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# FREQUENCY OF ANEMIA IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD).

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**Abstract;**

**Background;** chronic obstructive pulmonary disease (COPD) leads to significant morbidity and poor quality of life among patients. This study was conducted to evaluate anemia among patients with COPD as there is no such study done in our population. **Material and Methods:** This Cross sectional study enrolled a total of 142 patients with COPD from Department of Medicine, Nishtar Hospital Multan. Three ml of venous blood sample was drawn and sent to Pathology Laboratory of the hospital for hemoglobin estimation to diagnose anemia. All the relevant information were noted on the proforma and data was analyzed by using computer program SPSS version 20. **Results;** Of these 142 study cases, 94 (66.2%) were male patients while 48 (33.8%) were female patients. Mean age of our study cases was 54.68 ± 6.47 years (with minimum age of our study cases was 35 years while maximum age was 60 years). Fifty seven (40.1%) were rural while 85 (59.9%) had urban residential background, 116 (81.7%) were poor, 34 (23.9%) were diabetic and 31.7% were hypertensive. Our study results reported 87 (61.3 %) were normal weight, 33 (23.2 %) were overweight and 22 (15.5 %) were obese. Smoking was noted in 70 (49.3%) patients. Mean duration of illness was 26.32 ± 12.44 months and 92 (64.8%) had disease duration more than 18 months. Mean hemoglobin level of our patients was 11.14 ± 1.76 g/dL (Range; 9.4 g/dL to 14.5 g/dL) and anemia was present in 64 (45.1%) patients.

**Conclusion;** Very high frequency of anemia was noted in our study among patients having chronic obstructive pulmonary disease (COPD). Anemia was significantly associated with poor socio – economic status, obesity and prolonged disease duration. Clinicians who are treating these patients with COPD must check their hemoglobin levels regularly for better prognosis.

**Keywords;** Chronic Obstructive pulmonary disease, anemia, frequency.

 

## Introduction;

Chronic obstructive pulmonary disease (COPD) is a chronic respiratory disease characterized by a decline in lung function over time and accompanied by respiratory symptoms, primarily dyspnea, cough, and sputum production. Consequently, COPD is associated with a significant economic burden, including hospitalization, work absence, and disability. The severity of COPD can be determined and classified by different methods. Incidence and prevalence estimates differ greatly, depending on the methods used for diagnosis and classification. It is important to understand the true epidemiology of COPD to monitor trends over time and to determine the effectiveness of potential treatments or preventive measures [1-3].Chronic obstructive pulmonary disease (COPD) is now the third most common cause of death in the world [4]. COPD is defined in terms of airflow obstruction and operationalised as a low ratio of forced expiratory volume in 1 s ($FEV_1$) to forced vital capacity (FVC). By far the strongest risk factors for airflow obstruction are smoking and exposure to environmental tobacco smoke, but many areas of the world with high mortality rates from 'COPD' still have low consumption of tobacco. The distribution of death from COPD in the UK is not the same as that of lung cancer, the disease most strongly associated with tobacco consumption, but is more closely associated with low social status and poverty [5, 6].

In recent years, anemia has become another comorbidity that has gained importance in patients with COPD. Traditional teaching in clinical medicine considers polycythemia to be a common adverse event of hypoxemia in COPD. However, nowadays this occurs less frequently due to more rigorous correction of hypoxemia by domiciliary long-term oxygen therapy. Conversely, anemia has been reported more frequently in association with COPD in recent years with an impact on the quality of life (QOL), healthcare utilization, and survival [7]. Anemia in COPD ranges from 7.5 to 44 % as reported in different studies [8-10], Silverber reported frequency of anemia in 43.9 % [9] and Boutou et al [10] reported frequency of anemia is 10.24 % in patients with COPD.

## Material and Methods:

A total of 142 patients having COPD were registered from Department of Medicine, Nishtar Hospital, Multan, Pakistan. Known cases with asthma, pulmonary embolus, lung cancer, sleep apnea, ischemic heart diseases, pregnant ladies and history of blood transfusion in last 6 months were excluded. Venous blood sample was taken (3 ml) in EDTA vial and sent to central laboratory of Nishtar Hospital Multan, for estimation of Hb levels. History was taken like diabetes, hypertension and smoking and other sociodemographic factors were inquired. Statistical analysis was performed by entering all the data in SPSS version 20.

## Results;

Our study comprised of a total of 142 study cases with COPD who met inclusion criteria of our study. Of these 142 study cases, 94 (66.2%) were male patients while 48 (33.8%) were female patients. Mean age of our study cases was 54.68 ± 6.47 years (with minimum age of our study cases was 35 years while maximum age was 60 years). Mean age of the male patients was 55.86 ± 4.98 years while that of female patients was 52.38 ± 8.27 years ($p = 0.002$). Our study results have indicated that majority of our study cases i.e. 116 (81.7%) were aged 46 – 60 years of age. Fifty seven (40.1%) were rural while 85 (59.9%) had urban residential background, 116 (81.7%) were poor, 34 (23.9%) were diabetic and 45 (31.7%) were hypertensive. Mean height of our patients was 154.31 ± 11.12 centimeters while mean weight of our study cases was 65.21 ± 6.99 kilograms and mean body mass index was 24.08 ± 3.22 $kg/m^2$. Our study results reported 87 (61.3 %) were normal weight, 33 (23.2 %) were overweight and 22 (15.5 %) were obese. Smoking was noted in 70 (49.3%) of our study cases. Mean duration of illness was 26.32 ± 12.44 months and 92 (64.8%) had disease duration more than 18 months. Mean hemoglobin level of our patients was 11.14 ± 1.76 g/dL (Range; 9.4 g/dL to 14.5 g/dL) and anemia was present in 64 (45.1%) patients.

## Discussion;

Systemic manifestations and comorbidities commonly reported in COPD include cardiovascular disease, malnutrition, osteoporosis, gastroesophageal reflux, and clinical depression and anxiety. In recent years, anemia has become another comorbidity that has gained importance in patients with COPD. Anemia has been reported more frequently in association with COPD in recent years with an impact on the quality of life (QOL), healthcare utilization, and survival [11].

 

Different studies in literature, have reported high male gender predominance. Similarly out of our 142 study cases, 94 (66.2%) were male patients while 48 (33.8%) were female patients. A study conducted by Waqas et al [12] from Islamabad also reported male gender predominance with 70 % male patients with COPD which is close to our study results. A study conducted in Karachi by Khan et al [13] also reported high male gender predominance with 80 % male patients. A study conducted by Ahmad et al [14] from Peshawar has reported female gender preponderance which is different from our findings. Maula et al [15] also reported 65.4 % male patients with COPD showing male gender predominance which is in compliance with our study results.

Mean age of our study cases was 54.68 ± 6.47 years (with minimum age of our study cases was 35 years while maximum age was 60 years). Mean age of the male patients was 55.86 ± 4.98 years while that of female patients was 52.38 ± 8.27 years ($p = 0.002$). Our study results have indicated that majority of our study cases i.e. 116 (81.7%) were aged 46 – 60 years of age. A study conducted by Ahmad et al [14] from Peshawar has reported 62 ± 13 years mean age of the patients having COPD which is slightly higher than our findings. A study conducted by Iftikhar et al [16] from Peshawar has also reported similar results. A study conducted by Maula et al [15] from Bannu has also reported 60.18 ± 11.67 years mean age which is close to our study results. Fifty seven (40.1%) were rural while 85 (59.9%) had urban residential background, 116 (81.7%) were poor, 34 (23.9%) were diabetic and 45 (31.7%) were hypertensive. A study conducted by Mahishale et al [17] also reported 21.24 % diabetes in patients with COPD which is close to our study results.

Mean height of our patients was 154.31 ± 11.12 centimeters while mean weight of our study cases was 65.21 ± 6.99 kilograms and mean body mass index was 24.08 ± 3.22 $kg/m^2$. Our study results reported 87 (61.3 %) were normal weight, 33 (23.2 %) were overweight and 22 (15.5 %) were obese. Smoking was noted in 70 (49.3%) of our study cases. Mean duration of illness was 26.32 ± 12.44 months and 92 (64.8%) had disease duration more than 18 months. A study conducted by Ahmad et al [14] from Peshawar has reported history of smoking was present in 37.5% which is in compliance with our study results. A study conducted by Iftikhar et al [16] from Peshawar has also reported 38 % smoking which is close to our findings.

Mean hemoglobin level of our patients was 11.14 ± 1.76 g/dL (Range; 9.4 g/dL to 14.5 g/dL) and anemia was present in 64 (45.1%) patients. Anemia in COPD ranges from 7.5 to 44 % as reported in different studies [8-10], Silverber reported frequency of anemia in 43.9 % [9] which is close to our study results. A study conducted by Shorr et al [18] has reported 33 % anemia in patients with COPD which is in compliance with that of our study results.

## Conclusion;

Very high frequency of anemia was noted in our study among patients having chronic obstructive pulmonary disease (COPD). Anemia was significantly associated with poor socio – economic status, obesity and prolonged disease duration. Clinicians who are treating these patients with COPD must check their hemoglobin levels regularly for better prognosis.

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