

## Myelodisplastic syndrome: an experience report from nursing

*Síndrome mielodisplásico: un informe de experiencia de enfermería*

*Síndrome mielodisplásica: um relato de experiência a partir da enfermagem*

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### Abstract

It was aimed to report the therapeutic approach and nursing care provided during the hospitalization of a patient with the myelodisplastic syndrome. This is an experience report held in a southwest Goian hospital during February 2022. The choice of the subject was randomly and the experience occurred through four steps aimed at systematizing nursing care provided. In the first stage, the previous data, the physical and clinical picture of the patient, the observation of multiprofessional treatment and the elaboration of the nursing process were collected. Steps data were described in a pre-draft checklist containing the patient's sociodemographic variables and specific to the syndrome, their treatment and nursing care. The patient remained hospitalized for 20 days, in a semi-critical state, with multifaceted signs and symptoms, with severe infection and anemia. He had to use symptomatological pharmacological polytherapy, performed various laboratory and image tests and was supported by a multidisciplinary team. Nursing care occurred full-time in a systematized way. It was noticed that the syndrome is severe and complex, little known to health professionals and should be treated by specialized professionals.

**Descriptors:** Nursing; Hematopoese; Neoplasms; GATA2 Deficiency; Anemia.

### Resumén

Tenía como objetivo informar el enfoque terapéutico y la atención de enfermería proporcionada durante la hospitalización de un paciente con el síndrome mielodisplásico. Este es un informe de experiencia celebrado en un hospital del suroeste de Goian durante febrero de 2022. La elección del sujeto fue al azar y la experiencia ocurrió a través de cuatro pasos destinados a sistematizar la atención de enfermería brindada. En la primera etapa, se recopilaron los datos anteriores, la imagen física y clínica del paciente, la observación del tratamiento multiprofesional y la elaboración del proceso de enfermería. Los datos de pasos se describieron en una lista de verificación previa al draft que contiene las variables sociodemográficas del paciente y específicas del síndrome, su tratamiento y atención de enfermería. El paciente permaneció hospitalizado durante 20 días, en un estado semicrítico, con signos y síntomas multifacéticos, con infección severa y anemia. Tuvo que usar politerapia farmacológica sintomatológica, realizó varias pruebas de laboratorio e imágenes y fue apoyado por un equipo multidisciplinario. La atención de enfermería ocurrió a tiempo completo de forma sistematizada. Se notó que el síndrome es severo y complejo, poco conocido por los profesionales de la salud y debe ser tratado por profesionales especializados.

**Descriptores:** Enfermería; Hematopoese; Neoplasias; Deficiencia de GATA2; Anemia.

### Resumo

Objetivou-se relatar a abordagem terapêutica e os cuidados de enfermagem prestados durante a internação de um paciente acometido pela Síndrome Mielodisplásica. Trata-se de um relato de experiência realizada em um hospital do sudoeste goiano durante o mês de fevereiro de 2022. A escolha do sujeito foi de forma aleatória e a experiência ocorreu com por meio de quatro etapas visando a Sistematização da Assistência de Enfermagem prestada. Na primeira etapa foram coletadas os dados pregressos, a avaliação física e do quadro clínico do paciente, a observação do tratamento multiprofissional e a elaboração do processo de enfermagem. Os dados das etapas foram descritos em um checklist pré-elaborado contendo a variáveis sociodemográficas do paciente e específicas quanto a síndrome, seu tratamento e a assistência de enfermagem. O paciente permaneceu internado durante 20 dias, em estado semicrítico, com sinais e sintomas multifacetados, com quadro de infecção grave e anemia. Precisou utilizar politerapia farmacológica sintomatológica, realizou diversos exames laboratoriais e de imagem e contou com suporte de uma equipe multidisciplinar. A assistência de enfermagem ocorreu em tempo integral de forma sistematizada. Percebeu-se que a síndrome é grave e complexa, pouco conhecida pelos profissionais de saúde e que deveria ser tratada por profissionais especializados.

**Descritores:** Enfermagem; Hematopoese; Neoplasias; Deficiência de GATA2; Anemia.



## Introduction

Myelodysplastic Syndrome (MDS) is a clonal disease with distinct clinical and laboratory characteristics that occur as a result of hematopoietic neoplasms of the bone marrow, mostly diagnosed in elderly patients aged between 70 and 75 years<sup>1</sup>. It usually manifests uni- or multi-lineage dysplasia, with a risk of progression to acute leukemia, peripheral blood cytopenia and hypercellular bone marrow<sup>2</sup>.

Characterized by ineffective hematopoiesis and peripheral cytopenias, with a vast clinical picture and variable risk where 30 to 40% of patients progress to acute myeloid leukemia (AML)<sup>3</sup>. It is estimated that the incidence of MDS is higher among patients between 70 and 75 years of age, with an incidence of 2 to 12 per 1,000 inhabitants, with a projection of possible increases due to the increase in the elderly population<sup>1</sup>. There is evidence that 86.4% of patients are diagnosed with MDS after 60 years of age and that half of these are older than 75 years<sup>4</sup>. In the United States, the annual incidence is 3.4 cases per 100,000 inhabitants<sup>5</sup>. In Brazil, however, there is an incidence of 0.1 per 100,000 inhabitants in people<sup>6</sup>.

Etiologically it is divided into two groups, the primary, which corresponds to 85% to 90% of cases, where the cause is unknown or when there is no significant correlation between the disease and some of the carrier's predispositions. Or it can be classified as secondary, which corresponds to between 10% and 15% of cases and is associated with a history of radiotherapy or chemotherapy treatments or exposure to environmental toxic agents, such as: solvents, pesticides and benzene or smokers<sup>7</sup>.

The symptoms of MDS are nonspecific and may range from mild to severe, with predominance of signs and symptoms of anemia (pallor of the skin and mucous membranes), fatigue, lack of appetite, headache, vertigo, dyspnea, angina, followed by infectious or hemorrhagic complications<sup>8</sup>.

The diagnosis of the syndrome is based on clinical history and laboratory tests, including: flow cytometry, morphological analysis of blood smears, evaluation of dysplasia and bone marrow biopsy<sup>4</sup>. All these exams also aim to identify your type. According to the World Health Organization (WHO) there are eight types: Refractory anemia (RA); Refractory anemia with ringed sideroblasts (ARSA); Refractory cytopenia with dysplasia in one lineage (CRDU); Refractory cytopenia with multilineage dysplasia (CRDM); Refractory anemia with excess blasts 1 (AREB-1); Refractory anemia with excess blasts 2 (AREB-2); Unclassified MDS and MDS associated with isolated del(5q)<sup>9</sup>.

Therapeutic performance since 2004, after approval by the FDA (US Food and Drug Administration) consists of the use of drugs decitabine, azacitidine and lenalidomide, together with the use of erythropoietin, granulocyte colony-stimulating factor (G-CSF) and transplantation bone marrow<sup>6</sup>. The treatment decision should take into account the score of the International Prognostic Classification System (IPSS-R), which aims to predict the risk of leukemic transformation and also estimate the survival of each patient<sup>7</sup>.

Another method used to treat MDS, but with

several risks is chemotherapy, especially in cases where the disease is progressive. However, chemotherapy is systemic and can also affect healthy cells, causing side effects and/or aggravating the patient's clinical condition<sup>1</sup>.

As a result of the plurality of the clinical picture presented by patients, health professionals need to act with accuracy, individualizing knowledge, the management and treatment of affected patients are inter and multidisciplinary and meet the specific needs of each one. The nurse, as a member of the teams, participates in all phases and stages of the management and treatment of these patients through the care provided. From reception, through guidance and health education, in the diagnostic process to treatment, the nurse is present and acting, mainly based on the Systematization of Nursing Care (SAE). Also managing all care provided and ensuring safe and quality care.

Therefore, the objective of this work is to report the therapeutic approach and the nursing care provided during the hospitalization of a patient affected by MDS.

## Methodology

This is a descriptive research of the experience report type, carried out in a public hospital in the southwest of Goiás during the month of February 2022. The report was based on the experience of two nursing students during the supervised internship of the Undergraduate Nursing course.

The approach to the theme took place during the theoretical-practical disciplines and the subject was chosen randomly and for convenience, since the syndrome is rare. The experience took place with the hospitalized patient, where nursing care was provided to the person in a critical health situation in an integral way. In addition to the assistance provided, observation, dialogue, document consultation and transcription composed the methodological instruments of this report.

The work was divided into four stages aiming at the SAE provided to the patient facing MDS. In the first stage, previous data were identified directly and indirectly. Afterwards, a physical evaluation was carried out and the clinical condition of the patient was observed. In a third phase, information on medications, laboratory tests and multidisciplinary assistance was observed and consulted. The fourth stage involved the elaboration and observation of diagnoses, prescriptions, interventions and daily nursing evolutions. These steps were recorded throughout the experience for the purpose of describing this report.

It was judged that there was no need for approval by the Research Ethics Committee given the nature of the study, which represents a descriptive and narrative of the experience lived in the management of a case related to nursing practice. However, it is noteworthy that no data that could reveal the identification of the patient or the institution where he was hospitalized was mentioned in respect to the ethical and legal aspects of research with human beings. Also, there was a request via the Free and Informed Consent Form to the patient to allow the description of the experience to occur and authorization by the Institution through the Term of Consent where the authors took responsibility and committed themselves



declaring that the information collected would be unique and exclusively for academic-scientific purposes.

### Experience Report

The experience was lived within one of the internship fields of the authors' nursing course. Contact with the patient took place daily, from Monday to Friday from 1:00 pm to 5:00 pm, during the first semester of 2022, as established by the course internship schedule.

The care provided to the patient through nursing care, which includes the pre-established curricular training, necessary and expected in the curricular internship, associated with the observation of all procedures and care performed by the team that was directly in contact with the patient, corroborated with the formation of experience. The daily dialogue with the patient and the health team, through the exchange of information, as well as the consultation of the records made about the patient, his clinical condition and his treatment, completed the basis of this experience.

In order to meet the methodological criteria in the light of nursing, it was decided to design the experience through the stages that characterize the nursing process, being represented here by the previous history, the current history (with the physical examinations, the evolution of the clinical examination, tests performed and drugs used), nursing diagnoses, nursing prescriptions and nursing interventions regarding patients with MDS.

### Past History

The patient in the experiment was male and reported that he was 56 years old, Brazilian, married, Catholic, without children, who had incomplete elementary school, who was a smoker and alcoholic from 18 to 53 years old, with suspension of habits after diagnosis of MDS. He reported that he worked as a general service assistant with exposure to pesticides for years as a young man, using the PFF 2 mask on a daily basis only as Personal Protective Equipment (PPE). Recently he was working as a machine operator in an agricultural region, but he left as a result of the disease. Confirmed family history of cancer (father has prostate carcinoma and paternal grandmother had oropharyngeal cancer and brother is also affected by the syndrome).

He reported that he discovered MDS in 2019 when he began to experience recurrent asthenia and lack of appetite that did not resolve naturally or even with conservative treatment. He also reported that he underwent several laboratory tests and, due to the worsening of the clinical picture, the diagnostic hypothesis of MDS was raised, which in the following months was confirmed in a city with greater medical and hospital resources, also located in the southwest of Goiás by a hematologist. In addition to MDS, he informed that he was also diagnosed at the time with Type 2 Diabetes Mellitus, which is under medical follow-up and using metformin 500mg 2 pills a day. Over the three years of living with MDS, the patient reported that he has been accumulating a history of recurrent hospitalizations with more than 72 transfusions, getting to be transfused up to three times a month. He also informed that he is on the

waiting list awaiting a bone marrow transplant.

The MDS can be considered as secondary, which corresponds to between 10% and 15% of cases. In this case, the causes may be due to exposure to smoking and environmental toxic agents such as pesticides, solvents and benzene<sup>7</sup>.

At first, the intensity of symptoms is variable and may be asymptomatic, being discovered in 20% of cases with blood counts performed by other types of investigation. Isolated anemia is mainly present in adults, with asthenia and dyspnea on exertion. In other cases, the condition can be unexpected and aggressive, usually followed by an increased number of blasts, a characteristic of the disease<sup>9</sup>.

In the general context, the diagnosis of MDS involves some difficulties. In many cases, a protocol that excludes other causes of dysplasia and/or cytopenia should be performed, such as iron, folic acid and vitamin B12 deficiency; blood loss, hypothyroidism, alcohol consumption, copper deficiency, concomitant medication and chronic infections such as hepatitis B and C virus and human immunodeficiency virus and investigate renal function<sup>10</sup>.

As a result of the non-specificity of the signs and symptoms, the diagnosis of MDS is one of the most complicated among myeloid neoplasms<sup>5</sup>. It is performed through analysis of peripheral blood, bone marrow aspirate, cytogenetic evaluation and bone biopsy<sup>10</sup>. Due to the difficulty and, consequently, delay in diagnosis, the disease ends up evolving and bringing several complications to the patient<sup>4</sup>.

### Current History

According to information collected from the patient and other health professionals, on January 30, 2022, he was admitted to an Emergency Care Unit (UPA) in the city where he lived with lower abdominal pain associated with hypotension. Initially, due to the medical diagnostic hypothesis on admission, he was treated as a septic condition with a focus to be defined. Still in the UPA, laboratory blood tests (hemogram) were performed, where bicytopenia and thrombocytopenia were evidenced. At the same time, her condition worsened and hemodynamically unstable, requiring the start of vasoactive drug use (VAD) and norepinephrine hemitartrate, infused in a continuous infusion pump (BIC) via central venous access. Due to the worsening of his clinical condition, the patient reports that he was then regulated via the Goiás State Regulation Center (CRE) to an Intensive Care Unit (ICU) on February 1st, 2022.

At the time of admission, it was identified that his admission to the ICU was due to sepsis, that his transport was carried out by the Advanced Support Unit (USA) of the Mobile Emergency Service (SAMU) and occurred at 1:45 pm. On admission, the patient was conscious, oriented, verbalizing, flushed, hydrated, feverish, acyanotic, eupneic, normotensive, normocardic, with a central venous catheter in the right subclavian vein, using noradrenaline via BIC. Flat abdomen, painful on deep and superficial palpation in the iliac fossa, with diuresis present in the CVD collection bag (indwelling bladder catheter), with edema in the lower limbs



and with a decrease in motor strength.

After his admission to the hospital, it was later verified that the patient remained hospitalized for 26 days, and, of this period, 20 days he was hospitalized in the ICU and, later, 06 days hospitalized in a general ward. The report of the experience was limited to the hospitalization in the ICU where the internship days took place and the experience through contact with the patient.

The patient's clinical evolution was evaluated,

observed and recorded daily, through nursing evolutions, prescribed and administered medications and through requested and performed exams. It was decided to synthesize and group these data given the similarities presented in D0 (admission), D1 to D7 (1st to 7th day of hospitalization), D8 to D14 (8th to 14th day of hospitalization), D15 to D19 (15th to 19th day of hospitalization) and D20 (discharge from the unit) - Chart 1.

**Chart 1.** Clinical evolution of the patient with myelodysplastic syndrome. Sudoeste Goiano, GO, Brazil, 2022

Days	Clinical evolution	Physical exam	Exams performed	Prescribed and used drugs
<b>D0</b>	Upon admission, it was identified that the patient was seen on 01/30/22 at the UPA with pain in the lower abdomen associated with hypotension. He was initially treated with a septic condition with a focus to be defined and laboratory tests showing bicytopenia. He evolved with unstable hemodynamic conditions, requiring the use of noradrenaline, when a vacancy in the ICU was requested. He was admitted to the unit, brought from SAMU, accompanied by a doctor and a nurse. He arrived on spontaneous ventilation with a nasal catheter at 3l min/ (removed on admission). Pale, slightly diminished perfusion, conscious and oriented, eupneic and febrile (Tax 38.50). BP: 70x40 mmHg without using VAD, HR: 87 bpm.	Upon performing the physical examination, it was identified that the patient had Glasgow 15, isochoric and photoreactive pupils. Pale, tired and dyspneic on exertion, AR: MV present and no RA. ACV: RCR BNF EM 2T, painful abdomen on deep palpation throughout the lower region, apparently without palpable masses. RHA+. Denies diarrhea.	The request and performance of the following tests by the patient was identified: lower abdominal ultrasound, arterial blood gas analysis, chest X-ray and electrocardiogram.	On that day of hospitalization, the medications prescribed and administered were: ciprofloxacin hydrochloride (D1), metronidazole (D1), regular insulin, glucose 50% (y/n), ondansetron hydrochloride (y/n), sodium dipyrone (y/n), enoxaparin sodium, norepinephrine hemitartrate, hydrocortisone, omeprazole, plain ringer, bromopride (y/n), 0.9% sodium chloride.
<b>D1 to D7</b>	The patient was evaluated in bed over the days and was hemodynamically stable with the use of norepinephrine hemitartrate (starting at 10 ml/h (D1) and 2ml/h (D7) in BIC and via stroke. He used CVD (with dark yellow diuresis), he was dyspneic on exertion, had no appetite and was unwell. -8 pain scale) in lower quadrants. He reported throbbing holocranial headache when applying medication (which improved with the use of analgesics). He denied diarrhea, nausea, vomiting and dysuria. He reported preserved sleep, diuresis and present eliminations. He reported difficult acceptance of diet and water intake and who made an effort to eat. Water balance was positive (on average 460 ml/day). He had recurrent fever.	When performing the physical examination over the course of days, it was identified that the patient had Glasgow 15, isochoric pupils and photoreagents. REG, AAA, bleached and hydrated. SSVV oscillating: HR 69-92 bpm.; BP: 80x69-138x64 mmHg; FR: 10-22 bpm: Tax: 36°-38.7°C; Sat O <sup>2</sup> : 94-100%. ACV showed: CPR in 2T, BNF with no audible murmurs. AR: MVAU without RA. Abdomen: Flat, RH+, normotympanic, flaccid, painful on deep palpation of the right and left iliac fossa with presence of resistance. Blumberg negative and Murphy negative. LL: no edema.	The request and performance of the following tests by the patient over the days was identified: coagulogram, amylase, gamma GT, TGO, TGP, PCR, creatinine, urea, arterial blood gases, complete blood count, EAS, uroculture, blood culture.	During these days of hospitalization, the medications prescribed and administered were: the cycle of ciprofloxacin and metronidazole hydrochloride ended, the cycle of cefepime hydrochloride was started and interrupted, the cycle of piperacillin sodium/tazobactam sodium, levofloxacin and vancomycin was started. Simple ringer, omeprazole, hydrocortisone, norepinephrine hemitartrate, enoxaparin sodium, sodium dipyrone, ondansetron hydrochloride (s/n), glucose 50% (s/n), regular insulin.
<b>D8 to D14</b>	During the second week of hospitalization, the patient, assessed in bed, was hemodynamically stable with the use of norepinephrine hemitartrate, ending its use at 1ml/h on D10) in BIC and via stroke. He remained on CVD (with diuresis oscillating from dark yellow to light yellow), remained dyspneic on exertion, inappetence and indisposed. Respiratory rate oscillated between 14 and 20 rpm (while breathing room air, and saturation 96-100 spO <sub>2</sub> ). Abdominal pain and headache ceased. He had unstable blood glucose (44 to 389 mg/dl, with corrections of glucose and regular insulin). He presented pictures of insomnia. He denied diarrhea, nausea, vomiting and dysuria. He reported preserved sleep, diuresis	During the physical examination during these days, it was identified that the patient presented Glasgow 15, isochoric pupils and photoreagents. REG, AAA, bleached and hydrated. SSVV oscillating: HR 70-92 bpm.; BP: 85x72-144x84 mmHg; FR: 14-20 rpm: Tax: 36.3°-38.1°C; Sat O <sup>2</sup> : 94-100%. ACV showed: CPR in 2T, BNF with no audible murmurs. AR: MVAU without RA. Abdomen: Flat, RH+, normotympanic, flaccid, painless on superficial and deep palpation. Blumberg negative and Murphy negative. No palpable masses	It was identified the request and performance of the following tests by the patient over the days: computed tomography of the skull, coagulogram, amylase, gamma GT, TGO, CKD EPI, potassium, sodium, TGP, creatinine, urea, arterial blood gases, complete blood count, EAS, type 1 urine.	During these days of hospitalization, the medications prescribed and administered were: continuation of the cycle of sodium piperacillin/sodium tazobactam, levofloxacin and vancomycin. Simple ringer, omeprazole, hydrocortisone, norepinephrine hemitartrate, enoxaparin sodium, sodium dipyrone, ondansetron hydrochloride (s/n), glucose 50% (s/n), regular insulin.



	and present eliminations. He continued to report difficult acceptance of diet and fluid intake and that he struggled to eat. Water balance oscillated between positive (average 250 ml/day) and negative (average 360ml/day). Had recurrent fever up to D13.	or VCM, no signs of peritonitis. Lower limbs had days with edema ranging from 1+ to 3+/4 pitting +, pedal and tibial pulses palpable and symmetrical, free calves, painless on palpation.		
<b>D15 to D19</b>	During the third week of hospitalization, the patient, assessed in bed, was hemodynamically stable without the use of VAD. He maintained stroke and CVD (with pale yellow diuresis), showed improvement in dyspnea on minimal exertion. He maintained breathing room air, and saturation 96-100 spO <sub>2</sub> ). Showed glycemic control. Improved sleep pattern. He continued without diarrhea, nausea, vomiting and dysuria. He began to have good acceptance of the diet and fluid intake. Adequate water balance and no episodes of fever.	Physical examinations during the third week of hospitalization revealed that the patient presented Glasgow 15, isochoric and photoreactive pupils. BEG, AAA, stained and hydrated. SSVV oscillating: HR 65-89 bpm,; BP: 85x70-141x87 mmHg; FR: 14-19 bpm; Tax: 36.2°-37.4°C; Sat O <sub>2</sub> : 94-100%. ACV showed: CPR in 2T, BNF with no audible murmurs. AR: MVAU without RA. Abdomen: Flat, RH+, normotympanic, flat, painless on superficial and deep palpation. Blumberg negative and Murphy negative. No palpable masses or VCM, no signs of peritonitis. Lower limbs presented days with 1+/4 pitting edema, pedal and tibial pulses palpable and symmetrical, calves free, painless on palpation.	The request and performance of the following tests by the patient over the days was identified: coagulogram, amylase, gamma GT, TGO, CKD EPI, potassium, sodium, TGP, creatinine, urea, arterial blood gases, complete blood count, type 1 urine.	During these days of hospitalization, the medications prescribed and administered were: continuation of the cycle of sodium piperacillin/sodium tazobactam and vancomycin. Completion of the ciprofloxacin cycle. Simple ringer, omeprazole, hydrocortisone, norepinephrine hemitartrate, enoxaparin sodium, sodium dipyrone, ondansetron hydrochloride (s/n), glucose 50% (s/n), regular insulin.
<b>D20</b>	After evaluation, an improvement was identified in the patient's clinical condition, including his report of improvement. There were also reports of nocturnal awakenings due to nocturia, good water and food intake, diuresis and diaphoresis present and unchanged. He reported bilateral mmii edema, with improvement when elevating mmii, chronic (SIC). Furthermore, he has no other complaints..	Upon performing the physical examination, it was identified that the patient had Glasgow 15, isochoric and photoreactive pupils. BEG, AAA, Tax: 35.8°C, pale. BP: 130x80mmHg. ACV: CPR in 2T, BNF without audible murmurs, HR: 72bpm. AR: MVAU, without RA. FR: 11irpm; Sat O <sub>2</sub> : 95%. ABD: semiglobose, RHA present, flaccid, painless on superficial and deep palpation. Absence of palpable masses or VCM. LL: 2+/4 edema, positive pitting, palpable and symmetric pedal and tibial pulses, free calves, painless on palpation.	The request and performance of the following tests by the patient was identified: coagulogram, amylase, gamma GT, TGO, TGP, CRP, creatinine, urea, arterial blood gases, complete blood count.	On that day of hospitalization, the medications prescribed and administered were: completion of the cycle of sodium piperacillin/sodium tazobactam (D14), vancomycin (D14), regular insulin, NPH insulin, glucose 50% (y/n), sodium dipyrone (y/n), ondansetron hydrochloride (s/n), omeprazole, simvastatin, furosemide, enoxaparin sodium.

As noted and described, the patient's clinical picture and evolution were quite irregular due to ineffective hematopoiesis. We highlight the infectious condition, which was persistent and difficult to treat, together with erythrocytopenia, secondary to MDS. Associated, they led to arterial hypotension (requiring the use of vasoactive drugs), bradycardia, lack of appetite, lower limb edema, headache, insomnia, emesis, asthenia and anemia (requiring transfusions of blood components, a total of two bags).

It was observed that several tests were requested and performed in order to assess and monitor the patient's conditions and clinical status. Among these tests, daily complete blood count, amylase, gamma GT, TGO, TGP, CRP, creatinine and urea were performed. In addition, arterial blood gas analysis, ultrasonography, computed tomography, sodium, potassium and urine tests were performed.

During hospitalization, the use of various

medications by the patient and of various pharmacological groups was evidenced, in order to meet the needs presented. Among the most used drug classes were identified: antibiotics (mainly), anxiolytics, analgesics, antipyretics, antithrombotics, diuretics, anti-inflammatories, hypoglycemics, antidiabetics, antacids, anticoagulants, antiemetics, bronchodilators, statins and vasoactive drugs.

Because the place where the patient was hospitalized was a unit for the hospitalization of critically ill patients with different etiologies, their treatment was provided by general practitioners. It was noticed that the treatment was symptomatic and not specific for MDS, which resulted in improvement of the patient, however, it is believed that in addition to not curing the disease, treatment that is symptomatic alone can worsen the prognosis.

In a broad view, the treatment of MDS can and should be aimed at relieving symptoms, but it is important



to establish and treat cytopenias, reduce dependency on blood transfusions, delay the progression of the syndrome to acute myeloid leukemia and improve the quality of care. patient's life<sup>11</sup>.

The management of patients undergoing treatment for MDS encompasses some factors that must be taken into account, including: age, presence of comorbidities and some intensive therapeutic approaches aimed at the primary cause<sup>5</sup>.

Administration of erythropoietin and granulocyte or granulocyte and monocyte growth factors is necessary for patients with low blood cell counts. Erythropoietin is a hormone produced in the kidneys that stimulates the production of red blood cells and may decrease blood transfusion needs since most patients with MDS are anemic. This medication may bring about an improvement in survival<sup>1</sup>.

In patients with low white blood cell counts who develop infections, granulocyte colony-stimulating factor (a hormone that increases white blood cell production) and granulocyte and monocyte colony-stimulating factor are options to use<sup>1</sup>.

Hematopoietic Stem Cell Transplantation (HSCT) is the only curative option for MDS, but some patients cannot undergo this procedure. In this case, hypomethylating agents such as azacitidine and decitabine are the first treatment options for cases at higher risk or in progression. When compared with supportive therapy, these drugs promote a better hematological response<sup>5</sup>.

Chemotherapy is also a treatment option for MDS in progressive cases of the disease. This treatment must be carefully applied, analyzing the patient's clinical condition, age, severity of disease manifestations and the pace of evolution. However, chemotherapy also affects healthy cells, causing side effects. The intensity of these will depend on the patient's condition, the type of chemotherapy drug and the patient's own response to treatment.

In the stages in which MDS is advanced, with the inevitable progression to leukemia, it may be necessary to use cytotoxic chemotherapy and bone marrow transplantation. All these types of treatment are being evaluated in clinical protocols in order to determine risks, benefits, terms of quality of life and survival<sup>1</sup>.

Concomitant with the medical treatment, throughout the hospitalization, it was noticed that the patient received multi and interdisciplinary treatment and support. The nursing team, together with the physiotherapy, nutrition, pharmacy and psychology services, provided direct and daily assistance to the patient, corroborating,

Given the specificity and complexity involved in the treatment of MDS, the best, most appropriate and safest option is for it to be carried out in units and by specialized professionals, which, in addition to momentarily improving the patient, could lead to an improvement in the quality of life and even a cure. During hospitalization in the unit, it was verified that an attempt was made to regulate a specialized service via CRE in Goiás, but at some point this regulation was interrupted and it was not possible to identify exactly when or why.

As for Diabetes Mellitus, the patient's associated comorbidity, it is known that this pathology triggers several health problems and when associated with other comorbidities, it can worsen other conditions. During the experience, the glycemic condition was controlled by the use of routine hypoglycemic agents. Due to the patient's recurrent lack of appetite, episodes of hypoglycemia were triggered and promptly corrected with the use of 50% glucose.

After 20 days of hospitalization in the ICU, the patient showed improvement in the infectious condition and anemia and was discharged from the unit by a multidisciplinary team. According to institutional protocol, after being discharged from the unit, he was transferred to the medical clinic of the same institution, where he would remain hospitalized until hospital discharge.

**Systematization of Nursing Care**

During the experience, SAE occurred during the patient's hospitalization and was carried out by the research authors under the supervision of the preceptor nurse in the field and by the unit's nursing team and was carried out through the Nursing Process (NP). It is observed that on the 8th and 9th day of hospitalization of the patient the SAE was not performed. Because they were days of the so-called weekends, where the curricular internship does not take place, it was not possible to identify the reason why it was carried out.

The NP was carried out daily and planned considering the patient's clinical condition and basic human needs, therefore, care was considered as semi-intensive until the 18th day of hospitalization, when then it presented improvement, starting to be considered as a patient of minimal care . From the evaluation made and the identification of the nursing problems, the nursing diagnoses were raised and the nursing interventions were prescribed (Chart 2).

**Chart 2.** Diagnoses and nursing prescriptions performed for patients with MDS. Sudoeste Goiano, GO, Brazil, 2022

Nursing diagnoses	Nursing prescriptions	Prescribed days
Self-care deficit	Forward to chair bath; offer assistance until the patient is fully able to take on self-care; Perform oral hygiene with antiseptic or chlorhexidine 3x/day; Offer the prescribed diet, communicate and record any interurrences during perfection.	D1, D2, D3, D4, D5, D6, D7, D10, D11, D12, D13, D14, D15, D16, D17, D18 and D19.
Risk of infection	Supervise patency of venous and arterial catheters; Observe, communicate and record phlogistic signs in venous access, insertion of drains and surgical incisions.	D1, D2, D3, D4, D7, D10, D12, D14, D16, D17, D18 and D19.



Risk of body temperature imbalance	Check and record the temperature every 2/2h; Observe, communicate and note the signs of hypothermia or hyperthermia; Apply cold compresses to temporal, axillary and inguinal regions.	D1, D2, D4, D7, D10, D12, D14, D15, D16, D17 and D18.
Acute pain	Assess and record pain and its characteristics, intensity, location, frequency and duration; Explain to the patient about the invasive procedures to be performed.	D1, D2, D3, D4, D7, D10, D12, D14 and D15.
Risk of impaired skin integrity	Observe and change diapers and sheets in case of moisture; Hydrate the skin with sunflower oil 3x/day; Observe and change diapers and sheets in case of moisture.	D3, D4, D5, D6, D7, D10, D13 and D14.
Risk of fluid volume imbalance	Observe, report and record the presence of nausea and vomiting, bowel movements and decreased diuresis; Carry out strict water control.	D3, D4, D5, D6, D10, D12, D14, D15 and D19.
Impaired physical mobility	Keep bed rails high and wheels locked; Perform passive movement of SM and LL, if there is no medical contraindication; Keep bed rails high and wheels locked; Observe, report, and record episodes of confusion and psychomotor agitation.	D4, D7 and D10.
Impaired spontaneous ventilation	Keep the headboard elevated at 35/45 degrees; Observe, report and record changes in breathing pattern, oxygen saturation, level of consciousness, cyanosis of extremities and dizziness.	D7 and D14.

Throughout the experience, nursing interventions, meeting the prescriptions made by the SAE, the multidisciplinary prescriptions and the institution's routines were performed by the entire nursing team. Among the interventions carried out by the nurses, it was verified: evaluation and multiparametric monitoring; preparation and referral for imaging tests; collection of arterial blood gases; monitoring of test results; control of capillary blood glucose and body temperature; implementation/ assistance/ monitoring/ control of bladder, central and peripheral venous catheters; blood transfusion request/double-checking and monitoring; application of Glasgow-P, Morse, Braden, verbal pain scales.

Nurses also performed water balance closure per shift and daily; scheduling for medication administration; application of clinical protocols and procedures as needed; supervision of the care provided by the 24-hour team of nursing technicians; application and control of quality indicators; offering comfort and carrying out health education with the patient. It is noteworthy that both admission and hospital discharge and the passage of a multiprofessional visit had the participation of nurses.

The technical nursing team assisted and provided nursing care throughout the patient's hospitalization process. From bed preparation to discharge, uninterrupted care was provided, namely: monitoring and measuring vital signs every 2 hours; offer and assistance of oral diet therapy; referral and assistance for body hygiene; preparation and administration of prescribed drugs intravenously, intramuscularly, subcutaneously, inhaled and orally; participation in double checking and administration of blood transfusion; preparation and referral for imaging tests; collection of material for laboratory tests; catheter care; performing an electrocardiogram; assistance in carrying out nursing procedures and the multidisciplinary team.

It should be noted that all assistance planned and

carried out, in accordance with the Resolution of the Federal Nursing Council (COFEN) No. 564/2017<sup>12</sup>, as well as the other legal requirements of the other categories that provided patient care, were recorded in the documents that made up the patient's medical record by the entire nursing team.

The systematization of the nursing work process is an essential scientific and technological method to direct the actions of the nursing team. This organized method requires knowledge and practices, which, when properly selected by the nurse, provide safe care that meets the needs of their patients<sup>13</sup>.

The COFEN, through Resolution No. 358/2009<sup>14</sup>, deals with the Systematization of Nursing Care (SAE) and the implementation of the NP. This must be carried out in all public or private environments in which nursing care takes place. The SAE is considered a private activity of the nurse and must be operationalized through the NP<sup>15</sup>.

The NP is organized through five distinct phases, however interrelated and interdependent, so that the nurse can carry out, through critical-reflective thinking, the investigation and determine the care needs, the nursing diagnoses (for problems of potential or actual health), identify expected outcomes, plan and implement care, and evaluate outcomes. Enabling nurses to evaluate their care practice<sup>16</sup>.

Within the nursing care provided, it is up to the nurse to direct, plan, organize, coordinate, execute and evaluate nursing care services, in addition to managerial duties and attributions. The nursing technician, on the other hand, is responsible for assisting the nurse and carrying out Nursing assistance activities, except for those exclusive to the Nurse<sup>17,18</sup>.

### Final Considerations

The MDS constitutes a group of blood disorders characterized by cytopenias. It is a serious and complex

disease, with multifaceted and difficult-to-manage symptoms that, when not diagnosed and, especially, when not treated correctly, have a poor prognosis, which can progress to acute leukemia and even death of the patient.

The experience revealed that the syndrome is still little known by health professionals, lacking publications and evidence that help to disseminate and identify the best practices in the face of identified cases. Because it depends on specialists to diagnose and treat MDS, diagnoses occur late and, even when diagnosed, treatments end up taking place in small health centers and by general practitioners, which results in only symptomatic approaches.

#### Myelodysplastic syndrome: an experience report from nursing

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Once not treated correctly, it was noticed that MDS leads to successive infections and anemia and, consequently, the need for recurrent hospitalizations with the use of various medications and invasive procedures that, in addition to reducing the patient's quality of life, burdens the health systems.

The experience showed that, even with the lack of knowledge and limitations, health professionals, among them nursing professionals, have made an effort in the search for information and in an attempt to offer the best possible assistance.

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