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Iron Deficiency Anemia in Adult Population of South Delhi Area

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ABSTRACT: Anemia indicate poor health conditions usually associated with low economic status and poorly affecting both male and female. In females, the most common causes of anemia are malnutrition, menstrual cycle, and multiple pregnancies. It occurs due to insufficient consumption of dietary iron supplements or with increased utilization or loss of iron in body mechanism are risk factors of IDA. It affects through cognitive function, physical activity, immune response, inflammatory conditions and pregnancy outcomes. Intake of high dietary consumption in the form of pasteurized milk, weaning food and sporadic consumption of iron containing foods suggests to low iron intake. IDA may observed in patients, those suffer from chronic disorders with decreased iron absorption from intestine. Lack of iron supplements in premenopausal women have also been associated with esophagitis, gastroduodenal ulceration, mucosal erosions and gastrointestinal angiodysplasia. The present study revealed that improper diet concerning in various age groups that may lead to IDA. This study further suggests bringing awareness and improving expected health related issues caused by iron deficiency.

KEYWORDS: Anemia; IDA; malnutrition; pregnancy; menstrual cycle

I. INTRODUCTION

Anaemia is one of the common health conditions disturbing global population in both male and female. Iron deficiency anemia (IDA) most commonly occurs in acute inflammatory bowel disease (IBDs) and cause of anemia either due to chronic blood loss, impaired gastrointestinal (GI) iron absorption which reduce enterocytic iron transport. [1,2] Number of IDA cases are seen in women that identified in public health sectors, more over 5 to 15 percentage of American women were suffer from IDA every year. [3] Among the worldwide population, common hematological obstacles with dominance of 2% among adult men and 9-20% in women depending on economical status and traditions. Several clinical circumstance of IDA is chronic kidney disease, trauma, surgery and obstetrics conditions. [4] Most commonly it affects particularly in socioeconomic status and children of colonist communities. It occurs due to insufficient consumption of dietary iron supplements or with increased utilization or loss of iron in body mechanism are risk factors of IDA. Decreased Iron level affects cognitive function, physical activity, immune response, inflammatory conditions and pregnancy outcomes. [5-7] Iron plays vital role in the synthesis of DNA and neurotransmitters in mitochondrial cytochromes in many organs, the intellectual concert of neurological development are adversely affect by IDA. [8] Iron supplements and cereals may helps effectively as a preventing measures of IDA. [9] There was no study about anemia in South Delhi among different age groups to date. Therefore, this study is aimed to determine Iron levels in different groups of general people visiting a lab in South Delhi.

II. MATERIALS AND METHODS

This study was carried out on 72 patients who visited for routine laboratory investigation. This study was prospective studies conducted in a pathology lab situated at South Delhi from 24th February 2017 to 24th April 2017. The collected specimen were analyzed for Complete Blood Count (CBC) parameters, such as Hemoglobin, Packed cell volume (PCV), Red blood cells (RBCs), Mean corpuscular volume (MCV), Mean cell hemoglobin (MCH), Mean

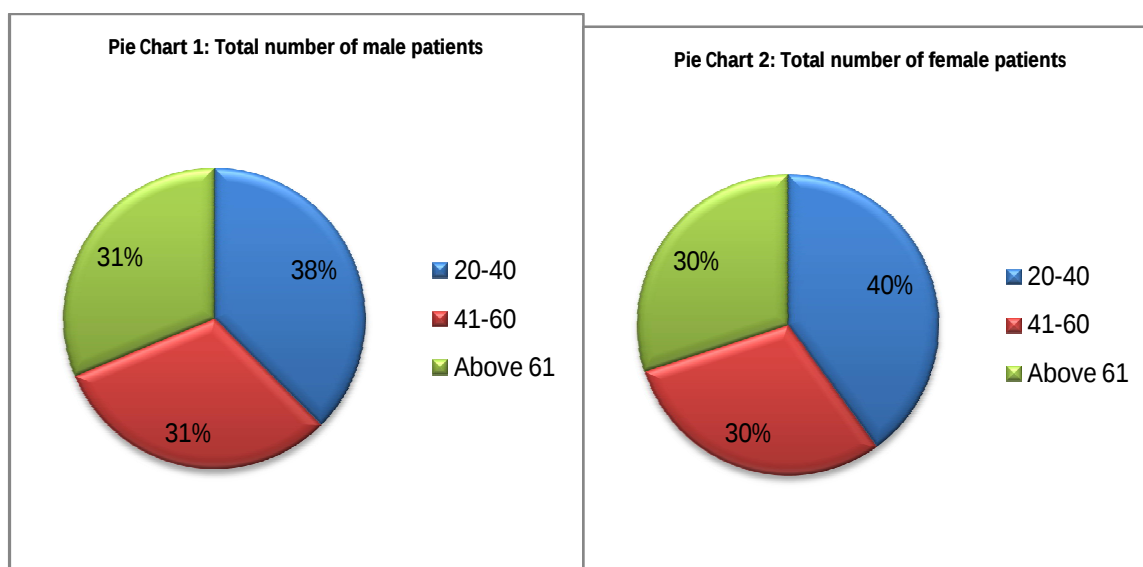
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corpuscular hemoglobin concentration (MCHC), Red cell distribution width (RDW), Total leucocytes count (TLC) and Platelets count using automated Sysmex XN-1000 analyzer. The results of each patient was documented in laboratory computer and taken for this studies. The collected blood reports of the patients were segregated into three groups (20-40 yrs), (41-60 yrs) and (Above 61+) for both male and female. Using Microsoft Office excel 2013, the generated data analyzed into percentage and variant increase and decrease in test results were noted.



III. RESULTS

Among 72 patients, 32 male and 40 female were identified and further they were segregated based on age wise (table no 1).

Table No 1: Shows distribution of male and female patient's age wise.			
Age group (Yrs)	Male	Female	Total number of patient's
20-40	12	16	28
41-60	10	12	22
Above 61	10	12	22

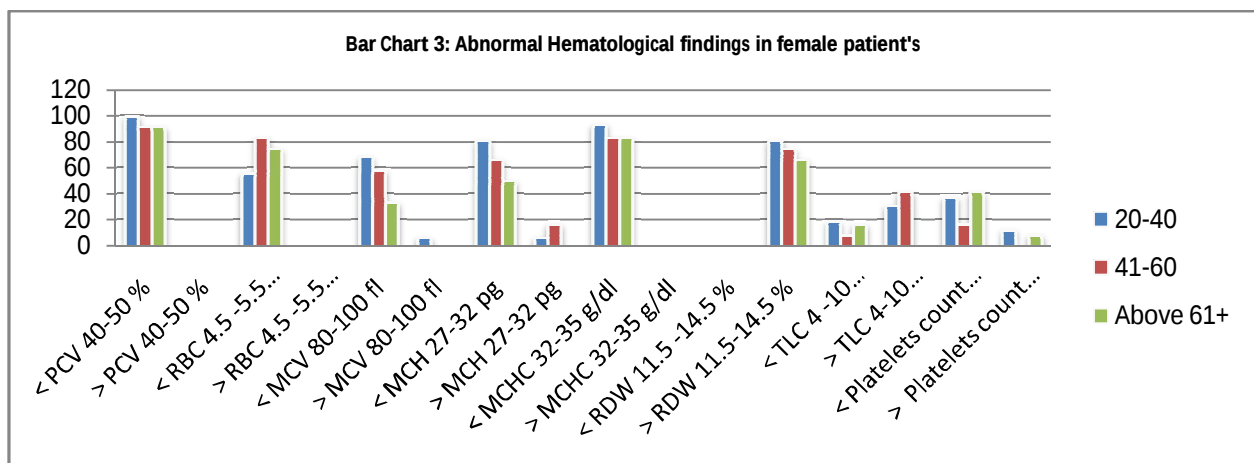
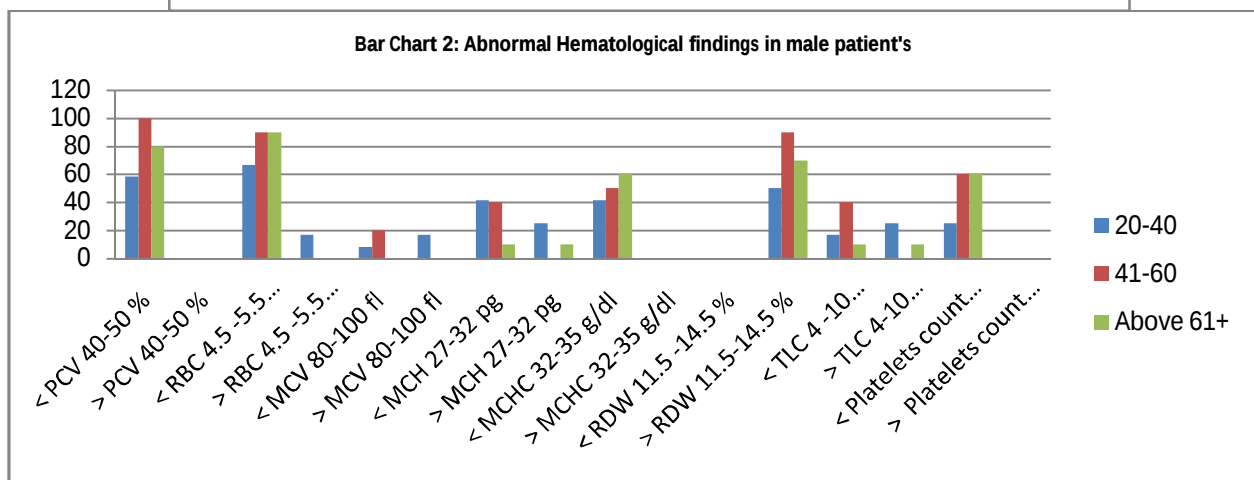
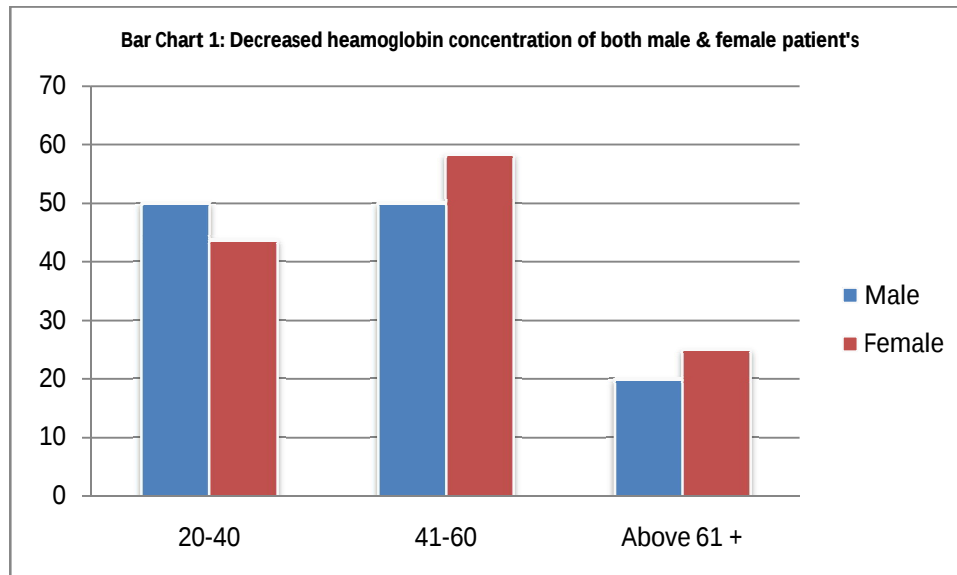
The main purpose of our study was to distinguish the occurrence of IDA in different age groups. In 32 male patient's, group wise (20-40 yrs), (41-60 yrs) and (Above 61+) percentage were 38%, 31% and 31% respectively (Pie chart 1). Similarly among 40 female patient's, the percentage were 40%, 30% and 30% respectively (Pie chart 2). As shown in bar chart 1, the decreased hemoglobin concentration of both male and female patient's has been categorized WHO scale wise for IDA. Comparatively, age wise study revealed that lower hemoglobin concentration were seen in 20-40 yrs male and 41-60 yrs and above 61 yrs group female (Bar Chart 1).

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Most of the male and female patients of age group above 41 years old were having lower PCV and RBC. Lower PCV was mostly recorded in female of age group 20-40 years. Similarly, lower MCV and MCH were found lesser in females specially in 20-40 yrs age in compare to male (Bar Chart 2& 3).

IV. DISCUSSION

Iron deficiency anemia associated with the presence of poor prognosis which requires explanation and intense, bumpy and potentially hazardous, complication arise due acute phase response on iron status.[10] According to World Health Organization (WHO) criteria, the hemoglobin level less than 7.7 mmol/l (13 g/dl) in men and 7.4 mmol/l (12 g/dl) in women show the presence of IDA.[11] This cause due to reduction in hemoglobin stuffing inside RBCs and low range of MCV below 80-100 femtoliter (fl), hemoglobin concentration may lower in postmenopausal period in female.[12] Low iron intake in food like pasteurized milk, weaning food and sporadic consumption of iron contain food[13].

This study revealed that the WHO criteria needs to be updated periodically and physiologically as well. IDA may be observed in patients those suffer from chronic disorder with decreased iron absorption from intestine. [14] Incidence of anemia were higher in female patients in the age group of 41-60 yrs, due to weight gain or birth weight that affects in storage of iron at birth or during younger age [15]. Previous studies noted that iron deficiency affects mainly in infants due to improper diet concern in infants and may socioeconomic and underprivileged condition may arise IDA due the absence of gastroenteritis.[16, 17]

Iron deficiency is not specific for a particular age group, but it can be present in anyone due to different reason.

Iron deficiency effect on tissue enzyme that effects in clinical conditions and fatigue and it also affects through genetic tolerance on immunological activity [18, 19]. Lacking of iron supplements affects through gastrointestinal neoplasms in premenopausal women were diagnosed with ulcerative, oesophagitis, gastroduodenal ulceration, mucosal erosions and gastrointestinal angiodysplasia[20]. Severe malabsorption seen in oral iron supplements with inadequate diet or deficient iron stores[21], Production of apoferritin present in synovial inflammation evaluate iron store from bone marrow highlighted to active reticuloendothelial organs reflect disturbance of iron kinetic with relocation of iron from plasma, red-cell and bone marrow with non-specific production of apoferritin protein[22]. Iron deficiency includes certain difficulties in concentration and tiredness, and chest pain, suggest improve iron supplements those patients with low hemoglobin level evidence the iron therapy treatment [23]. Neurological striking may associated with IDA through lower extremities that decline iron level in brain cells which prevalent in pregnancy[24]. Absorption of iron supplements gives ferrous fumarate which gradually effects through therapeutic response of colloidal iron, during absence of alimentary bleeding[25]. This study has highlighted that the Iron levels affect anyone. Low levels of iron are seen in not only a particular age group but also different age groups.

V. CONCLUSION

Iron deficiency anemia is most common in female due to insufficient dietary intake or it may due heavy periods. Anemia is prevalent in general population in urban areas as well.

Periodic laboratory investigations for anemia need to be done at least once in 5 years for all population irrespective of age groups so as to prevent this problem.

This study highlighted the importance of complete blood cell count in general public in urban areas. This study further suggests bringing awareness and improving their health related issues. The study also recommends to further investigations to find the reason behind anemia in adult males in cities.

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