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Study on the Prevalence and Incidence of the Anaemia in Out-Door (OPD) Patients of Tertiary Care Center in Chhattisgarh, India

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Abstract
Objective: *The main objective of the present study is identifying to the incidence and prevalence of anaemia in outdoor patients of Chhattisgarh.*
Research Design: *The current study was designed to the prospective observational cohort study.*
Method: *Diagnosis of the anaemia was made on the basis of various clinical findings (symptoms and sign) as well as mandatory and/or optional laboratorial investigation done in primary screenings.*
Sample: *The present work was carried out in patients who visited the department of general medicine at Apollo hospital Bilaspur CG from 1-1-2010 to 30-6-2010. Total of 288 patients were visited during the six month of the study period, while 96 were fulfilling the inclusion criteria of study.*
Statistical Analyses: *Purpose of the current study the descriptive analyses was done by the help of SPSS 16.*
Result: *Findings of the study shows that the maximum no. of outdoor patients (39 out of 96) were in age group of 18-30 years than the other age group. Prevalence of moderate anaemia is higher 20(38.46%) among the severe and mild anaemic condition in outdoor male patients. moderate anaemic female patients is higher 18(40.90%) than the other severe and mild anaemia. The prevalence of anaemia according to MCV is higher among the male patients than the female patients, male were 52(54.16%) and female were 44(45.83%).*
Conclusion: *Findings of the current study we concluded that the incidence and prevalence of moderate anaemia is higher than the severe and mild anaemia, normocytic of anaemia was the most common type of anaemia than the microcytic and macrocytic anaemia, hemolytic anaemia was the common type of anaemia of chronic disease in outdoor patients.*
Keyword: *Incidence, Prevalence, Anaemia, Microcytic, Macrocytic, Hemolytic.*

Introduction

Anaemia is often defined in term of the WHO criteria, established in 1968 (Datta, Abraham, Mathew et al, 2006). The WHO definition of anaemia is a hemoglobin (Hb) concentration <130g/l in men and <120g/l in women (Ray, Schultink & Dillon, 1999). Anaemia can occur when the body does not produce enough red blood cells, such as in vitamin B12 deficiency. Anaemia can also occur when the body destroys old red blood cells faster than it produces new ones, such as in hemolytic anaemia and sickle cell disease. Anaemia can also occur when there is a deficiency of hemoglobin in the red blood cells, such as in iron deficiency anaemia and thalesemia.

Iron deficiency anaemia is caused by insufficient dietary intake or absorption of iron to replace losses from menstruation or losses due to disease (MMWR, 1998). In the United States 20% of all women of child bearing age have iron deficiency anaemia, compared with only 2% of adult men.

The principal causes of iron deficiency anaemia in premenopausal women are blood lost during menses. Studies have shown that the iron deficiency without anaemia causes poor school performance and lower IQ in teenage girls, althought this may be due to socioeconomic factors (Halterman, Kaczorowski, Aligne, et al (2001)& Grantham McGregor, &Ani, 2001). Worldwide the most common causes of iron deficiency aneamiais parasitic infections (hookwarm, amebiasis, schistomiasis and whipwarm) (Iron deficiency Anaemia report, 2010).

We did this study because our region i.e. Bilaspur (Chhattisgarh) is a tribal backward state of India where most of the population is suffering from anaemia of various kind like iron deficiency anaemia, sickle cell anaemia, megaloblastic-anaemia, anaemia of chronic disease etc.

Objective: The main objective of the present study is identifying to the incidence and prevalence of anaemia in outdoor patients of Chhattisgarh.

Research Design: The current study was designed to the prospective observational cohort study.

Method: Diagnosis of the anaemia was made on the basis of various clinical findings (symptoms and sign) as well as mandatory and/or optional laboratorial investigation done in primary screenings.

Sample: The present work was carried out in patients who visited the department of general medicine at Apollo hospital Bilaspur CG from 1-1-2010 to 30-6-2010. Total of 288 patients were visited during the six month of the study period, while 96 were fulfilling the inclusion criteria of study.

Inclusion criteria

All the patients age were > 18years, both sexes, Hb< 13gm/dl in males and Hb<12gm/dl in females.

Exclusion criteria

Patients who were excluded that <18 years, patients admitted with blood loss due to trauma, pregnant women and Hb> 13gm/dl in males and >12gm/dl in female.

Statistical analyses: Purpose of the current study the descriptive analyses was done by the help of SPSS 16.

Result

Findings of our study has shown below the table-

Table 1 shows sex wise distribution of anaemic patients in out-patients department (OPD)

Total no. of patients	Male	Female
96	52	44

Table 1 reveals that the out of 96 outpatients were fulfilling the inclusion criteria of current study, 52 patients male and 44 patients were female.

Table 2 shows the age wise distribution of outdooranaemic patients

Age group	Male	Female	Total
18-30	20(20.83%)	19(19.79%)	39(40.62%)
31-45	11(11.45%)	9(9.37%)	20(20.83%)
>45	21(21.87%)	16(16.66%)	37(38.54%)
Total	52(54.16%)	44(54.84%)	96(100%)

Table 2 reveal that the maximum no. of outdoor patients (39 out of 96) were in age group of 18-30 years than the other age group.

Incidence of anemia in outdoor patients

Incidence of anaemia =   no.of newly detected cases of Anaemia treated on OPD basis X 100
                 total No. of persons visited OPD during 3 months

$$= \frac{75}{288} \times 100$$

= **26.04% is incidence of anaemia**

Prevalence of outdoor patients

Prevalence of anaemia in outpatients =   no of total cases of anaemia treated on OPD basis x 100
                 total no. of persons visited during 3 months

$$= \frac{96}{288} \times 100$$

= **33.33% it is a prevalence rate of anaemia**

Table 3 shows that the degree of anaemia in OPD male patients

Hb(ingm/dl)	N	10-12.9	7-9.9	<7
Age group (in years)				
18-30	20(38.46%)	5(9.6%)	8(15.3%)	7(13.4%)
31-45	11(21.15%)	4(7.69%)	4(7.69%)	3(5.76%)
>-45	21(40.38%)	7(13.46%)	8(15.3%)	6(11.53%)
Total	52(100.00%)	16(30.76%)	20(38.46%)	16(30.76%)

Table 3 reveal that the prevalence of moderate anaemia is higher 20(38.46%) among the severe and mild anaemic condition in outdoor male patients.

Table 4 shows that the degree of anaemia in OPD female patients

Hb(in gm/dl)	N	10-12.9	7-9.9	<7
Age group (in years)				
18-30	19(43.18%)	6(13.63%)	5(11.36%)	8(18.18%)
31-45	9(20.45%)	1(2.27%)	4(9.09%)	4(9.09%)
>45	16(36.36%)	5(11.36%)	9(20.45%)	2(4.54%)
Total	44(100%)	12(27.27%)	18(40.90%)	14(31.81%)

Table 4 reveals that the prevalence of moderate anaemic female patients is higher 18(40.90%) than the other severe and mild anaemia.

Table 5 shows the type of anaemia in outdoor patients according to MCV(in femtoliter)

Sex	Total No.	Normocytic (76-98)	Microcytic(<76)	Macrocytic(>98)
Male	52(54.16%)	28(29.16%)	18(18.75%)	6(6.25%)
Female	44(45.83%)	28(29.16%)	13(13.54%)	3(3.12%)
Total	96(100%)	56(58.33%)	31(32.29%)	9(9.37%)

Table 5 show the prevalence of anaemia according to MCV is higher among the male patients than the female patients, male were 52(54.16%) and female were 44(45.83%).

Normocytic anaemia is the commonest type of anaemia, it was found to be the higher in outdoor patients 56(58.33%) than the other type anaemia such as microcytic anaemia 31(32.29%) and Macrocytic anaemia 9 (9.37%).

Table 6 shows that the anaemia subtype in OPD patients

Types of anaemia	Male (52)	Female (44)
Normocytic anaemia		
1. Anaemia of chronic disease	**9(17.3%)**	**6(13.63%)**
2. Anaemia due to blood loss	**3(5.7%)**	**5(11.3%)**
3. Heamolyticanaemia	**8(15.38%)**	**11(25.00%)**
4. Pancytopenia		
a. Hypercellularity	**2(3.8%)**	-
b. Hupocellularity	-	**2(4.5%)**
c. Acellularity	-	-
5. Anaemia due to infectious disease	**7(13.46%)**	**4(9%)**
Microcytic anaemia		
1. Iron deficiency anaemia	**7(13.46%)**	**8(18.18%)**
2. Anaemia of chronic disease	**5(9.6%)**	**2(4.5%)**
3. Thalassemia	**3(5.7%)**	-
4. Sideroblasticanaemia	-	-
5. Pancytopenia		
a. Hypercellularity	**2(3.8%)**	**2(4.5%)**
b. Hypocellularity	**1(1.9%)**	**1(2.2%)**
c. Acellularity	-	-
Macrocytic anaemia		
1. Megaloblasticanaemia	**1(1.9%)**	**2(4.5%)**
2. Hypothyroidism	**1(1.9%)**	**1(1.9%)**
3. Alcoholic liver disease	**3(5.76%)**	-
4. Pancytopenia		
a. Hypercellularity	**1(1.9%)**	-
b. Hypocellularity	-	-
c. Acellularity	-	-

Reveal that the table 6 shows male patients were reported in normocytic anaemia is causes of chronic disease 17.3% than the other causes, while female patients were reported the normocytic anaemia in heamolytic condition is an important cause (25.0%) than the other causes.

Microcytic anaemia is common of both the sexes, it is reported that the iron deficiency is most cause, macrocyctic anaemia male patients were shows the higher among the alcohol induced anaemia 5.76% (alcoholic liver disease) than the other, while female patients were shows the megaloblastic anaemia 4.5% than the other.

Discussion

Anaemia is a public health problem that effects population of both poor and as well as developed contries. In our study finding supported in the other study done by these field such as Malhotra, Kumari, Kumar et al(2004) reported that over all prevalence of anaemia in 16-70 years of age group was 47.9% being 55.7% among female and 44.3% among males. Madhusnata, Halder, Ajanta, Chakrabarty, et al (2011) found that more than 50% of women in some areas were to have suffering from anaemia.

Another study done by Ludwieng, Belle, Lee et al (2010) reported that the prevalence of anaemia was 53.7% (hemoglobin<10.0g/dl, 15.2%). Gaytri, Rao(2011) showed the clinical presentation in pancytopenia due to various causes and evaluation of hematological parameter including bone marrow aspiration, it was found that the bone marrow was conclusive in all cases. The commonest marrow finding was hypercellularity with megaloblastic erythropoiesis. Similar study has found that the prevalence of anaemia with iron deficiency and minor thalassemia in women was 9.7%, 7% and 1% while men was 9.7%, 2%, 5% and they concluded that there was not any significant association between MCV and sex (Kolahi, Farzin, Manouchehar, Khoshbaten, 2008).

The drawback of our study was that the sample size and the duration were small, similar kind of study in generalized population for a longer duration might have resulted in better result.

Conclusion

Findings of the current study we concluded that the incidence and prevalence of moderate anaemia is higher than the severe and mild anaemia, normocytic of anaemia was the most common type of anaemia than the microcytic and macrocytic anaemia, hemolytic anaemia was the common type of anaemia of chronic disease in outdoor patients.

Conflict of interest- author declare that no conflict of interest.

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