Original Research Article

A Prospective Research to Find the Iron Deficiency Anemia among Adults with Stomach Pain, Intestinal Obstruction

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Abstract

Introduction: Globally, anemia stands as a significant public health challenge, with substantial implications for health, economics, and society at large. With this back ground, a study was taken to find the prevalence of iron deficiency anemia (IDA) in adults with stomach pain, intestinal obstruction (IO).

Methods: It was a prospective research conducted in government Medical College, Srikakulam. from January to June 2021. Adults both gender those attended with stomach pain and IO on outpatient basis to general medicine and general surgery departments were included in the research. After recruiting the participant in the study, detailed clinical history was collected. All the findings were recorded in the study proforma. Blood sample was collected by venue puncture, serum was used for iron estimation as per the standard guidelines. Age wise, 18 – 30 were considered as group 1 and 31 – 60, group 2. Chi-square test was used for statistical analysis and P <0.05 were considered to be statistically significant.

Results: Total 103 members were included, age wise, the incidence of IDA was 12.6% (13) and 26.2% (27) respectively in group 1 and group 2, statistically there was no significant difference. In gender category, there were 9 (8.8%) and 31(31%) IDA respectively in male and female; statistically there was significant difference.

Conclusion: In this study there is high incidence of IDA among the women. Not screening parasitic infections and cause for the symptoms are the limitations.

Keywords: Anemia, Iron, Study, Research.

Introduction

Globally, anemia stands as a significant public health challenge, with substantial implications for health, economics, and society at large. [1] According to the latest data from the National Family Health Survey 5, the prevalence of anemia has worsened in the majority of states and union territories in India over the past five years. (2) Adolescents face the highest prevalence of anemia due to their heightened nutritional requirements during this crucial period. [2] Adequate nutrition is particularly crucial during adolescence, as it marks a phase of rapid growth, and insufficient nutrition can result in long-term consequences, affecting both physical and mental abilities. [3] The prevalence of anemia among adolescents is alarmingly high, with nearly 50% of the surveyed population being anemic. [4] This aligns with the National Family Health Survey 5 findings, reporting a prevalence of 59.1% among women and 31.1% among men, with notable urban-rural disparities. [2]

Tribal communities face significant economic and social disadvantages, often being excluded from proper education. Their socio-cultural beliefs, dietary habits, and inadequate nutrient intake contribute to under nutrition, including a higher prevalence of anemia; numerous studies have highlighted the elevated rates of anemia among tribal adolescents. [1] Results from a recent investigation in rural Karnataka, along with findings from other studies, have uncovered deficiencies in community awareness regarding adolescent anemia and its prevention. Additionally, there are observed shortcomings in dietary habits, low adherence to regular Iron and Folic Acid (IFA) consumption, and a lack of sufficient nutrition education in schools. [5]

With this back ground, a study was taken to find the prevalence of iron deficiency anemia (IDA) in this region.

Methods

It was a prospective research conducted in government Medical College, Srikakulam. Study was conducted for a period of 6 months, from January to June 2023. Study protocol was approved by Institutional ethical committee. An informed written consent was taken from study participants. Adults >18 years, both gender those attended on outpatient basis to general medicine and general surgery departments with stomach pain, intestinal obstruction (IO) were included. Those with known anaemia status, on oral IFA supplementation, non-cooperatives were not considered in this research.

After recruiting the participant in the study, detailed clinical history was collected. All the findings were recorded in the study proforma. The study was clearly explained in the local language and the use of IFA was explained in local language. The participants were allowed to ask doubts. After clarifying all the doubts beyond the knowledge attempted for blood sample collection. Based on age, the members were divided to 2 groups; 18 – 30 were in group 1 and 31 – 60 in group 2.

Blood sample was collected by venue puncture by following the universal safety precautions in heparin anticoagulant tube. It was centrifuged at 3000rpm for 10 mnts. The serum was used for iron estimation. Blood parameters were estimated by automated analyser as per the manufacturer instructions as well as by using standard guidelines. [6] Anemia classification adhered to the guidelines. [7]

Statistical analysis: The data were analysed using SPSS version 21. It was presented in mean and percentage. Chi-square test was used for statistical analysis and P <0.05 were considered to be statistically significant.

Results:

Total 103 members were included in this research. Age wise, 38 (37%) were included in group 1 and 63 (62%) members is group 2. Age wise the incidence of iron deficiency anemia (IDA) was 12.6% (13) and 26.2% (27) respectively and statistically there was no significant difference (Table 1). Gender wise, there were 37% (38) male and 63% (65) female. In gender category, there were 9 (8.8%) and 31(31%) IDA; statistically there was significant difference (Table 2).

Table 1: Age wise distribution of iron deficiency anemia (IDA) among the study participants; n (%)

Age	IDA	Non IDA	Total
Group 1	13 (12.6)	25 (24.3)	38 (37)
Group 2	27 (26.2)	38 (37)	65 (63)
Total	40 (39)	63 (62)	103 (100)
Statistical analysis	Ψ^2 value = 0.5421; P value = 0.46155		
	No statistical significance		

Table 2: Gender wise distribution of iron deficiency anemia (IDA) among the study participants; n (%)

Gender	IDA	Non IDA	Total
Male	9 (8.8)	29 (28)	38 (37)
Female	31 (31)	34 (33)	65 (63)
Total	40 (39)	63 (62)	103 (100)
Statistical analysis	Ψ^2 value = 5,819; P value = 0.015854		
	Statistical significance		

Discussion

Iron deficiency is the predominant cause of anemia. Multiple studies have consistently demonstrated that anemia persists as a significant public health concern, especially among children. [7] Anemia adversely affects the health of school children, leading to issues such as subpar scholastic performance and cognitive impairment. [8] Additionally, iron deficiency has been associated with various learning and behavioral problems. [9] Studies have shown its impact on aerobic fitness and the efficiency of work as well. [10] In this research the prevalence of IDA was 39%. In a recent study from South India, the prevalence of IDA was found to be 37.3%. Almost similar incidence as per the current research. [1]

In this study, age wise the incidence of IDA was 12.6% (13) and 26.2% (27) respectively in group 1 and group 2; statistically there was no significant difference (Table 1). As per the literature, in India, the prevalence of anemia is at its peak in the early years, declines until approximately 11 years of age, and then rises again during adolescence. [11] The most widespread cause of anemia in this age group is nutritional anemia resulting from insufficient iron, folate, or vitamin B12. IDA leads to adverse effects on growth and development, as well as on performance and work productivity. [12]

Due to the high incidence of anemia, government of India organising different programme. [13] Despite numerous decades of intervention programs, anemia remains a significant public health challenge in

India, impacting 59% women and 31% men aged 30 –60 years. [7] In the current research the mean age of the participants was 43.8 years. Due to the absence of global estimates for the prevalence of IDA impacting 30% of the world population, has been utilized as an indicator for both iron deficiency and IDA. [14]

As per the gender, the incidence of IDA was there was 8.8% (9) and 31 (31%), respectively; statistically there was significant difference (Table 2).In this study there was high incidence of IDA among the women. In addition to the nutritional deficiency, menstrual loss is the important factor for IDA. As part of study protocol, all the female members reported menstrual history, due to this high rate of IDA was detected. As per Azinge IE. [15] IDA affected 53% of female and 41% of male.

In this study there is high incidence of IDA among the women. Consideration should be given to adopt and proper implementation of programs for anemia prevention. However small sample size, not screening parasitic infections and non-consideration of cause for abdominal pain, IO are the limitations.

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