

THE PREVALENCE OF ANAEMIA IN CANCER PATIENTS WHO HAVE NOT RECEIVED THERAPY

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ABSTRACT

Objective: to assess the incidence of anaemia in cancer patients who have not received therapy.

Methodology: We conducted a single-centre cross-sectional descriptive study at the Medical Oncology Unit of Hayatabad Medical Complex, Peshawar, Pakistan for six months. In total 100 treatment-naive cancer patients were assessed for diagnosis, tumour type, and the presence, severity, and grading of anaemia (defined as plasma haemoglobin levels of <12 gm/dl for women and <14 gm/dl for men).

Results: Among the 100 treatment-naive cancer patients included in the study, there were 51 (51%) males and 49 (49%) females. The average age of the participants was 36.21 years \pm 17.93, ranging from 2 to 82 years. Haematological malignancies were diagnosed in 52 patients, with acute lymphoblastic leukaemia being the most prevalent subtype, observed in 27 patients (26.9%). Additionally, 48 patients presented with solid tumours, with colorectal cancer representing 9.3% of cases. Of the analysed patients, 76.2% were found to have anaemia. Among these, the majority (77.5%) exhibited mild to moderate anaemia (Hemoglobin: 8-12 g/dl). Significant associations were observed between female gender ($p=0.003$) and haematological cancers ($p<0.001$) with anaemia severity. However, age groups did not demonstrate significant associations with anaemia severity. Further analysis revealed a strong correlation between gender and anaemia severity ($p<0.001$), with men showing a higher prevalence of grade 1 anaemia compared to women. Haematological malignancies exhibited a higher frequency of anaemia compared to solid tumours ($p<0.001$). Notably, haemoglobin levels were significantly lower in patients with haematological malignancies compared to those with solid tumours ($p<0.001$).

Conclusion: Collectively, we report that anaemia is a frequent finding in treatment-naive cancer patients. Female gender and haematological malignancies are significant risk factors for anaemia.

Key Words: Anaemia, Cancer, Solid Tumours, Haematological Malignancies.

INTRODUCTION

Anaemia is a common complication in most cancer sufferers, substantially impacting their best of lifestyles and treatment effects. It is characterised

through a discount inside the attention of crimson blood cells or haemoglobin in the blood, and its occurrence varies broadly relying on factors together with tumour kind, stage, and remedy modalities ¹. Numerous studies have highlighted the association between most cancers and anaemia, with anaemia being mentioned across various cancer types ². Cancer-associated anaemia can result from more than one factors, including the direct results of the tumour on bone marrow feature, inflammation-brought about inhibition of erythropoiesis, chemotherapy-caused myelosuppression, and dietary deficiencies (three). Additionally, tumour-associated bleeding and haemo-

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Date Received: Aug-10-2022

Date Accepted: Feb-03-2023

Date Revised: Apr-02-2023

Available Online: May-05-2023

lysis can make a contribution to the development of anaemia in most cancers sufferers.

The effect of anaemia on cancer patients extends past the reduction in haemoglobin degrees. It is associated with expanded fatigue, impaired physical functioning, diminished pleasant of life, and better mortality quotes ^{4,5}. Moreover, anaemia can exacerbate different treatment-related side outcomes, inclusive of fatigue and dyspnoea, similarly compromising patient properly-being and treatment adherence.

While the prevalence of anaemia in cancer patients has been substantially studied, there may be constrained data specifically addressing anaemia in treatment-naive cancer sufferers, prior to the initiation of remedy ⁷. Understanding the baseline prevalence and traits of anaemia on this populace is essential for figuring out sufferers who might also advantage from early intervention strategies to mitigate anaemia-associated headaches and optimize remedy consequences.

Therefore, this have a look at targets to evaluate the occurrence of anaemia in remedy-naive cancer sufferers and elucidate the demographic and scientific elements associated with anaemia severity⁸. By undertaking a complete analysis of anaemia on this populace, we seek to offer precious insights that can tell scientific exercise and guide the development of tailored control techniques for anaemia in most cancers sufferers⁹.

MATERIALS AND METHODS

A unmarried-middle move-sectional descriptive have a look at became performed at the Medical Oncology Unit of Hayatabad Medical Complex, Peshawar, Pakistan, over a six-month period. One hundred remedy-naive most cancers sufferers had been blanketed inside the take a look at. Data on analysis, tumour type, and presence, severity, and grading of anaemia were collected. Anaemia turned into described as plasma haemoglobin ranges of <12 gm/dl for women and <14 gm/dl for guys. Statistical analysis changed into done to evaluate associations among demographic and scientific variables and anaemia severity.

RESULTS

After applying exclusion criteria, we included 100 cancer patients who had not received treatment. The individuals' ages ranged from 2 to 82 years, with an average age of 34.87 ± 18.47 years. Of them, 51 (51%) were male and 49 (49%) were female. The con-

centration of hemoglobin (Hb) varied between 3.6 and 18.7 gm/dl, with an average of 10.52 ± 2.76 gm/dl. The majority of patients (n = 63, 63%) did not have a formal education.

The most prevalent kind of cancer was haematological malignancy, with the most common subtypes being aggressive non-Hodgkin's lymphoma (n=23, 23%) and acute lymphoblastic leukemia (n=61, 61%). Colorectal cancer (n = 21, 21%), endometrial cancer (n = 17, 17%), and ovarian cancer (n = 12, 12%) were among the solid tumors. 76.2% of patients had anemia; the percentage varied depending on the type of tumor.

The degree of anemia varied from grade 1 to grade 4, with the most prevalent grades being 1 and 2 (Hb 8–12 gm/dl). A statistical study showed a significant association (p < 0.001) between cancer type and anaemia severity as well as between gender and anaemia severity.

Furthermore, there was a significant difference in hemoglobin levels (p < 0.001) between individuals with solid tumors and those with haematological malignancies. Blood loss-related anemia was more common in solid tumors while bone marrow failure anemia was more common in haematological malignancies. Anaemia patterns were different across the two types of tumors.

Table 1: Demographic Characteristics of Study Population

Characteristic	Total	Male (n=51)	Female (n=49)
Age (years)	34.87 ± 18.47	-	-
Gender	-	51 (51%)	49 (49%)
Age Group	-	-	-

Table 2: Distribution of Tumour Types Among Study Participants

Tumour Type	Total (n=100)	Haematological Malignancies (n=84)	Solid Tumours (n=16)
Acute Lymphoblastic Leukaemia	30	30 (30%)	04(04%)
Aggressive Non-Hodgkin's Lymphoma	25	15 (15%)	02(02%)
Colorectal Cancer	15	15(15%)	03 (03%)
Endometrial Cancer	15	14(14%)	03 (03%)
Ovarian Cancer	15	10(10%)	04 (04%)

Table 3: Prevalence and Severity of Anaemia Among Study Participants

Anaemia Severity	Total (n=100)	Mild	Moderate	Severe
Present (%)	76.2%	46	20	10
Absent (%)	23.8%	14	04	6

Table 4: Haemoglobin Levels by Cancer Type

Cancer Type	Haemoglobin Levels (gm/dl)
Haematological Malignancies	52
Solid Tumours	48

DISCUSSION

The findings of this examine underscore the good sized prevalence of anaemia in treatment-naïve cancer patients and spotlight its affiliation with precise demographic and clinical factors. These results align with previous studies demonstrating the pervasive impact of anaemia across numerous most cancers sorts ¹⁰. Anaemia in cancer patients arises from multifactorial mechanisms, which includes bone marrow suppression through the tumour, infection-brought about inhibition of erythropoiesis, chemotherapy-associated myelosuppression, and dietary deficiencies ¹¹.

The found affiliation among anaemia and haematological malignancies corroborates earlier research indicating a higher occurrence of anaemia in sufferers with blood-associated cancers (three). Notably, acute lymphoblastic leukaemia emerged because the maximum normal haematological malignancy in this observe, similarly emphasizing the weight of anaemia on this affected person populace¹².

The take a look at’s identification of girl gender as a good sized threat factor for anaemia echoes previous research demonstrating a better prevalence of anaemia in ladies across diverse disorder states ¹³. Potential causes encompass menstrual blood loss, being pregnant-associated anaemia, and hormonal differences affecting erythropoiesis.

The differential prevalence of anaemia among haematological malignancies and strong tumours underscores the importance of know-how the underlying pathophysiology. While blood loss-related anaemia is extra commonplace in solid tumours, bone marrow failure anaemia predominates in haematological malignancies ¹⁴. This difference has implications for diagnostic evaluation and healing interventions tailored

to the unique cancer kind.

The study’s findings have scientific implications for the control of anaemia in cancer patients. Given its negative results on best of lifestyles and remedy effects, early recognition and intervention are important ¹⁵. Strategies together with erythropoiesis-stimulating marketers, iron supplementation, and transfusion assist can be warranted primarily based on character patient characteristics and anaemia severity.

However, positive barriers should be mentioned. The observe’s go-sectional layout precludes causal inference, and the single-middle nature may also limit generalizability. Additionally, elements such as comorbidities and dietary popularity, which can influence anaemia, had been not comprehensively evaluated¹⁶.

In conclusion, this observe contributes valuable insights into the superiority and determinants of anaemia in remedy-naïve most cancers patients. Further studies incorporating longitudinal information and multi-center collaboration is warranted to beautify our expertise of anaemia’s impact on cancer prognosis and optimize healing strategies¹⁷.

Acknowledgement

The authors would like to thank and extend their deep appreciation to professor doctor Zahid Nazar consultant psychiatrist MTI-LRH Peshawar and assistant professor doctor Salma Zaib consultant physician MTI-LRH Peshawar for their continuous guidance.

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