Journal of Endocrinology, Tropical Medicine, and Infectious Disease (JETROMI)

Anemia Profile in Cancer Patients at Adam Malik Hospital for the Period June 2022 to May 2023

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ABSTRACT

Background: Cancer is a condition of rapid and uncontrolled cell growth. Anemia in cancer patients is a condition that will worsen the quality of life and prognosis of cancer patients. The study aimed to determine the incidence, severity of anemia, and characteristics of cancer patients who experience anemia at the Adam Malik Hospital for the period June 2022 to May 2023.
Methods: This study is a descriptive study with a retrospective cross-sectional approach. Using 97 samples of medical record data of cancer patients with the subject of cancer patients. The analysis used was univariate.
Results: This study involved 97 cancer patients, there were 67 (69.1%) patients who experienced anemia, including 14 (20.9%) people with a mild degree of anemia, 33 (49.3%) people moderate degree, and 20 (29.9%) people severe degree. Of the 67 cancer patients who experienced anemia, the dominant anemia occurred in female patients as many as 38 (56.7%) people with an adult age group (18-44 years) as many as 31(46.3%) people diagnosed as hematological malignancies as many as 34 (50.7%) people with nutritional status in the normal weight group as many as 27 (40.3%) people, and as many as 46 (68.7%) people cancer patients who experienced anemia did not have comorbidities.
Conclusion: Most cancer patients experienced anemia of moderate degree (69.1%), female gender, with adult age group (18-44 years), diagnosed as hematological malignancies, with nutritional status normal weight group, and had no comorbidities

Keywords: Anemia, Cancer, Profile, Characteristics

ABSTRAK

Latar belakang: Kanker adalah kondisi pertumbuhan sel yang cepat dan tidak terkontrol. Anemia pada pasien kanker merupakan kondisi yang akan memperburuk kualitas hidup dan prognosis pasien kanker. Penelitian ini bertujuan untuk mengetahui kejadian, tingkat keparahan anemia, dan karakteristik pasien kanker yang mengalami anemia di Rumah Sakit Adam Malik periode Juni 2022 hingga Mei 2023.
Metode: Penelitian ini merupakan studi deskriptif dengan pendekatan cross-sectional retrospektif. Menggunakan 97 sampel data rekam medis pasien kanker dengan subjek pasien kanker. Analisis yang digunakan adalah univariat.
Hasil: Penelitian ini melibatkan 97 pasien kanker, terdapat 67 (69,1%) pasien yang mengalami anemia, diantaranya 14 (20,9%) orang dengan derajat anemia ringan, 33 (49,3%) orang derajat sedang, dan 20 (29,9%) orang derajat berat. Dari 67 pasien kanker yang mengalami anemia, anemia dominan terjadi pada pasien perempuan sebanyak 38 (56,7%) orang dengan kelompok usia dewasa (18-44 tahun) sebanyak 31 (46,3%) orang yang didiagnosis sebagai keganasan hematologis sebanyak 34 (50,7%) orang dengan status gizi pada kelompok berat badan normal sebanyak 27 (40,3%) orang, dan sebanyak 46 (68,7%) orang pasien kanker yang mengalami anemia tidak memiliki penyakit penyerta.

Kesimpulan: Sebagian besar pasien kanker mengalami anemia derajat sedang (69,1%), berjenis kelamin perempuan, kelompok usia dewasa (18-44 tahun), didiagnosis sebagai keganasan hematologis, status gizi pada berat badan normal dan tidak memiliki penyakit penyerta

Kata kunci: Anemia, Kanker, Profil, Karakteristik

1. Introduction

Tumor cells that become malignant or cancerous are a condition indicated when there is uncontrolled growth and spread of abnormal cells. Through blood vessels and lymph vessels, cancer cells can invade surrounding tissues and spread (metastasize) to other tissues that are located further away [1]. Cardiovascular diseases are the diseases with the highest mortality percentage internationally and cancer is the disease with the second highest mortality percentage [2]. Globally, there are 18.1 million cases of cancer recorded with a death rate of 9.6 million (Global Burden of Cancer Study, 2018). The number of cancer incidents in Indonesia ranks 8th in Southeast Asia and 23rd in Asia with an incidence of 136.2/100,000 population. For men in Indonesia, lung cancer is the largest cancer case with an incidence of 19.4/100,000 population with an average death rate of 10.9/100,000 population. Then in 2nd position are liver cancer cases with an incidence of 12.4/100,000 population with an average death rate of 7.6/100,000 population. In contrast to the female gender, the largest number of cancer cases in Indonesia is breast cancer with the number of cases being 42.1/100,000 population with an average death rate of 17/100,000 population. Followed by cervical cancer which is the second most common with several cases in 23.4/100,000 population with an average death rate of 13.9/100,000 population [3]. Anemia in malignant diseases is a common accompanying disease (comorbid) that can worsen the malignant condition itself. In previous research, anemia in cancer was generally associated with chronic conditions. Anemia in this condition is called cancer-related anemia (CRA) [4].

In general, two main groups cause anemia in cancer, namely anemia that is directly related to tumors (inflammatory processes, blood loss, hemolysis, and invasion of malignant cells in the bone marrow, etc.) and anemia that is related to treatment such as chemotherapy. and radiotherapy. The incidence of anemia in cancer patients varies greatly depending on the type of tumor and the type of treatment given. Cancer patients who are anemic experience fatigue, poorer quality of life, and higher mortality rates. On average, anemia can increase the death rate in cancer patients by 65%. Patients with head and neck cancer are 76% more likely to die if they experience anemia and for patients with lymphoma, it is 68% [5]. The incidence of anemia in cancer patients ranges from 22.7% to 63% [6]. Based on what has been explained, cancer is a disease that has a very high risk of causing death, especially in cancer patients who experience anemia because it will further reduce the patient's quality of life and further increase the risk of death. The purpose of this study is to know the number of cases of anemia in cancer patients and the characteristics of patients who suffer from it. suffered from anemia and was diagnosed with cancer at Adam Malik Hospital, Medan.

2. Methods

The research design applied in this study is a descriptive research design with a retrospective cross-sectional design. Data (observations) are collected at one time (point time approach) simultaneously. Each research subject was only observed once using secondary data originating from medical records of cancer patients undergoing chemotherapy at Adam Malik Hospital in Medan for the period June 2022 to May 2023. This research used a consecutive sampling technique. Consecutive sampling is a type of non-probability sampling by taking all subjects found who meet the inclusion and exclusion criteria until the number of subjects is met. The data obtained will be presented in the form of frequency distribution tables and percentages for each variable, which will then be analyzed and discussed regarding the PSA anemia profile of cancer patients. This research received ethical clearance from the Ethics Commission of the Faculty of Medicine, Universitas Sumatera Utara.

3. Results

Based on Table 1, it can be seen that of the 97 research subjects with cancer patients, it was found that the percentage of patients who were anemic 67 (69%) was higher than patients who were not anemic 30 (31%) people. Of the 68 cancer patients who experienced anemia, 14 (20.9%) were in the mild degree group, 33 (49.3%) people were in the moderate degree group and 20 (29.9%) people were in the severe degree group.

Table 1 Frequency Distribution of Severity of Anemia in Cancer Patients

Severity of Anemia (g/dl)		n	%
Mild	11.0-12.9	14	20.9
Moderate	8.0-10.9	33	49.3
Severe	< 8	20	29.9
Total		67	100

Based on Table 2, data shows that cancer patients who experienced anemia at the Adam Malik Hospital for the period June 2022 to May 2023 were predominantly in the adult age group, namely 31 (46.3%) people followed by the pre-elderly group, 22 (32.8%), people and 14 (20.9%) elderly people.

Table 2 Age Frequency Distribution in Cancer Patients Who Have Anemia.

Age (year)		n	%
Mature	18 - 44	31	46.3
Pre-Elderly	45 - 59	22	32.8
Elderly	≥ 60	14	20.9
Total		67	100

Based on Table 3. the data obtained for the number of patients who experienced solid tumors was 33 (49.3%) people less than hematological malignancies 34 (50.7%) people.

Table 3 Frequency Distribution of Cancer Types in Cancer Patients Who Have Anemia.

Types of Cancer	n	%
Solid tumor	33	49.3
Hematologic Malignancies	34	50.7
Total	67	100

Based on Table 4, the nutritional status of cancer patients with anemia based on BMI is divided into 5 groups. There were 21 (31.3%) patients in the underweight group, the normal weight group was 27 (40.3%) people, the overweight group 8 (11.9%) people, the obese group 8 (11.9%) people, and in the obese II groups there were 3 (4.5%) people.

Table 4 Frequency Distribution of Nutritional Status in Cancer Patients with Anemia.

Nutritional status	n	%
Underweight	21	31.3
Normal weight	27	40.3
Overweight	8	11.9
Obesity I	8	11.9
Obesity II	3	4.5
Total	67	100

Based on Table 5, data shows that there were 21 (31.3%) cancer patients with anemia who had comorbidities and 46 (68.7%) people without comorbidities.

Table 5 Frequency Distribution of Presence or Absence of Comorbidities in Cancer Patients Who Have Anemia.

Comorbid	n	%
Have comorbidities	21	31.3
Hypertension	13	19.4
Pulmonary tuberculosis	4	6.0
Dyspepsia	3	4.5
Diabetes mellitus	2	3.0
Gouty arthritis	2	3.0
Dyslipidemia	1	1.5
Deep vein thrombosis	1	1.5
Chronic obstructive pulmonary disease	1	1.5
Jaundice	1	1.5
No comorbidities	46	68.7
Total	67	100

4. Discussions

This is following research conducted by Kifle E et al. in a cross-sectional descriptive study of 422 cancer patients at the Tikur Anbessa Special Hospital (TASH), it was found that 266 (63%) cancer patients experienced anemia [6]. Based on data obtained by researchers, it shows that the incidence of anemia in cancer patients is 68%. This can be caused by various factors such as bleeding from the cancer itself, cancer which directly helps balance the formation and destruction of blood cells, and production from the body's immune system which can suppress blood production [7].

The research conducted by I Made Bagus et al at Sanglah General Hospital Denpasar in 2021 on patients experiencing hematological malignancies where patients with hematological malignancies were diagnosed with a hemoglobin level status of moderate anemia of 58.82% [8]. In line with Kifle E's research which concluded that anemia patients in cancer sufferers usually feel uncomfortable when their anemia condition causes several symptoms that affect the patient's quality of life, and these symptoms most often occur in cancer patients with moderate to severe anemia [6].

The research conducted on 292 cancer patients by Muthanna F et al. found 89 cancer patients with anemia or 66.9% of patients aged under 60 years [9], this is in line with research conducted by Aapro et al found that 66.9% of cancer patients with anemia were less than 60 years old [10]. Different things were found in research conducted by Ferucci et al which concluded that the older a cancer patient is, the greater the risk of developing anemia. This is caused by a decrease in physical function in elderly patients, such as less activity causing a decrease in blood distribution to the brain, heart, and muscles, with elderly patients who are more at risk of developing kidney insufficiency [11].

The cross-sectional observational study by Steegman et al studied 214 cancer patients and found that 52.4% of cancer patients who experienced anemia were female [12], which is also in line with research conducted by Badheeb A et al in 95 Cancer patients in Saudi Arabia found that 62 cancer patients with anemia were female or 65.3% [13]. The prevalence of anemia in female cancer patients is indeed higher than in men. This is due to several things, such as hemoglobin levels, hematocrit, and iron reserves in women being less than in men, because women have a menstrual cycle, so they require adequate intake. more adequate iron [14].

The research on 214 cancer patients conducted by Steegman et al found that 52% of patients with hematological malignancies experienced anemia [12] and is in line with research by Badheeb et al which concluded that the prevalence of anemia in patients with hematological malignancies reached up to figure 75% [13]. This is because patients with hematological malignancies will attack directly the bone marrow and lymphatic system, which is responsible for blood formation, which can cause impaired use of iron, suppression of erythrocyte progenitor cells, and decreased erythropoietin production which results in disruption of erythropoiesis. This can also occur in patients with solid tumors but at an advanced stage that already has the characteristics of invasion and metastases to the bone marrow [7].

The research conducted on 292 cancer patients by Muthanna F et al found 174 patients or 60% of patients had a BMI <25 [9], this is in line with research by Gokce K et al which stated that patients with Cancer with anemia often caused by metastatic cancer, but inadequate nutritional factors cannot be ruled out because this is also the reason for anemia in cancer patients, especially iron, folic acid and vitamin B12 [15].

This is in line with research conducted by Roy et al which found that several diseases that were comorbidities in cancer patients who experienced anemia were hypertension in the first place (64.3%), then

there was hyperlipidemia (56.1%), then there was osteoarthritis (34.3%), the fourth is hypothyroidism (21.8%), and the last is diabetes mellitus (21.8%) [16]. Research by Omolala S et al is also in line with this, which found that of 848 cancer patients, only a small proportion of cancer patients who experienced anemia had comorbidities, namely 291 people or 34.3% had comorbidities such as hypertension, diabetes mellitus, and congestive heart failure. the most dominant comorbidity occurs. The presence of comorbidities in cancer patients worsens the condition and prognosis of cancer patients, so it is important to screen for the presence of comorbidities in cancer patients to improve their prognosis [17].

In-hospital mortality was the highest for the 'few comorbidities' group and the lowest for the 'more symptoms' group. Severe comorbidities were associated with elevated mortality in patients from 'multiple comorbidities and symptoms', 'more symptoms', and 'genitourinary and infection' groups [18]. The results revealed that hypertension, ischemic cardiomyopathy, and pneumonia are the most frequent comorbid combinations. Heart failure may not have a strong implicating role in these comorbidity patterns. Cerebral infarction was rarely combined with other diseases [19]. When asked about the management of comorbidities or cancer, less than 20% were routinely asked about management goals, helped to set goals, or asked about health habits [20].

The advantage of this research is that it focuses on anemia caused by cancer itself because it excludes cancer patients who have received treatment such as chemotherapy, radiotherapy, etc. However, this study has a weakness in the form of limiting the sample to cancer patients in the internal medicine department only, because cancer patients in other departments do not present the same patient data as internal medicine.

5. Conclusions

In this study, from 97 cancer patients was found that the majority of cancer patients experienced anemia 67 (69.1%) people, and the dominant of which was moderate anemia 33(49, 3%). The people with the adult age group (18-44 years) were 31 (46.3%) and diagnosed with a hematological malignancy in 34 (50.7%) people, nutritional status was 27 (40.3%) people, and 46 (68.7%) people without comorbidities.

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