COMPREHENSIVE STUDY OF RISK FACTORS AND DRUG USE PATTERNS IN ANAEMIC PATIENTS IN TERTIARY CARE HOSPITAL, CHITRADURGA

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ABSTRACT

Objectives: According to the WHO, anaemia is a state in which the body's ability to transport oxygen is insufficient because there are low red blood cells and less haemoglobin in the blood. Anaemia is a sign of both poor health and nutrition. Anaemia is a frequent disorder that can be classified as microcytic, megaloblastic, or haemolytic in nature. To assess the risk factors and drug use pattern in Anaemic patients in Tertiary Care Hospital, Chitradurga. **Materials and Methods:** This was A prospective observational study carried out among the Anaemic patients in Tertiary Care Hospital, Chitradurga. Data were entered self-designed data collection form. The data was collected and analyzed in Microsoft Excel sheet. **Results:** Out of 210 Participants in that 163 (77.61%) are belongs to vegetarian group and remaining 47 (22.38%) were belongs to non-vegetarian group. The most common risk factors are Generalized Weakness 93, Easy Fatiguability 37, Fever 35, Decreased Appetite 19, Heavy Menstrual Bleeding 22, Genetics 29, and Amenorrhea 56. In 210 cases, 62 (29.52%) patients are having comorbidity condition and remaining 148 (70.47%) are not having comorbidities. The most frequently prescribed drugs are PRBC 149 (70.952%), followed by Ferrous Ascorbate & Folic Acid 151 (71.904%), Vitamin B Complex 51 (24.285%), Nutritive Protein Powder 71 (33.809%). **Conclusion:** This study concludes that female (childbearing age) is more prone to anaemia. Adolescents require extra iron because their bodies are growing and developing quickly so advise them to maintain healthy diet and more intake of green vegetables, fruits, and iron rich diet.

KEYWORDS: Anaemia, Pregnant, Nutritional deficiency, Diet.

INTRODUCTION

One of the most prevalent illnesses in the world is anemia. It affects public health in both developing and impoverished nations.[1] According to the World Health Organization, anemia is a state in which the body's ability to transport oxygen is insufficient because there are fewer red blood cells and less hemoglobin in the blood.[2]

It is perhaps one of the most prevalent diseases in the world and has a considerable impact on morbidity and mortality, especially in poor nations. Over 50% of expectant mothers and over 40% of newborns are anemic worldwide. In the UK, 3% of males and 14% of females between the ages of 55 and 64 were found to be anemic.[3]

According to the WHO dashboard, India has the fifth-highest global prevalence of anaemia among women of reproductive age in 2019 (53%), after Yemen, Mali, Benin, and Nigeria. In India, the prevalence rate for youngsters (6 to 59 months) was 53.4%. The results of the NFHS-5 survey at the national level show that anaemia prevalence among women and children has increased since the NFHS-4 survey, which was performed in 2015-2016, or roughly 4 years ago.

Anaemia is a sign of both poor health and nutrition. Low family income, low maternal education, lack of access to healthcare facilities, unsanitary living conditions, and an iron-deficient diet are the anemia risk factors that are most frequently mentioned in the literature.[4] Low iron intake and low consumption of foods that promote iron absorption, deficits of other nutrients involved in iron metabolism, such as vitamin A, and the presence of iron absorption inhibitors are among the diet-related issues that have been studied. In younger children, rapid growth, low birth weight, early weaning, and supplemental feeding based on cow's milk with delayed introduction of iron-rich foods stand out as the main contributing factors to this issue.[5]

Between the ages of 18 and 25, later adolescence is a time of noticeable physical development. In this stage, a woman's ability to maintain an acceptable nutritional status not only affects her current quality of life but also indirectly influences the nutritional status of her unborn children and her capacity to provide for and nourish them.[6]

Inadequate blood loss throughout the menstrual cycle can result in physical health issues like fatigue and iron deficiency anemia (IDA), which have a detrimental impact on women's quality of life (QoL).[7]

The older patient may be more vulnerable to anemia brought on by several small, frequently undiagnosed illnesses (such as nutritional inadequacies) that have a deleterious impact on erythropoiesis because of age-related declines in bone marrow reserve.

A main hematologic disorder is frequently the cause of pediatric anemia. Rapid development spurts and poor eating both raise the risk of IDA.

Low hemoglobin levels have also been linked to cognitive impairment in cognitive processes like perception, inventiveness, the capacity to learn and retain new knowledge, attention, speech, spatial and temporal orientation, motor skills, etc., in a manner like anemia.[8] Iron is found in the brain's white matter, with the basal ganglia having the highest concentration. Cognitive function is impacted by a drop in neurotransmitter levels brought on by a drop in iron levels in the brain.

MATERIALS AND METODS

Study Site
The study was carried out in the Tertiary Care Hospital, Chitradurga.

Study Approval
This study was approved by the "Institutional Ethical Committee" of S.J.M College of Pharmacy, Chitradurga.

Study Duration
The study was carried out for a period of 6 months.

Study Design: A hospital based prospective observational study.

Study Criteria: The study was carried out by considering the following criteria.

Inclusion Criteria
- Study includes Patient with anaemic condition in Tertiary Care Hospital, Chitradurga.
- Anaemic patient with co-morbid condition.

Exclusion Criteria

- Non-anaemic patient in Tertiary Care Hospital, Chitradurga.

Sources of Data

- Demographic details are collected from one-to-one interactions in a suitably designed data collection form.
- Evaluation of the data collection form

Study Procedure

- This was a prospective observational study carried out for six months after getting approval from the institutional ethics committee.
- The study will be conducted among the anemic patients at Tertiary Care Hospital, Chitradurga.
- The data will be collected from the students in a suitably designed data collection form.
- The study includes data collection that has been completed by the study subjects during one-to-one interactions in a particular hospital.

Statistics

The collected data was entered and analyzed by using Microsoft Excel 2016 version Descriptive methods were applied to obtain the frequency and percentage.

RESULT

The prospective observational study period was six months. A total of 210 subjects were enrolled in the study. The participant's demographic details were collected in a data collection form.

1. Details of Age Classification

In this study, patients were divided into three groups based on their age. Out of 210 patients, 55 (26.19%) were from pediatrics, followed by 133 (63.33%) from adults, and 22 (10.47%) from geriatrics. The results are graphically represented in Figure 1.
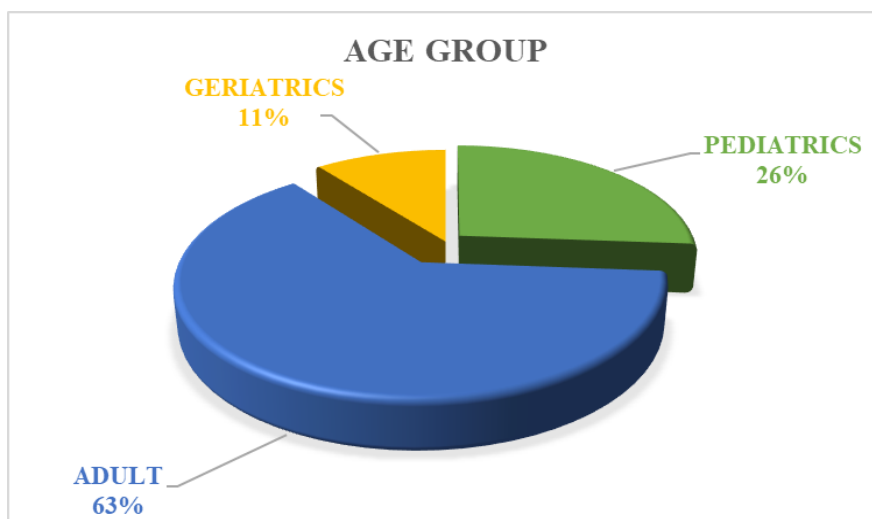
Figure 1: Details of Age Group Classification.

2. Details of Gender Classification

Out of 210 participants, 153 (72.857%) were females and 57 (27.142%) were males. The majority of the participants are females due to the gender risk factor increasing female admissions. The results are graphically presented in Figure 2.
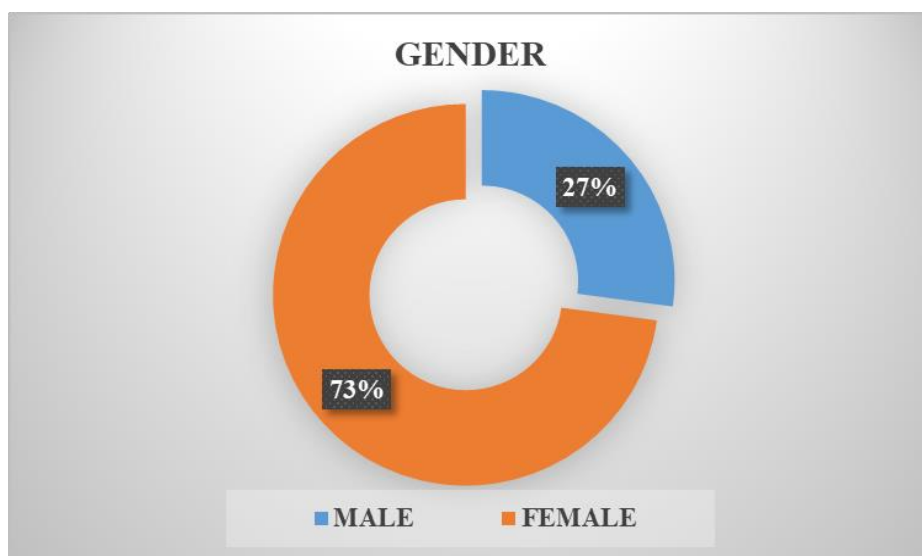

Figure 2: Details of Gender Wise Distribution.

3. Distribution of Risk Factors

We collected complaints from each and every patient involved in this study. Those are generalized weakness 93 (27.927%), easy fatiguability 37 (11.11%), fever 35 (10.51%), decreased appetite 19 (5.7%), heavy menstrual bleeding 22 (6.6%), genetics 29 (8.7%), and amenorrhea 56 (16.81%). The results are graphically presented in Figure 3.
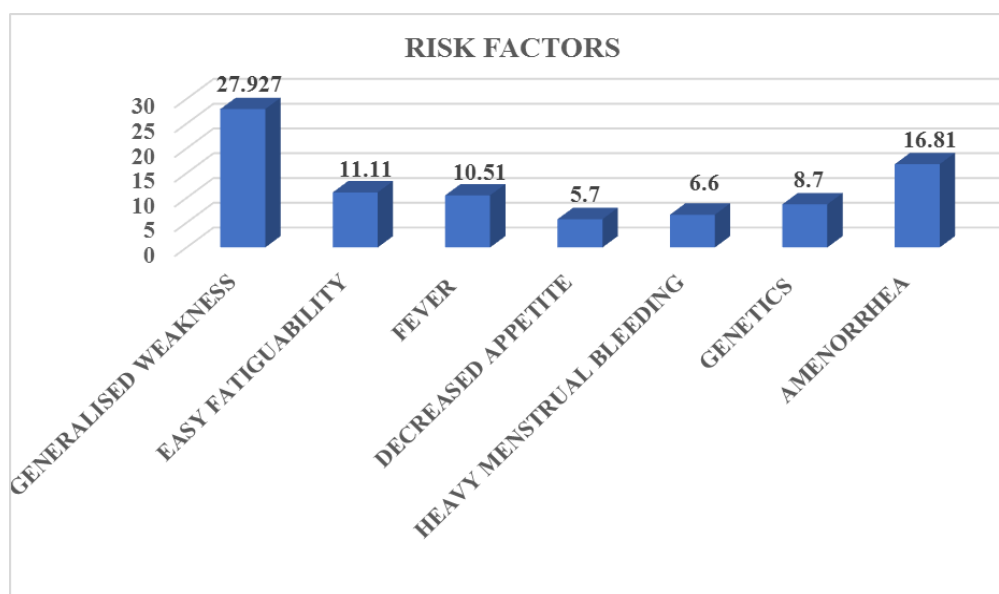
Figure 3: Details of Risk factors.

4. Distribution According to Diet

The below table reveals that out of 210 participants, 163 (77.61%) belong to the vegetarian group, and the remaining 47 (22.38%) belong to the non-vegetarian group. The results are graphically presented in Figure 4.
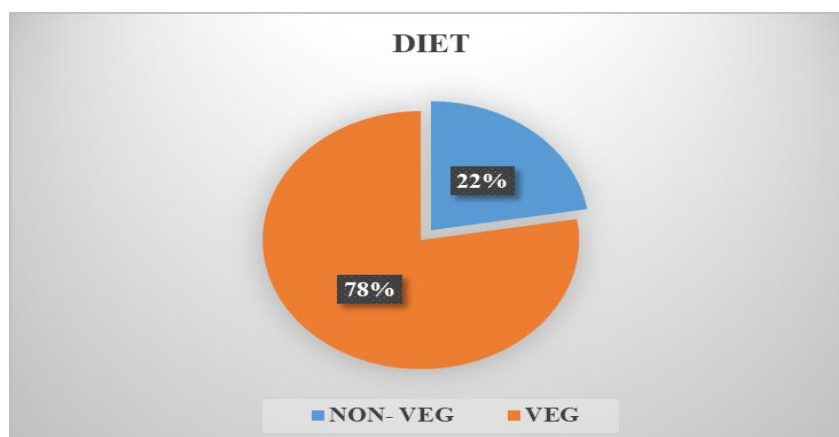

Figure 4: Details of Diet Group Classification (n=210).

5. Distribution According to Comorbidity Condition.

In 210 cases, we had 62 (29.52%) patients with comorbidity conditions, and the remaining 148 (70.47%) did not have comorbidities. The results are graphically presented in Figure 5.
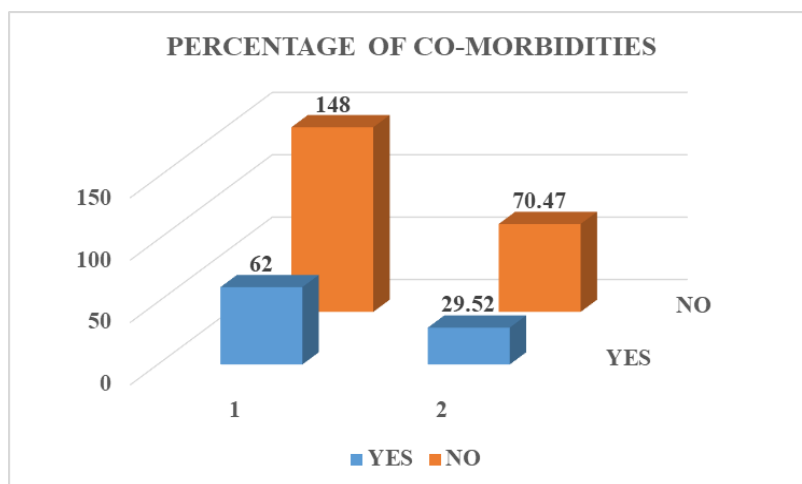
Figure 5: Details of Comorbidity.

6. Drug Pattern Use in Anaemic Condition

In this study, the drugs are given as follows: PRBC 149 (70.952%), Ferrous Ascorbate & Folic Acid 151 (71.904%), Vitamin C 34 (16.19%), Vitamin B Complex 51 (24.285%), Nutritive Protein Powder 71 (33.809%), Calcium Citrate 55(26.19%), Folic Acid 47 (26.19%), Albendazole 49 (23.33%), Deferasirox 27 (12.857%), Iron & Folic & Zinc 21 (10%), Multivitamin & Antioxidant 41 (19.523%), Iron Sucrose 12 (5.718%) The results are graphically presented in Figure 6.
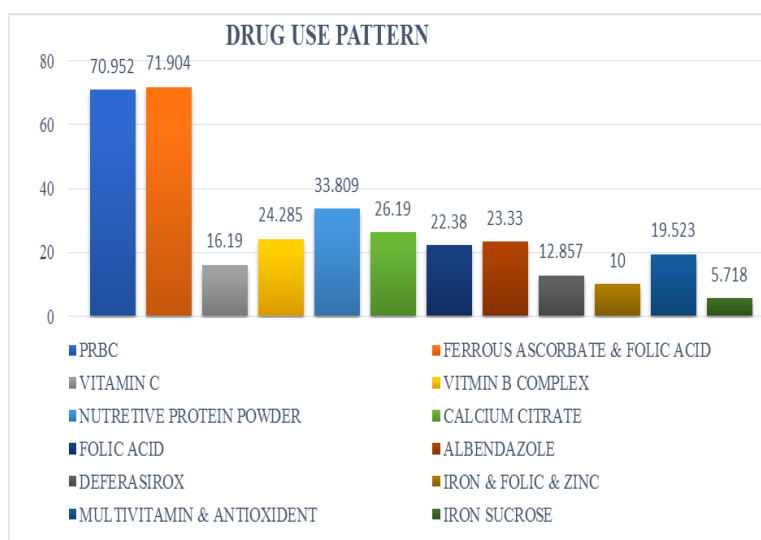

Figure 6: Details of Drug use pattern.

DISCUSSION

In underdeveloped nations, dietary problems and infections are the most frequent causes of anemia, particularly in the most vulnerable populations (pregnant women and young

children). With this awareness of the etiological significance of dietary deficit as the primary causative component, the causes of anemia might be classified as nutritional and non-nutritional.

In our study, a total of 210 participants were divided into 3 groups based on their different ages: 55 (26.19%) Patients were from pediatrics, followed by 133 (63.33%) patients were from adults, and 22 (10.47%) patients were from geriatrics. The population group most vulnerable to anemia is adults.

Out of 210 participants, 153 (72.857%) were females and 57 (27.142%) were males. Majority of the participants are females due to gender risk factor increasing female admissions. The sex difference in Hb concentration begin in puberty (because of the effect of menstruation on iron stores and, subsequently, anaemia) and continue throughout the reproductive years.(31,32) Females were consistently at greater risk of anemia than men across all geographic regions and in most age groups.[33] which is like the study conducted by **Kassebaum, N**. **J *et al.*** (2014)**.[9]**

The most common complaints are generalized weakness 93 (27.27%), easy fatigability 37 (11.11%), fever 35 (10.51%), decreased appetite 19 (5.7%), heavy menstrual bleeding 22 (6.6%), genetics 29 (8.7%), and amenorrhea 56 (16.81%), which is like the study conducted by **Kocaoz S *et al*. (2019).[10]**

To achieve the objectives of our study, the data collected on diet information for assessing anemia among males and females reveals that out of 210 participants, 153 were females, 24.18% were non-vegetarians, the remaining 75.81% were vegetarians, and 57 were male participants. Of those, 17.54% were non-vegetarians, and the remaining 82.45% were vegetarians due to diet risk factors increasing vegetarian patient admissions, similar to the **Rati SA et *al*. (2012)** study conducted.[11]

We implemented an intervention to improve descriptive norms (people's perceptions about how many other people take iron and folic acid), injunctive norms, and collective norms (actual levels of iron and folic acid consumption). In this study, the drugs are given as follows: PRBC 149 (70.952%), Ferrous Ascorbate & Folic Acid 151 (71.904%), Vitamin C 34 (16.19%), Vitamin B Complex 51 (24.285%), Nutritive Protein Powder 71 (33.809%), Calcium Citrate 55 (26.19%), Folic Acid 47 (26.19%), Albendazole 49 (23.33%),

Deferasirox 27 (12.857%), Iron & Folic & Zinc 21 (10%), Multivitamin & Antioxidant 41 (19.523%), Iron Sucrose 12 (5.718%) with the supporting characters of **Rimal R N *et al*.'s (2001)** study.[12]

CONCLUSION

According to the analyzed results, the conclusions made are Anemia is a condition that can be caused by a variety of factors. One cause is a decrease in the consumption of foods high in vitamin C, which improves iron absorption. Adolescent teenage boys and girls need extra iron since their bodies are rapidly expanding and growing, which increases the body's need for iron. Due to their diets being low in iron-containing meals for girls' blood loss during menstruation, many teenagers are unable to keep up with this need. Women of reproductive age are more likely to develop anemia because of high iron requirements during pregnancy and blood loss during menstruation. Pregnant women have the potential to experience early labor and give birth to low-birth-weight infants. Complications are more common in the elderly population because of multiple co-morbid conditions like kidney failure, cancer, which is another chronic condition, as well as other infections, blood diseases, and autoimmune disorders. Anemia is one of these conditions and can result in a reduction in the lifespan of red blood cells. Among all anemias, nutritional deficiency anemia is more common in children than in adults. Poor diet is a major factor in the onset of nutritional deficiency anemia in both of these age groups. Insufficient iron is another cause of anemia, and it is more common in vegetarians than in non-vegetarians because non-heme iron has a lower bioavailability than HB from animal sources. Risk factors for anemia include generalized weakness, easy fatiguability, fever, decreased appetite, heavy menstrual bleeding, genetics, and amenorrhea. Medications most frequently prescribed for anemia include PRBC, Ferrous Ascorbate and Folic Acid, Vitamin C, Vitamin B Complex, Nutritive Protein Powder, and Calcium Citrate. According to socioeconomic variables and nutritional intakes, if a mother is anemic, the likelihood that a child will be anemic is substantial (multivariate study). Age was the main risk factor, followed by a high percentage of calories from cow milk, a low density of non-heme iron, and maternal education level. Females are more likely than males to develop anemia as a result of menstrual bleeding, pregnancy, or blood loss during labor. Therefore, it is important to counsel them to maintain a balanced diet and increase their intake of leafy green vegetables, fruits, and iron-rich foods.

AUTHORS' CONTRIBUTIONS

Literature search, design, data acquisition, statistical analysis, manuscript preparation, and editing: Shashank K J. Literature search, design, data acquisition, and editing: Shrinivas Talawar. Supervisor, and manuscript review: Dr. Yogananda R.

CONFLICTS OF INTERES

Declared none.

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