males	Females	P value
24	72	0.01

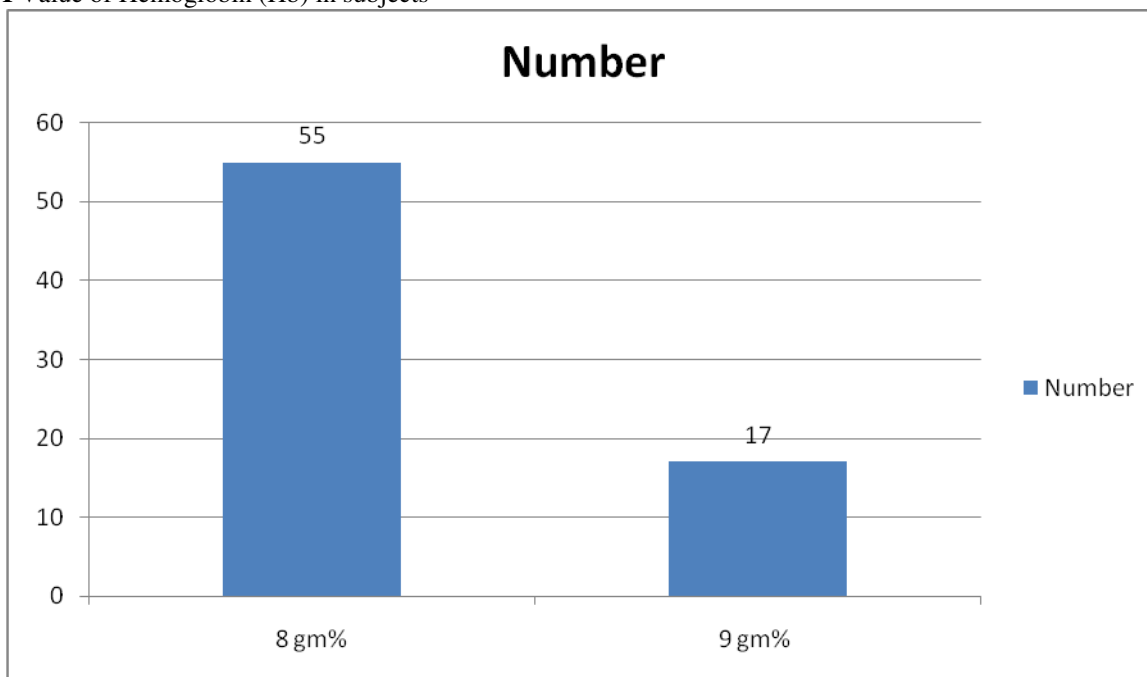
Table I shows that out of 96 subjects, males were 24 and females were 72. The difference was significant (P- 0.01).

**Table II** Age wise distribution of subjects

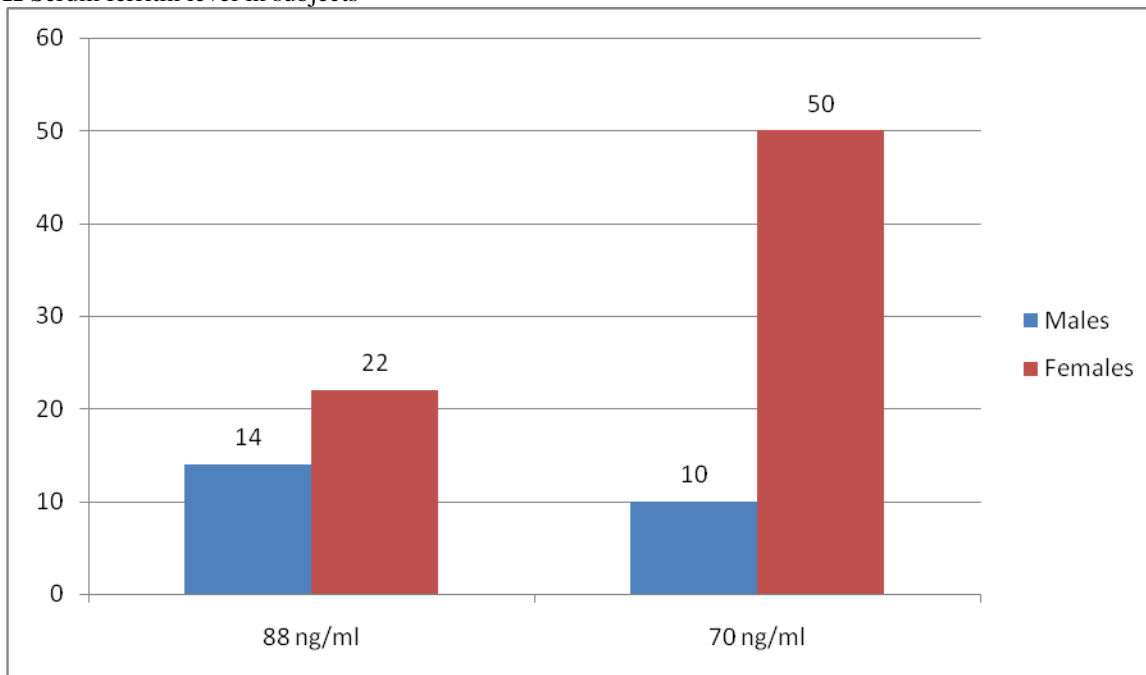
Age group	Males	Females	P value
11-20	4	10	0.05
21-30	7	21	
31-40	8	20	
41-50	3	15	
51-60	2	6	

Table II shows that age group 11-20 years had 4 males and 10 females, 21-30 years had 7 males and 21 females, 31-40 years had 8 males and 20 females, 41-50 years had 3 males and 15 females and 51-60 years had 2 males and 6 females. The difference was significant (P- 0.05).

**Graph I** Value of Hemoglobin (Hb) in subjects



Graph I shows that 55 subjects had hemoglobin of 8 gram % and 17 had hemoglobin of 9 gram %. The difference was significant (P- 0.05).

**Graph II** Serum ferritin level in subjects

Graph II shows that serum ferritin level of 88ng/ml was seen in 14 males and 22 females, 70 ng/ml of serum ferritin was seen in 10 males and 50 females. The difference was significant (P- 0.05).

## DISCUSSION

Iron-deficiency anemia is anemia caused by a lack of iron. Anemia is defined as a decrease in the number of red blood cells or the amount of hemoglobin in the blood. When onset is slow, symptoms are often vague, including feeling tired, weakness, shortness of breath, or poor ability to exercise. Anemia that comes on quickly often has greater symptoms, including: confusion, feeling like one is going to pass out, and increased thirst. There needs to be significant anemia before a person becomes noticeably pale.<sup>5</sup> Problems with growth and development may occur in children. There may be additional symptoms depending on the underlying cause. 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.<sup>6</sup>

We found that out of 96 subjects, males were 24 and females were 72. Age group 11-20 years had 4 males and 10 females, 21-30 years had 7 males and 21 females, 31-40 years had 8 males and 20 females, 41-50 years had 3 males and 15 females and 51-60 years had 2 males and 6 females. 55 subjects had hemoglobin of 8 gram % and 17 had hemoglobin of 9 gram %. This is in agreement with Sidhu et al.<sup>7</sup>

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.<sup>8</sup>

In study by Raat et al<sup>9</sup>, out of the 712,101 non-pregnant women living in the rural areas of China, 1728 suffered from severe anemia, with a prevalence of 0.24%. Results from the multivariable logistic regression showed that elderly living in the northwest region, having a history of anemia, with heavy menstrual blood loss, and with a history of using an intra-uterine device etc., were independent determinants for women with severe anemia in rural China.

## CONCLUSION

Iron deficiency anemia is quite common in females as compared to males. The common cause is blood loss through menstruation cycle. Other possible causes are nutritional deficiency etc.

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