Anemia in patients admitted to a hospital in Teixeira Soares-PR

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ABSTRACT
Anemia is characterized by low hemoglobin concentration in the blood and it is estimated that more than two billion people in the world are anemic. The blood count is the test that contains the result of the measurement of hemoglobin in the blood, and to be indicative of anemia, in females hemoglobin must be below 12g/dL and in males below 13g/dL. The objective of this research was to determine the frequency of anemia in hospitalized patients, as well as the treatment prescribed for anemia at the Hospital de Teixeira Soares-PR, from April 2020 to January 2021. The sample consisted of data from medical records and results blood counts of all patients hospitalized during the period and selected patients with anemia. Morphological classification of anemia, classification of diagnosis prescribed by the hospital and treatment performed were performed. As a result, it was found that the prevalence of anemia was 21.33% among hospitalized patients, and 42.19% were anemia due to chronic disease. Most (68.75%) had normocytosis and normochromia. The contributions of this study were to highlight the high prevalence of anemia in hospitalized patients; that the most frequent anemia was anemia of chronic disease and show the need for greater care on the part of health professionals in the interpretation of these anemic cases.

Keywords: Hemogram, Anemia, Chronic disease.

1 INTRODUCTION

Cases of anemia in hospitals are recurrent, and approximately 1/3 of the hospitalized patients present anemic pictures and even small hospitals identify a significant number of cases. Inpatients are more susceptible to nosocomial infections, low cognitive status, associated with depression and stress, due to multiple comorbidities, leading to decreased survival (OLIVEIRA et al., 2019; CAVALCANTI, 2011).

Anemia is described as one of the oldest problems in medicine and, today, it is a worldwide public health problem. Defined as the low concentration of hemoglobin in the blood, it is estimated that more than two billion people in the world are anemic, that is, a large part of the population suffers from this disease that arises due to several factors (BATISTA FILHO et al., 2008). Anemia also worsens the quality of life, causes an increase in hospitalizations and hospitalizations for a prolonged time (OLIVEIRA et al., 2019).

According to Corrêa, et al (2004), these anemic conditions found in hospitals, may occur due to some types of intensive treatments linked to some previous disease that causes impacts on

hemoglobin levels, such as those that include defects in bone marrow stem cells, genetic diseases, chronic diseases (renal, neoplasms, infection), autoimmune, nutritional deficiencies, among others. Radiotherapy, for example, can induce anemia depending on where the radiation occurs, especially if it reaches the hematopoietic progenitor cells; Chemotherapy is capable of inducing the death of any cell with proliferative capacity and not only malignant ones. There are also medications, which in rare cases induce anemia, such as some anti-inflammatories, antibiotics, antihypertensive drugs and anticoagulants (BRAZIL, 2015; FERREIRA, 2013; JACOBER, 2007).

Admission to hospitals for episodes of anemia or discovery of anemic condition after hospitalization is recurrent, often secondary to a underlying cause. As for example, hospitalization for cancer can be mentioned, since 50% of patients hospitalized with neoplasms develop anemia or it arises induced by the treatment of radiotherapy (BRASIL, 2015; JACOBER, 2007). The second most frequent cause of anemia found in hospitals, after iron deficiency resulting from poor diet, is anemia of chronic disease resulting from infectious diseases such as AIDS, tuberculosis, pneumonia, rheumatoid arthritis, among other etiologies (CANÇADO, 2002).

Numerous professionals consider anemia a pathology and not a sign of a basic disease, which provides serious flaws in the realization of diagnoses and supposedly in the treatment. With this, anemia continues to be neglected providing high costs that end up being unnecessary for hospitals (FLORES MARTINS, 2017; MOLIN, 2018; OLIVEIRA et al., 2019).

For public health services, the processes of illness are often uncertain, not being described correctly in the medical records. Due to this diagnostic problem, anemic events can be even fatal or contribute to the worsening of the underlying disease causing significant damage to the individual and higher expenses with hospitalized patients (BATISTA FILHO et al., 2008).   Therefore, diagnosing the etiology of anemia is essential, since it can evolve rapidly bringing worsening to the individual aggravating the general clinical picture. Rapid diagnosis is important to determine effective therapy, reducing the impacts of mortality, unnecessary expenses and implementation of an adequate solution for comorbidities related to anemias in hospitals (OLIVEIRA et al., 2019).

Some facts should be investigated for an efficient diagnosis: family history of diseases, type of feeding, attention to the patient's physical signs such as pallor and report of tiredness, primary hematological diseases and mucosal alteration. Assessing the recurring causes is a way to understand this major problem and seek an alternative to correct it (MOLIN, 2018).

Therefore, this study had as main objective to determine the frequency of anemias in patients hospitalized at the Municipal Hospital of Teixeira Soares-PR.

2 MATERIAL AND METHODS

This is an observational, descriptive, cross-sectional study carried out at the Municipal Hospital of Teixeira Soares – PR., from April 2020 to January 2021. During this period, 300 patients were admitted to the ward sector. Of these, 64 blood counts were selected for the research.

The following inclusion criteria were adopted in the sample: patients who were admitted to the institution in the selected period, aged between 15 and 90 years, of both sexes, regardless of race and who showed anemia in the blood count at any time of hospitalization, and patients who were not in the age group between 15 and 90 years were excluded, those who did not have anemia during the hospitalization period and those without blood count results in the medical records did not remain hospitalized. Women with hemoglobin below 12g/dL and men with hemoglobin values below 13g/dL were considered anemic (CORRÊA et al., 2004; NAOUM, 2008).

Data were collected from medical records, which also contained attached the results of blood counts performed in the outsourced laboratory that serves the hospital.

The variables collected from medical records were gender, age, race, medical diagnosis, type of treatment prescribed for anemia and blood count data: erythrocyte count (μL), hemoglobin (g/dL), microhematocrit (%), Mean Corpuscular Volume – MCV (fL), Mean Corpuscular Hemoglobin – HCM (pg), Mean Corpuscular Hemoglobin Concentration – CHCM (%), Red Distribution Width – RDW (%).

With the data obtained, a database was created in the Microsoft Excel 2016 software and analyzed in the Epi Info 7.1.5.2 program, used for frequency calculations and data tabulation. The Microsoft Excel 2016 software was also used to construct the tables and graphs presented.

This study respected the ethical precepts, being approved by the Research Ethics Committee of Cescage by opinion number 4,587,783.

3 RESULTS AND DISCUSSION

The mean age of the sample studied was 66.2 years (±16.8 years); among women, the mean age was 70 years (±12 years) and among men it was 64.5 years (±18.2 years).

After tabulating the collected data, it was possible to verify that the prevalence of anemia in hospitalized patients from April 2020 to January 2021 was 21.33%.

Of the blood counts evaluated, 86.36% presented decreased global erythrocyte count values in males and 75% in females. In the case of hematocrit, 97.72% of males and 100% of females had values below the reference.

Rosenfeld (2012), cites that an organism with normal values of erythrocytes produces and destroys red blood cells in a balanced way maintaining the quality of the cells and the quantity in the

circulation. This process contributes to greater oxygenation of cells and lower levels of comorbidities. In the sample analyzed, most anemias were accompanied by a low number of erythrocytes and hematocrit, which can happen in all types of deficiency anemias, chronic diseases, problems of cell production in the bone marrow, among others.

In a study by Tomiya, et al (2014), at the Hospital das Clínicas de Pernambuco in hospitalized patients, erythrocyte counts were reduced or normal in microcytic/hypochromic anemia, low in normocytic/normochromic anemia and below the reference in macrocytic anemia. All patients had anemia when considering hemoglobin values of 13.5 g/dL for men and 12.0 g/dL for women.

When the values of the erythrocytic indices were observed, the VCM (V.R. = 82fL to 98fL) showed that 28.12% of the patients had microcytosis, 64.06%, normocytosis and 7.82% macrocytosis. The HCM (V.R. = 27pg to 32pg) reported that in 32.81% of the sample there was hypochromia, in 59.37%, normochromia and in 7.82%, the red blood cells were well filled with hemoglobin. This fact should occur in macrocytic red blood cells, as they can carry a greater amount of hemoglobin (SILVA, 2018; NAOUM, 2013).

For the CHCM values (V. R. =32% to 36%), 68.75% of the patients had normal hemoglobin concentration and 31.25% had decreased values, which suggests the presence of severe anemias.

In the RDW (V.R.= 11% to 14.5%) 48.44% of the patients had normal values and 51.56% had some level of anisocytosis.

Table 1: Frequency of blood count variables of individuals hospitalized at the Hospital de Teixeira Soares-PR, from April 2020 to January 2021.

MALE ERYTHROCYTES	No.	%
< 4.3 M/μl	38	86,36
4.3 M/μl l a 6.0 M/μl l	5	11,37
> 6.0 M/μl	1	2,27
Total	44	100
FEMALE RBTHROCYTES	**No.**	**%**
<3.9 M/μl	15	75
3.9 M/ μl to 5.3 M/μl	5	25
Total	20	100
FEMALE HEMATOCRIT	**No.**	**%**
< 36%	20	100
Total	20	100
MALE HEMATOCRIT	**No.**	**%**
< 41%	43	97,72
41% a 54%	1	2,28
Total	44	10
FEMALE HEMOGLOBIN	**No.**	**%**
< 12,0 g/dL	20	100
Total	20	100
MALE HEMOGLOBIN	**No.**	**%**
<13,5 g/dL	44	100
Total	44	100

MEAN CORPUSCULAR VOLUME (MV)	No.	%
<82 fL	18	28,12
82 a 98 fL	41	64,06
>98 fL	5	7,82
Total	64	100
MEAN CORPUSCULAR HEMOGLOBIN (MH)	No.	%
<27 pg	21	32,81
27 pg a 33 pg	38	59,37
> 33 pg	5	7,82
Total	64	100
MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION (CHCM)	No.	%
<32 g/dL	20	31,25
32 a 36 g/dL	44	68,75
Total	64	100
RDW - Erythrocyte Distribution Range	No.	%
>14,5%	33	51,56
11 % a 14,5%	31	48,44
Total	64	100

N°= number of patients;
M/µl = million per microlitre;
%= value in percentage;
g/dL= grams per decilitre;
fL= fentolitros;
pg= picogramas;
<= less than; >= greater than.

Source: The authors.

Chart 2 shows the distribution of anemias by age group and gender and it was found that the frequency of anemias was higher among those who were between 71 and 80 years old, both for men (27.27%) and for women (30%), however when the frequencies of the age groups over 60 years were added among the anemic, 59.09% of the men and 60% of the women in the sample were in this group. Regarding the female group, 100% of the sample of anemic women was older than 40 years.

According to a study conducted by Silva (2018), in anemic patients treated by LAPAC of Ouro Preto, a high value of anemias was observed in men over 60 years of age, and of anemias in women over 40 years of age, which can also be observed in the results of this study carried out at the Teixeira Soares hospital in Paraná.

Table 2: Frequency of the age group of individuals hospitalized at the Hospital de Teixeira Soares-Pr, from April 2020 to January 2021.

AGE (years)	MALE		FEMALE	
	No.	%	No.	%
21 a 30	2	4,55	0	0
31 a 40	3	6,81	0	0
41 a 50	4	9,10	2	10
51 a 60	9	20,45	3	15
61 a 70	5	11,36	5	25
71 a 80	12	27,27	6	30
81 a 90	8	18,19	4	20
> 90	1	2,27	0	0
Total	44	100	20	100

N°= number of patients;
%= value as a percentage.

Source: The authors.

According to a study conducted by Sperandio et al. (2014), there is a higher probability of blacks being anemic compared to whites, but it is not yet possible to confirm whether this is triggered by genetic, racial factors or due to hemoglobinopathies. In this study, however, we obtained a prevalence of 60.93% of whites with anemias, 31.25% of browns and the smallest part, 7.85% were black (FIGURE 1). One hypothesis for this result may be due to the fact that according to the IBGE (Brazilian Institute of Geography and Statistics) (2020), the estimated population of Teixeira Soares-PR is 12,567 inhabitants, being prevalent the white race (58.81%), followed by brown (20.81%), black (1%) and indigenous (0.21%).

Figure 1: Frequency of declared race of anemic individuals hospitalized at the Hospital de Teixeira Soares-Pr., from April 2020 to January 2021.
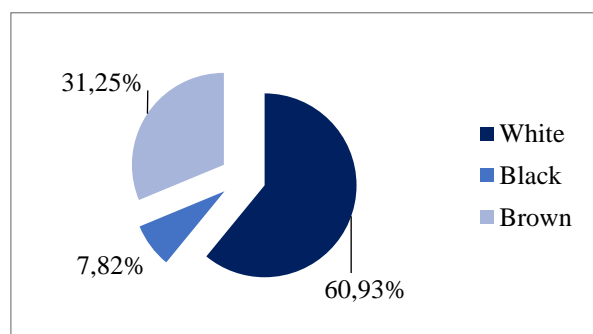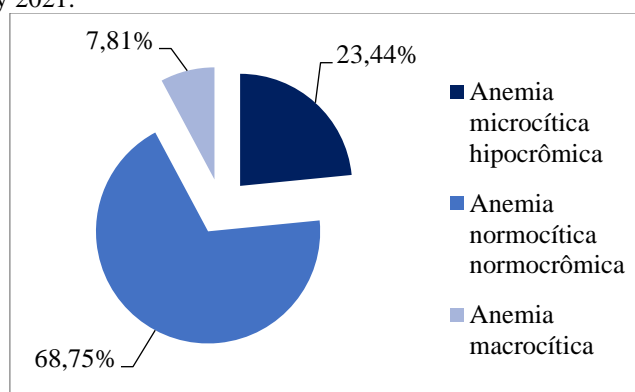

Source: The authors.

According to Silva (2018) and Santis (2019), the cause of anemia can be indicated by its morphological classification, such as microcytic/hypochromic anemias may suggest iron deficiency anemia as the first suspicion, some cases of chronic disease, thalassemias and sideroblastic anemia; normocytic/normochromic anemias may mean the presence of hemolytic anemia, chronic disease, renal failure, cancer, hemorrhage, among other etiologies; and, finally, macrocytic anemia, folic acid and vitamin B12 deficiency, and neoplasms.

Regarding the morphological classification of anemias, the study by Corrêa et al. (2004), carried out in a hospital in Tubarão in the State of Santa Catarina, the prevalence of macrocytic anemia was 7.5%; of microcytic/hypochromic was 12.9%; and normocytic/normochromic anemia, with higher prevalence, representing 79.6% of anemic individuals. These data can be justified by the fact that normocytic/normochromic anemia is one of the most commonly found anemias in society, after microcytic/hypochromic anemia, which is the most common (FAILACE, 2015).

Oliveira et al. (2019), also obtained a higher frequency of normocytic/normochromic anemias (72.36%), followed by microcytic/hypochromic and macrocytic anemias (1.63%) in patients hospitalized in a medical clinic of the Guilherme Álvaro Hospital in São Paulo. Agreeing with Correa et al. (2014) among other authors who publish in the area of hematology and who state that in hospitalized patients the anemia that occurs most frequently is normochromic normocytic, this study also showed a higher proportion of normocytic/normochromic anemia (68.75%), followed by microcytic/hypochromic anemia (23.44%) and, to a lesser extent, macrocytic anemia (7.81%), as shown in Figure 2.

Figure 2: Frequency of morphological classification of anemias in individuals admitted to the Hospital de Teixeira Soares-Pr, from April 2020 to January 2021.

Source: The authors.

Figure 3 shows that 68.18% of the males had normocytic anemia and 59.09% were also normochromic. Among women, the most frequent anemia was also normocytic/normochromic, with MCV within the reference limits in 55% of the cases and HCM in 60% of them.

Figure 3: Frequency of MCV and MCH according to the gender of anemic patients admitted to the Hospital de Teixeira Soares-Pr., from April 2020 to January 2021.
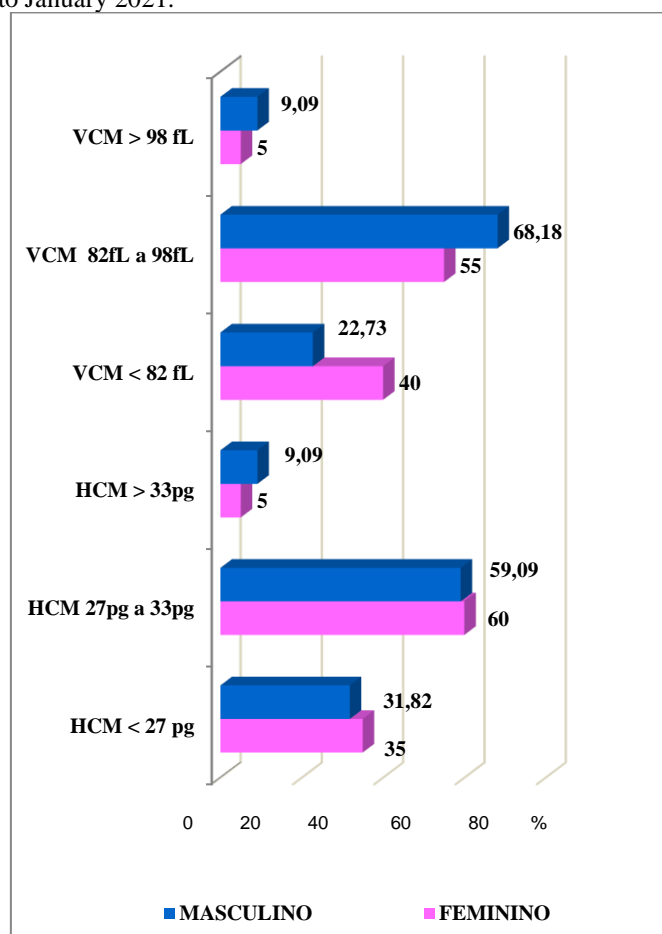
%= value in percentage; fL= phentolitres;
pg= picogramas;
VCM= Mean corpuscular volume;
HCM= mean corpuscular hemoglobin;

Source: The authors.

For Silva (2018), the prevalence of microcytic/hypochromic anemia in women represented 85% of cases, normocytic/normochromic in 10%, and the minority (5%) had macrocytic anemia. Above 60 years, the prevalence was normocytic/normochromic anemia (72.83%), where chronic diseases are more common (MACHADO et al., 2019).

Still, according to Figure 3, women developed more microcytic/hypochromic anemia than men, as 40% showed MCV < 82 fL and 35%, MCH < 27 pg. It should be considered that women have a greater predisposition to iron deficiency anemia mainly in reproductive age, since in this period there is a greater physiological loss of iron by menstruation, irregularities in the menstrual cycle or other causes such as poor diet and hemorrhages (SILVA, 2018). However, in this study the average age of women was 70 years and Kushner (1993), mentions that anemias of chronic disease are usually normocytic and normochromic or even hypochromic, and microcytosis with hypochromia may still

occur in 20% to 30% of patients with chronic disease, only that in these conditions it is not as pronounced as in iron deficiency anemia.

The male sex in this study also showed a higher prevalence of normocític anemia (68.18%) and normocrômica (59.09%)

Men do not have natural susceptibility to iron loss like women and also reject getting sick, not recognizing the needs of their health. Biological ethnic factors such as cirrhosis, cancer, liver problems resulting from excessive alcohol and cigarette consumption, among others, may explain this result (MACHADO et al., 2019; Smith, 2018).

Corrêa et al. (2004), classified the anemias of hospitalized patients according to the MCV and HCM and reported that the prevalence of macrocytic anemia in males was 3.9%; the microcytic/hypochromic was 2.8% and the normocytic/normochromic was 23.9%. In females, the prevalence was 4.8% of microcytic/hypochromic anemia and 21.4% of normocytic/normochromic anemia. He did not find any cases of macrocytic anemia. Thus, it obtained a higher prevalence of normocytic/normochromic anemia in both sexes.

In Brazil the most frequent anemias are iron deficiency anemias or iron deficiency anemia and, secondly, the anemia of chronic diseases appears, however this anemia is of higher prevalence in hospitalized patients (Machado et al., 2019)

In the observation of the data recorded in the medical records on the diagnosis of the anemic patients selected in this study, 42.19% of them had chronic disease, followed by iron deficiency anemia (29.69%), neoplasia (15.62%) and hemorrhage (12.50%), as shown in chart 3.

Table 3: Prevalence of the medical diagnosis described in the medical records of anemic patients admitted to the Hospital de Teixeira Soares, from April 2020 to January 2021.

DIAGNOSIS	No.	%
CHRONIC DISEASE	27	42,19
IRON DEFICIENCY ANEMIA	19	29,69
NEOPLASIA	10	15,62
HAEMORRHAGE	8	12,50
Total	64	100

N°= number of patients;
%= value in percentage;

Source: The authors.

Cançado et al. (2002), report that anemia of chronic diseases is mostly normocytic/normochromic and occurs due to decreased survival of red blood cells, disturbance in iron metabolism, releases of cytokines that are directly or indirectly responsible for the inhibition of erythropoiesis and the bone marrow may not respond correctly to a hemolytic process.

Studies on anemic conditions and diagnosis in hospitals are considerably infrequent, affecting the likelihood of solutions and decrease in the mortality rate (OLIVEIRA et al., 2019).

Normocytic and normochromic anemia with normal RDW is common in the elderly due to acute bleeding and chronic diseases. That would have as base disease the thyroid alterations, rheumatological, autoimmune and neoplastic diseases, among others. (MACHADO et al., 2019)

A study conducted by Monteiro et al. (2019) on anemias resulting from neoplasms, infections, lack of vitamin B12 and folic acid, the morphological classifications of the most frequent anemias were macrocytic and normocytic/normochromic.

Oliveira et al. (2019), demonstrated frequency of normocytic/normochromic anemias when the diagnosis was anemia of chronic disease, including neoplasms, followed by microcytic/hypochromic anemia for the diagnoses of deficiency anemias such as iron deficiency and, macrocytic in vitamin B12 and folic acid deficiencies, neoplasms and other genetic problems.

Figure 4 shows the classification of anemias compared to the diagnoses mentioned in the medical records, and shows that 62.96% of patients with chronic diseases had normocytic and normochromic anemia, recalling that in the present study, anemias resulting from neoplasms were studied separately from those from chronic diseases.

Machado et al (2019), showed that there was a prevalence of microcytic/hypochromic anemia in iron deficiency anemias and also in hemorrhagic anemias. In the normocytic/normochromic cases, there was a prevalence of anemias of chronic disease. In macrocytic diseases, the prevalence of vitamin B12 and folic acid deficiencies was obtained. In this study, 84.21% of the medical diagnoses described in the medical records as iron deficiency anemia were morphologically classified by the erythrocytic indices provided by the blood count as normocytic/normochromic anemia and 15.79% as microcytic/hypochromic anemia. Iron deficiency anemias according to the study by Oliveira et al (2019) and Machado et al (2019), were mostly microcytic/hypochromic, and explain that this occurs because there is iron deficiency and consequent lower production of erythrocytes, occurring mainly in women. However, an iron deficiency anemia in installation can be normochromic normocytic, because the iron stores are exhausted, but the peripheral blood may not yet reflect this deficiency (FAILACE, 2015).

Among the anemias triggered by hemorrhages due to accidents, menstrual changes, traumas, problems in blood vessels, ulcers, polyps, among others, microcytic/hypochromic anemia was observed in 25% of the cases and normocytic/normochromic anemia in 75% (FIGURE 4).

Anemias due to acute bleeding tend to be normocytic/normochromic because the bone marrow does not reflect its response immediately in the peripheral blood that is used to perform the blood count, but with the wear of nutrients for the production of red cells and due to the emptying of the iron stock, it can be microcytic/hypochromic (FAILACE, 20; NAOUM, 2013).

Still on Figure 4, the morphological classification of anemia compared to the medical diagnosis showed that 50% of normochromic normocytic anemias were part of the clinical picture of patients with neoplasms, followed by 30% of hypochromic microcytics and 20% macrocytic.

The prevalence and severity of anemia associated with the type of neoplasms are related to the aggressiveness, type and stage of the tumor, as well as to the time and intensity of treatment (JACOBER, 2007; BRAUNSTEIN, et al., 2019; MACHADO, et al., 2019).

An epidemiological study in Canada showed that 28% of the patients studied with neoplasms developed normocytic/normochromic or macrocytic anemias and, in their minority, microcytic/hypochromic anemias.

Figure 4: Relationship between morphological classification of anemia and medical diagnosis described in the medical records of anemic patients admitted to the hospital of Teixeira Soares-Pr, from April 2020 to January 2021.
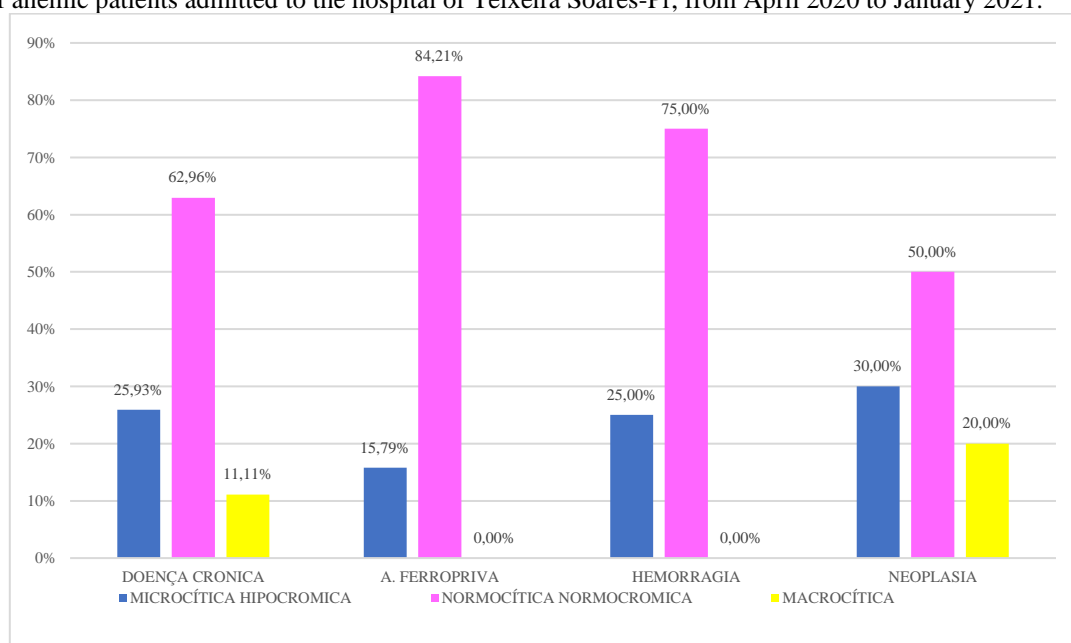
%= percentage value

Source: The authors.

The pathophysiology of the diseases mentioned in the medical records may show different morphological classifications depending on the stage in which it is found and the associated comorbidities, however pure cases of iron deficiency anemia and chronic diseases are usually microcytic/hypochromic and normocytic/normochromic, respectively. The correct diagnosis should be exhaustively pursued to support the best treatment for the patient, since only the morphological classification of anemias is not able to make a diagnosis alone, requiring complementary tests and insightful clinical observation, especially when there is underlying disease. However, one should also consider the lack of adequate investigation of the cause of anemias that can contribute to the worsening of the patient's conditions causing significant damage to the individual and unnecessary financial expenses to hospitals (BATISTA FILHO et al., 2008; FLORES MARTINS, 2017).

When the frequencies of prescribed treatments were observed (CHART 4), it was verified that the treatment of choice for hospitalized anemic patients was medication with 56.25% of the patients, 15.62% submitted to transfusions, 9.38% received both medication and transfusion and, in 18.75%, there was no treatment.

Table 4: Frequency of treatments prescribed in the medical records of anemic patients admitted to the Hospital de Teixeira Soares-Pr, from April 2020 to January 2021.

TREATMENT FOR ANEMIA	No.	%
MEDICATION	36	56,25
MEDICATION AND TRANSFUSION	6	9,38
UNTREATED	12	18,75
TRANSFUSION	10	15,62
TOTAL	64	100

Nº= number of patients;
 %= value in percentage;

Source: The authors.

Cançado et al. (2002) and Calabrich (2010), evaluated that in most cases in anemias of chronic diseases the treatments are carried out with medications such as iron supplementation, and only in severe cases, blood transfusions occur.

Figure 5 shows that 66.67% of patients with chronic disease were treated with medication, 14.81% were not treated, 11.11% underwent transfusions and 7.41% used medication and transfusion. When the medical diagnosis was iron deficiency anemia, 50% of patients were treated with medication, 35% were not treated, 10% used medication and transfusion, and the minority 5% underwent transfusions. It is observed that, in 35% of cases, patients with iron deficiency anemia were not treated, probably due to the fact that in some cases, only a diet based on iron and vitamins is enough (BRASIL, 2014).

Santis (2019), in his study that dealt with the classifications and treatments for anemias reports that the frequency of treatments for iron deficiency anemias, at first were iron-based medications and dietary supplements in mild cases.

In the case of hemorrhage diagnosis in this study, 50% were submitted to treatment with iron-based medication, 37.50% underwent transfusions and 12.50% of the patients underwent both types of treatment. The option of transfusion is mainly due to the severity of the hemorrhage and, consequently, the great loss of iron (BRAUNSTEIN, et al., 2019).

A study conducted by Luz, et al (2012), in patients with hemorrhages showed that, at first, patients were treated with medications that would not be iron-based, and in their minority in the most severe cases, patients were submitted to transfusions.

Jacober et al. (2007), studied patients who had neoplasms and found that the most frequent form of treatment were iron-based supplements, chemotherapy and radiotherapy. They mention that in these cases the treatment is more severe including anti-inflammatory medications, analgesics, opioids, nutritional supplements, drugs for gastrointestinal motility disorders, covering all palliative care in general, because chemotherapy and cytotoxic radiotherapy are not restricted only to malignant cells, but affect any cell with proliferative capacity including hematopoietic ones.

Patients with neoplasia and anemia admitted to the Hospital de Teixeira Soares-PR had anemia treated with medication in 40% of the cases, 30% received transfusion, 20% of the cases were not treated and 10% were submitted to medication and transfusion, as shown in Figure 5.

Figure 5: Relationship between medical diagnosis and treatment prescribed for anemic patients admitted to the Hospital de Teixeira Soares-Pr, from April 2020 to January 2021.
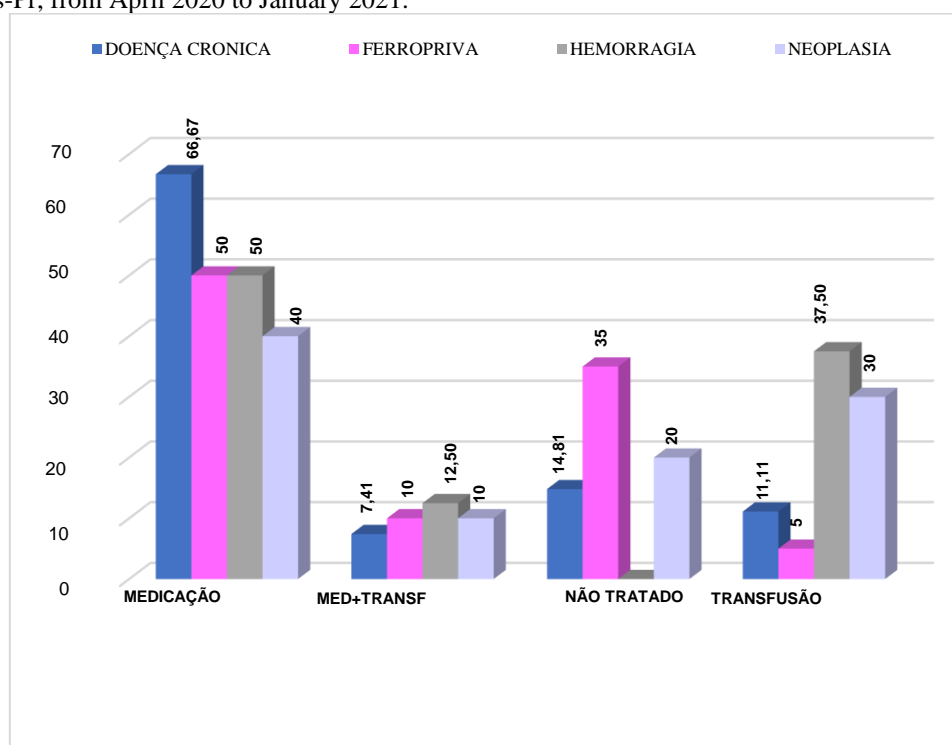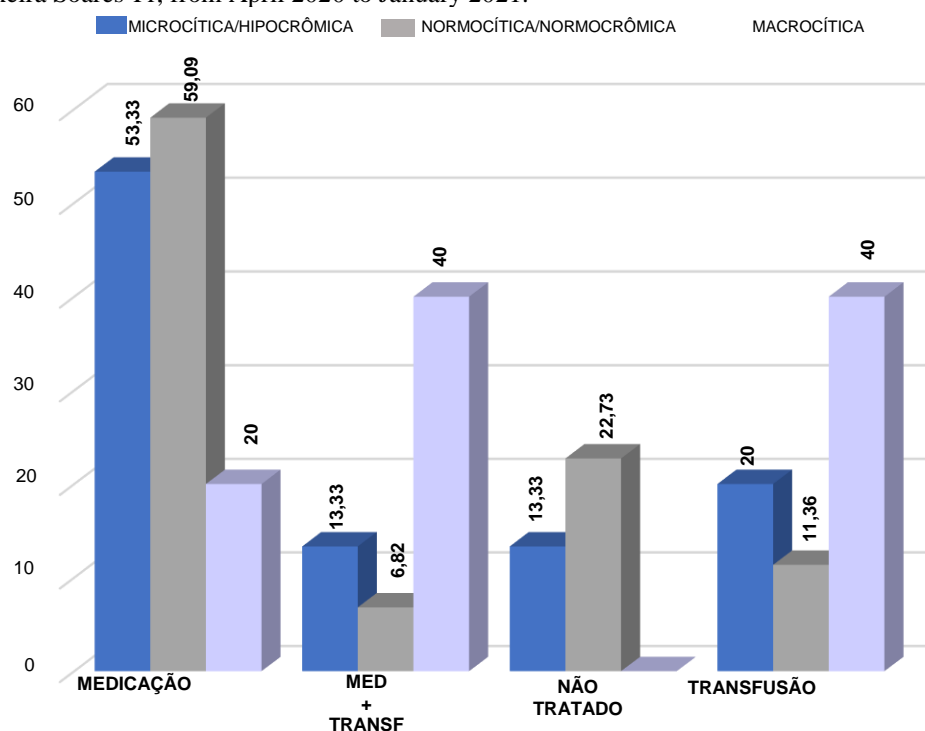

MED+TRANSF= medication + transfusion;
%= value in percentage;

Source: The authors.

Figure 6 shows that the morphological classification of anemias was related to the type of treatment that was prescribed for patients hospitalized in the period, and microcytic/hypochromic anemia was preferentially treated with medication in 53.33% of the cases, followed by blood transfusion in 20%. Normocytic/normochromic anemias were also treated with medication in 59.09% of them and 22.73% untreated. As for macrocytic anemias, 40% received medication and transfusion and another 40%, transfusion. The non-treatment of anemic patients may imply in a worsening of anemia or some underlying disease that has not been treated (OLIVEIRA, et al 2019; Smith, 2018).

Figure 6: Relationship of the morphological classification of anemia and treatment prescribed in the medical records at the Hospital de Teixeira Soares-Pr, from April 2020 to January 2021.

MED+TRANSF= medication + transfusion;
%= value in percentage;

Source: The authors.

However, choosing the effective treatment for anemic people is a great responsibility in hospitals, which must analyze the situation in which the patient is in order to carry out the appropriate treatment. Therefore, it is necessary to record in the medical records the patient's history to enable the diagnosis of the cause and stage of anemia (MOLIN, 2018).

In mild cases it is necessary to follow the primary treatment with the prescribed medications such as, for example, ferric hydroxide saccharate, ferrocarbonyl, ferrous sulfate, hormones, food supplements, vitamins, among other types of medications that are used in the treatment or only a good diet, diet restricted to iron and vitamins would be enough depending on the case (BRAZIL, 2014).

Cases of moderate and severe anemia that require transfusion must correctly follow the instructions established by the Collegiate Board Resolution (RDC), No. 214, published on February 7, 2018, by the National Health Surveillance Agency (ANVISA), which provides for Good Practices in Human Cells for patients who are subject to blood transfusions in Brazil (BRAZIL, 2018).

Matos et al. (2008), report that the differential diagnosis of anemias is of great clinical importance, because it offers the patient the best and most appropriate treatment. It also emphasizes that problems can occur due to the lack of dialogue between physicians in search of opinions that contribute to the correct diagnosis as well as between physician and patient. Often what occurs are

non-dialogued shift changes and different positions on treatments among the on-call workers, causing mismatches of conducts that disadvantage the patients.

Batista Filho et al. (2008), mentions that the processes of illness are uncertain and are not described correctly and are not yet investigated to the point of actually concluding the true diagnosis and an effective treatment, causing worsening in the patient's condition. Therefore, hospitals and their professionals should be attentive and investigate appropriately, making a complete anamnesis of the patient, in search of histories and data that can collaborate for the investigation of a supposed disease masked by anemia in order to choose the best treatment, reducing mortality rates and improving the patient's health, avoiding the worsening of the underlying disease.

4 FINAL CONSIDERATIONS

A Anemia may be a sign of some underlying disease that leads the individual to be hospitalized, implying a higher risk of mortality and increased hospitalization. Often the process of illness is unknown and may not even be described correctly in the medical records, not being investigated to the point of actually concluding the true diagnosis and effective treatment, causing worsening in the patient's condition. Problems can also occur due to the lack of dialogue between doctors and between doctors and other hospital professionals in search of opinions that contribute to the correct diagnosis.

A The contributions of this study were to show the high prevalence of anemias in hospitalized patients, and that the most frequent anemia was anemia of chronic disease, as well as to show the need for greater attention on the part of health professionals and hospital staff in general in the interpretation of these anemic cases, because anemias can occur as a basic disease or not and the incorrect diagnosis provides high costs and inadequate treatments. The correct interpretation of the blood count and its interaction with the patient's clinic collaborate greatly so that the disease does not evolve unfavorably, bringing positive impacts on the recovery of patients' health. In search of new opinions about a diagnosis, a pharmaceutical service with emphasis on laboratory interpretation of the results of the blood counts can contribute to the conduction of the clinical diagnosis. Further studies on the epidemiological profile of anemia in hospitals are needed to collaborate with the results found here.

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