THE PREVALENCE AND TYPE OF ANAEMIA IN ASYMPTOMATIC ADULTS IN A RURAL POPULATION

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ABSTRACT

BACKGROUND

Anaemia is considered the most common nutritional deficiency disorder globally. It is common in preschool children, adolescent girls and women in reproductive age. In the present study, we have attempted to find out the prevalence of anaemia in asymptomatic individuals who came for annual health check-up wherein the study comprised more of adult males than females.

The aim of this study was to determine the prevalence and types of anaemia in asymptomatic adult population from rural area in Warangal.

MATERIALS AND METHODS

This was a prospective study done over a period of two years from January 2017 to December 2018. Patients who had come for routine Master Health Check-up and in whom incidentally anaemia was detected were selected for the study and the type and severity of anaemia were categorized. The age of study group ranged from 20 years to 60 years. Haemoglobin estimation and peripheral smear findings were noted, and anaemia was categorized.

RESULTS

A total of 8800 cases had undergone annual health check-up in the study period of which incidental anaemia was detected in 1320 (15%) cases. These 1320 cases were studied for the severity and type of anaemia. There were 948 males and 372 females. The male to female ratio was 2.5:1. Among males, mild anaemia was more common (76%) as compared to females where moderate category was more common (58%). Among the peripheral smears, microcytic hypochromic anaemia was the most common type followed by the normocytic normochromic type.

CONCLUSION

The prevalence of anaemia in supposedly 'healthy' asymptomatic individuals was 15%. Mild anaemia is a common problem in adult males and females that goes unrecognized. All such cases require further studies to find out the exact cause for anaemia. Regular health check-ups are essential even in asymptomatic individuals and simple basic investigations are useful to detect anaemia in earlier stages so that early treatment intervention can be done.

KEYWORDS

Prevalence of Anaemia, Types of Anaemia, Iron Deficiency Anaemia.

BACKGROUND

Anaemia is considered the most common nutritional deficiency disorder globally. It is common in preschool children, adolescent girls and women in reproductive age.[1] In the present study we have attempted to find out the prevalence of anaemia in asymptomatic individuals who came for annual health check-up wherein the study comprised more of adult males than females.

Anaemia means the red blood cells do not carry enough oxygen to the tissues of the body. WHO defines anaemia as a condition in which the Haemoglobin (Hb) content of blood is lower than normal as a result of deficiency of one or more essential nutrients, regardless of the cause of such defficiencies.

Aim of the Study

To determine the prevalence and types of anaemia in asymptomatic adult population from rural area in Warangal.

MATERIALS AND METHODS

This was a prospective study done in department of Internal Medicine at District Head quarter Hospital Warangal, Rural over a period of two years from January 2017 to December 2018.

Patients who had come for routine Master Health Check-up and in whom incidentally anaemia was detected were selected for the study. The age of study group ranged from 20 years to 60 years and adult males and females were included. Pregnant women, people with known chronic diseases, people on any form of haematinics or who had

received blood transfusion in last three months were excluded.

In these cases, demographics, detailed clinical history, complete physical examination including general and systemic examination were noted. Attention was especially given to elicit history for the cause of anaemia. Investigations included routine complete blood picture, haemoglobin estimation, peripheral smear study, erythrocyte sedimentation rate, blood group, urine analysis. Serum iron studies, serum vitamin B12 and folic acid studies were done wherever required. Based on clinical history, special investigations like chest X-ray, liver and kidney function tests and other imaging studies were done and/or advised.

Cases were classified as mild, moderate and severe anaemia based on the haemoglobin value as 9-12 gm%, 7-8.9 gm%, and <7 gm% respectively. In males, mild anaemia was considered for haemoglobin of 9-12.9 gm%.

RESULTS

There were 8800 cases in total who had come for routine health check-up in the study period. Most of them were regular annual health check- ups or due to some minor health concern on the individual's part.

Of the 8800 cases, incidental anaemia was detected in 1320 (15%) cases. These 1320 cases were studied for the severity and type of anaemia. There were 948 males and 372 females. The male to female ratio was 2.5:1.

Age in Years	No. of Cases (%)		Total (%)
	Males	Females	
20-29	38 (4.0%)	22 (5.9%)	60 (4.5%)
30-39	40 (4.2%)	60 (16.1%)	100 (7.5%)
40-49	291(30.6%)	193 (51.8%)	484 (36.6%)
50-60	579 (61%)	97 (26%)	676 (51.2%)
Total	948 (100%)	372 (100%)	1320 (100%)
Table 1. Age-Wise Distribution of Cases			

According to age-wise distribution, incidental anaemia was more common in the higher age group of 40 to 60 years as compared to 20 to 39 years.

Anaemia was divided into mild, moderate and severe categories.

Age in Years	No. of Cases (%)		Total (%)
	Males	Females	
Mild Anaemia	720 (76%)	113 (30%)	833 (63%)
Moderate Anaemia	210 (22.1%)	215 (58%)	425 (32.1%)
Severe Anaemia	18 (2%)	44 (12%)	62 (4.6%)
Total	948 (100%)	372 (100%)	1320 (100%)
Table 2. Severity-Wise Distribution of Cases Anaemia was Divided into Mild, Moderate and Severe Categories			

Among males, mild anaemia was more common as compared to females where moderate category was more

common. In both genders, overall, mild anaemia was more common. In the females, mild anaemia was seen mostly in younger age group of 20 to 39 years, whereas, the moderate anaemia was more in 40-60-years age group. Among males with severe anaemia 4/18 (22%) cases, a history of daily aspirin intake for coronary artery disease was present. But these patients had not noticed any overt gastrointestinal bleeding at any time.

Distribution of Cases According to Aetiology

Serum iron studies, serum B12 and folic acid levels were advised but could not be done in all the cases due to cost constraints. History- wise, most of the patients were from good socioeconomic status and all (100%) were literate. Among dietary habits, 63% were regular non-vegetarians, 26% were eggetarians and 11% were pure vegetarians.

Among males with severe anaemia 4/18 (22%) cases, a history of daily aspirin intake for coronary artery disease was present. But these patients had not noticed any overt gastrointestinal bleeding at any time. Among females, in the 40-60-years age group, complaints of perimenopausal bleeding were more common. Most of these women had not undergone any gynaecologic evaluation for menstruation relation blood loss.

Peripheral Smear	No. of Cases	Percent (%)
Microcytic Hypochromic	554	42%
Normocytic Normochromic	502	38%
Macrocytic	79	6%
Dimorphic	185	14%
Total	1320	100%
Table 3. Type of Anaemia Based on Peripheral Smear		

Among the peripheral smears, microcytic hypochromic anaemia was the most common type followed by the normocytic normochromic type.

DISCUSSION

Anaemia is a global health problem and affects 1.62 billion people, which corresponds to 24.8% of the population. It has a low prevalence in men (12.7%) and a high prevalence in preschool-age children (47.4%).[2] Prevalence of anaemia in South Asian countries is among the highest in the world.[3] Anaemia is one of the most common health problems in India. It is seen predominantly in rural areas as compared to urban areas. It is more commonly encountered in pregnant and lactating women and children.[4,5] Prevalence in this subgroup has been found to vary from 50-90% in different parts of India. Most of the national interventional programmes focus on preventing and treating anaemia in these groups. Reliable data on the prevalence of anaemia in adult population (non-pregnant females and adult males) is not much.[5,6]

Anaemia is a common health problem all over the world and especially in developing countries. The World Health

Organization (WHO) defines anaemia as a haemoglobin (Hb) concentration <130 g/L in men, and <120 g/L in women.[7]

When in a given population the prevalence of anaemia is ≤4.9 it is not considered as a public health problem. When the prevalence is 5 to 19.9 and 20-39.9 then it is considered as mild and moderate category of public health significance. When prevalence of anaemia becomes more than ≥40.0 then it is considered as a severe category of public health problem.[8]

In the present study, the prevalence of anaemia was 15% in a rural population from South India. In a study by Little et al[9] the prevalence of anaemia was 57.2% among women and 39.3% among men from Tamilnadu. In our study, among women, mild, moderate and severe anaemia were seen in 30%, 58% and 12% cases respectively. According to the National Family Health Survey (NFHS)-(III) more than half of women in India (55%) have anaemia, including 39% with mild anaemia, 15% with moderate anaemia and 2% with severe anaemia.[1] Malhotra et al[10] in their study on prevalence on anaemia in North Indian population observed that the prevalence of anaemia among females was 50% while among males it was 44.3%. The prevalence of anaemia in adult males in India was observed to be 24% by Upadhyay et al.[7]

In the present study, microcytic hypochromic anaemia was the most common type (42% cases) and this finding is similar to other studies[1,7] where iron deficiency anaemia has been found to be the commonest type of anaemia.

The main causes of anaemia are nutritional deficiencies and infectious (hook worm and round worm infection) in nature. Among nutritional deficiencies, iron deficiency is the most common cause of anaemia. It is due to a diet either poor in iron or rich in substances (phytates) that inhibit iron absorption by the body.[11]

To tackle the wide-spread problem of anaemia, various prevention strategies were initiated by the Government of India. These include a multi-pronged 12 × 12 initiative for addressing the problem of anaemia in the adolescents across the country. The aim was to achieve haemoglobin level of 12 gm% by the age of 12 years by 2012.[12]

An initiative started by the Federation of Obstetrics and Gynaecological Society of India (FOGSI) was the "Anaemia Chale Jao - Nischay – 2007" wherein it was decided to eliminate anaemia by 2007 by ensuring that every single Indian female must know her weight, height, blood group and haemoglobin level. The basis for this initiative was that 80% of females were not aware of their basic health parameters i.e. height, weight, Hb% and blood group.[13]

The Micronutrient Initiative (MI) in 2004 supported the installation of a double fortified salt (DFS) manufacturing facility at the Tamil Nadu Salt Corporation (TNSC) plant, and currently provides 2 tons of iron premix every month as free subsidy to TNSC.[14]

MI, Global Alliance for Improved Nutrition (GAIN), Flour Fortification Initiative (FFI) have planned to fortify foods such as flour, etc with iron and micronutrients so as to make iron available on a mass scale.[14]

Screening for anaemia, treatment of anaemic women, and availability of food fortification (wheat flour with iron and folic acid), milk sugar and salt with iron to build long term iron stores remains the key to reduce anaemia.[15]

In the present study, people who had voluntarily come for health check-up and who were supposedly "healthy" without any major clinical symptoms were studied for the prevalence of anaemia. There are not many studies on anaemia in adult asymptomatic males and this made us to publish the findings. More studies are required to find out the definite cause of anaemia in supposedly "healthy" individuals. This study also emphasizes the need for regular annual check-ups in individuals of all ages so as to detect anaemia in earlier stages.

CONCLUSION

The prevalence of anaemia in supposedly 'healthy' asymptomatic individuals is high and, in our study, it was 15%. Mild anaemia is a common problem in adult males and females that goes unrecognized. All such cases require further studies to find out the exact cause for anaemia. Regular health check-ups are essential even in asymptomatic individuals and simple basic investigations can be used to detect anaemia in earlier stages so that early treatment intervention can be done.

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