Original Research Article

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 terms 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 thalassemia.
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, although 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 anemia are parasitic infections (hookworm, amebiasis, schistomiasis and whipworm) (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.

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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-

| 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(45.84%)   | 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

\[
\text{Incidence of anaemia} = \frac{\text{no.of newly detected cases of Anaemia treated on OPD basis}}{\text{total No. of persons visited OPD during 3 months}} \times 100
\]

\[= \frac{75}{288} \times 100 = 26.04\% \text{ is incidence of anaemia}\]

Prevalence of outdoor patients

\[
\text{Prevalence of anaemia in outpatients} = \frac{\text{no of total cases of anaemia treated on OPD basis}}{\text{total no. of persons visited during 3 months}} \times 100
\]

\[= \frac{96}{288} \times 100 = 33.33\% \text{ it is a prevalence rate of anaemia}\]

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. Heamolytic anaemia             | 8 (15.38%)| 11 (25.00%) |
| 4. Pancytopenia                   |           |             |
| a. Hypercellularity               | 2 (3.8%)  | -           |
| b. Hypocellularity                | -         | 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. Sideroblastic anaemia          | -         | -           |
| 5. Pancytopenia                   |           |             |
| a. Hypercellularity               | 2 (3.8%)  | 2 (4.5%)    |
| b. Hypocellularity                | 1 (1.9%)  | 1 (2.2%)    |
| c. Acellularity                   | -         | -           |
| **Macrocytic anaemia**            |           |             |
| 1. Megaloblastic anaemia          | 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, macrocytic 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 countries. 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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