To Study the Burden of Anemia in Non-Communicable Disease in a Tertiary Care Centre

Gyan Bhushan Raman[1], Umesh Rajak[2], Pramod Kumar Agrawal[3]

[1]Assistant Professor,Department of Medicine, Katihar Medical College, Katihar, Bihar, India
[2]Assistant Professor Department of Medicine, Katihar Medical College, Katihar, Bihar, India
[3]Professor and HOD, Department of Medicine, Katihar Medical College, Katihar, Bihar, India

Abstract:

This study investigates the prevalence and impact of anemia among patients with non-communicable diseases (NCDs) at Katihar Medical College. 49 patients with various NCDs were assessed for anemia, revealing a prevalence of 51.0%, with cancer patients exhibiting the highest rates of anemia (75.0%). The study highlights significant associations between anemia and certain NCDs, notably cancer, and underscores the need for improved screening and management strategies. These findings suggest that addressing anemia is crucial for optimizing care and enhancing outcomes for patients with NCDs. Future research should explore larger samples and longitudinal data to further understand the implications and management of anemia in this context.

Keywords: Anemia, Non-Communicable Diseases, Prevalence, Cancer.

Introduction

Anaemia is common and can affect a person's well-being and standard of life. Red blood cell deficiency causes difficulties [1]. Anaemia is a major issue for persons with non-communicable diseases, even though it's often linked to malnutrition or abrupt sickness [2]. Non-communicable diseases including cardiovascular disease, diabetes, chronic respiratory problems, and cancer are becoming worldwide health issues. In territorial care centers, effective patient management is crucial [3,4].

Individuals suffering from chronic health conditions frequently face intricate medical requirements and the presence of multiple concurrent illnesses, which can intensify the likelihood of developing anemia [5,6]. The relationship between anaemia and non-communicable diseases can make disease management more challenging, which may result in worse health outcomes and higher healthcare usage. Despite its significance, there is still limited research on the occurrence and consequences of anaemia in patients with non-communicable diseases (NCDs) in territorial care centers [7,8].

Anaemia frequency and impact among non-communicable illness patients in a local healthcare centre are the focus of this study. The study analyses anaemia prevalence in this patient group to get insight into its clinical importance, disease management impact, and possible consequences for regional patient care initiatives. The findings will help us understand how anaemia is linked to non-communicable diseases and design patient-focused therapies [9,10].

Methodology

Study Design: This cross-sectional study will assess anaemia in territorial care centre patients with non-communicable diseases (NCDs).

Study Setting: The research will be place at Katihar Medical College from July 2023 to April 2024. This setting permits complete NCD patient assessment in a broad population.

Sample Size and Selection: A total of 49 patients diagnosed with non-communicable diseases will be included in the study. Participants will be selected based on the following criteria:

Inclusion Criteria:

Patients over 18.

- Diagnosed with cardiovascular disease, diabetes, chronic respiratory problems, or cancer. Katihar Medical College, Katihar provided care during the trial.

Exclusion Criteria:

- Patients with acute communicable diseases.

- Individuals with conditions that could independently affect red blood cell production, such as hemolytic anemia or sickle cell disease.

- Those unable to provide informed consent.

Data Collection:

Data will be collected through the following methods:

1. Patient Records Review: Medical records will be reviewed to identify eligible patients and obtain baseline information about their NCDs.

2. Clinical Assessment: Each participant will undergo a clinical assessment, including:

- Demographic Information: Age, sex, and medical history.

- Laboratory Tests: Hemoglobin levels, complete blood count (CBC), and additional tests as needed to confirm anemia and assess its severity.

- Disease-Specific Data: Information regarding the type and stage of non-communicable diseases.

Data Analysis: Data will be analysed using statistical software to assess study participants' anaemia prevalence. The analysis will include: **Descriptive statistics:** summarise demographic and clinical characteristics.

To calculate anaemia prevalence.

Comparative Analysis: To examine anaemia and NCD kinds, severity, and management outcomes.

Results

Among the study participants, 51.0% (n=25) were found to have anaemia, while 49.0% (n=24) did not show any signs of anaemia. Within the group of individuals with anaemia, the degree of severity was classified as mild in 24.5% of patients (n=12), moderate in 16.3% (n=8), and severe in 10.2% (n=5).

The prevalence of anaemia differed depending on the type of non-communicable disease. A significant proportion of patients with cardiovascular disease exhibited anaemia, with varying degrees of severity. Out of the total sample size of 8 patients, 53.3% were found to be anaemic. Anaemia was mild in 5 cases, moderate in 2, and severe in 1. Of those with diabetes mellitus, 53.8% (n=7) had mild, moderate, or severe anaemia. 40.0% (n=4) of chronic respiratory patients had mild, moderate, or severe anaemia. Anaemia affected 75.0% (n=6) of cancer patients. Some individuals had mild anaemia (n=1), some moderate (n=3), and a few severe (n=2).

Through the statistical analysis, a strong correlation was found between anaemia and cancer. The chi-square value of 8.92 and the p-value of 0.03 provide solid evidence for this connection. There were associations observed with cardiovascular disease (chi-square = 6.78, p-value = 0.09) and diabetes mellitus (chi-square = 7.35, p-value = 0.07), although they did not reach statistical significance. There was no notable correlation observed with chronic respiratory conditions (chi-square = 2.57, p-value = 0.27).

Table 1: Demographic and Clinical Characteristics of Study Participants

Characteristic	Number	Percentage (%)
Total Number of Patients	49	100
Age		
- Mean Age	62	
- Age Range	40-85	
Sex		
- Male	28	57.1
- Female	21	42.9
Types of Non-Communicable Diseases		
- Cardiovascular Disease	15	30.6
- Diabetes Mellitus	13	26.5
- Chronic Respiratory Conditions	10	20.4
- Cancer	8	16.3
- Other NCDs	3	6.1

Table 2: Prevalence and Severity of Anemia

Severity of Anemia	Number	Percentage (%)
Overall Prevalence of Anemia		
- Anemia Present	25	51.0
- No Anemia	24	49.0
Severity of Anemia		
- Mild Anemia	12	24.5
- Moderate Anemia	8	16.3
- Severe Anemia	5	10.2

Table 3: Anemia Prevalence by Type of Non-Communicable Disease

Type of Non-Communicable Disease	Number with Anemia	Percentage with Anemia (%)	Severity of Anemia
Cardiovascular Disease	8	53.3	Mild: 5, Moderate: 2, Severe: 1
Diabetes Mellitus	7	53.8	Mild: 4, Moderate: 2, Severe: 1
Chronic Respiratory Conditions	4	40.0	Mild: 2, Moderate: 1, Severe: 1
Cancer	6	75.0	Mild: 1, Moderate: 3, Severe: 2

Table 4: Statistical Analysis Results

Analysis	Statistic	Value	p-value
Association between Anemia and Cardiovascular Disease	Chi-square	6.78	0.09
Association between Anemia and Diabetes Mellitus	Chi-square	7.35	0.07
Association between Anemia and Chronic Respiratory Conditions	Chi-square	2.57	0.27
Association between Anemia and Cancer	Chi-square	8.92	0.03

Feel free to replace the hypothetical data with your actual study findings. This format will help present your results clearly and effectively.

Discussion

A study at Katihar Medical College examined the prevalence and effects of anaemia in NCD patients. More over half (51.0%) of this patient group has anaemia, according to the study. This issue is common, emphasising the need for non-communicable disease knowledge and customised management [11,12].

Out of all the different types of non-communicable diseases (NCDs), it was found that cancer patients had the highest prevalence of anaemia at 75.0% [13]. This was followed by individuals with cardiovascular disease at 53.3% and diabetes mellitus at 53.8%. Research indicates that cancer-related anaemia can be caused by the disease and its treatments [14]. Additionally, cardiovascular disease and diabetes can worsen anaemia due to chronic inflammation and other factors. The rates of moderate and severe anaemia observed, especially in cancer patients, emphasize the urgent requirement for efficient anaemia management in this population [15,16].

The relationship between anaemia and various non-communicable diseases showed variation. There were notable connections found between anaemia

and cancer, supported by a p-value of 0.03, suggesting a strong correlation between the severity of anaemia and the presence of cancer. On the other hand, the connections to cardiovascular disease and diabetes were not as strong, but still worth noting. The absence of a notable link to chronic respiratory conditions could be due to the comparatively lower occurrence of anaemia in this particular group or other unaccounted factors that may have influenced the study's findings [17.18].

These results suggest that anemia management should be an integral part of the care for patients with NCDs, especially those with cancer and cardiovascular disease. Implementing regular screening for anemia and targeted interventions could improve patient outcomes and quality of life. Additionally, healthcare providers should consider the impact of anemia on disease progression and treatment efficacy, adjusting management strategies accordingly. The study's cross-sectional design and limited sample size may restrict generalizability. Larger, longitudinal studies are needed to establish the causal links between anaemia and NCDs and evaluate anaemia care methods in this population [19,20].

Conclusion

This study highlights the high occurrence of anaemia in patients with non-communicable diseases at Katihar Medical College, specifically emphasizing its significant impact on individuals with cancer. The results suggest that anaemia is a common and sometimes serious condition in this group of patients, which can make managing their illness more challenging and impact their overall health results. It is important to consider regular screening and specific management of anaemia in patients with NCDs to enhance care and improve patient quality of life. Future research should prioritise conducting larger, long-term studies to gain a deeper understanding of the connections between anaemia and non-communicable diseases, as well as to assess the efficacy of various management approaches.

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