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SIGNS AND SYMPTOMS AND TREATMENT OF CHILDHOOD ACUTE MYELOID LEUKEMIA

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Abstract: This paper deals with the signs, symptoms and treatment of acute myeloid leukemia in children, emphasizing the duties of the nursing professional, acting in need of assistance, understanding both the pathology and the comprehensive care of the pediatric patient, as it interferes in the performance of nursing care, imaging tests, assignments and definitive treatment in its acute form, in the face of these needs of the body itself. The aim is to look at the functions of nursing in this pathology, a condition that directly and indirectly affects the lives of children and their families. It should be noted that once a pediatric patient falls ill, family members also suffer from a state of stress. In view of this, nursing provides scientific, ethical, moral and humanitarian support for detecting the symptoms and acute treatment of myeloid leukemia.
Keywords: Nursing Care, Childhood Acute Myeloid Leukemia, Leukemia Treatment.

INTRODUCTION

This work deals with the signs, symptoms and treatment of acute myeloid leukemia in children, emphasizing the duties of the nursing professional, acting in the need for assistance, understanding both the pathology and the comprehensive care of the pediatric patient, since it interferes in the performance of nursing care, imaging tests, assignments and definitive treatment in its acute form, in the face of these needs of the organism itself.

In view of the methodology approached and discussed, the purpose of this bibliographic study is to highlight the humanitarian, ethical-moral, scientific and supported values of nursing in the signs-symptoms and treatment of acute myeloid leukemia in children. It is a group of hematological neoplasms that originate from clonal transformation, occurring at the beginning of the acquisition of chromosome rearrangements and genetic mutations.

Articles published in the years 2020 were reviewed, found through various electronic address platforms, such as: Google Scholar, Uri Magazine, Ufvjm Collection, SciELO Brazil, Ufrpe Journals, Theses and others. However, the aim of this work is to actively search for relevant information with a purpose, where it resembles the objects of study and information for a better understanding of the article's proposal. Based on the keywords: Nursing Care, Childhood Acute Myeloid Leukemia, Leukemia Treatment.

RESULTS AND DISCUSSION

CONCEPTS AND BACKGROUND OF CHILDHOOD ACUTE MYELOID LEUKEMIA

Leukemia is a malignant pathology in which the white blood cells themselves, or also called leukocytes, have as their main characteristic the accumulation of young cells, i.e. blastic cells, in an abnormal way in the bone marrow. The disease basically affects normal blood cells (SANTOS, 2020).

Brunner and Suddarth (2005) state that myeloid leukemia originates from a mutation in the stem cell, when it changes to myeloid. Normal myeloid cells continue to be produced, but priority is given to immature forms, i.e. new cells, also known as blasts. As a result, there are numerous cell types in the blood, from blast cells to mature neutrophils. Cell multiplication also occurs in the liver and spleen, through extra-medullary hematopoiesis, resulting in an increase in these aforementioned organs (VALLET *et al*, 2020).

AML accounts for approximately 20% of acute leukemias in children under 15 years of age and 36% of the pathology in adolescents between 15 and 20 years of age. In view of this, new molecular technologies have enabled a better understanding of these aforementioned molecular events, and in view of this, AML is

classified in a beneficial way according to risk in terms of the development of target therapies to provide a significant improvement for the patient and their complications, involving their entire family as well. It can be seen that AML has its highest incidence in children under the age of 2 and in adolescents aged between 15 and 20, with no differences between patients of different sexes and races (LOGGETTO; BRAGA; PARK, 2012).

TYPES OF LEUKEMIA

According to Hamerschlak N (2008), the proposed theme should be duly encouraged by health professionals, emphasizing the role of nurses as educators and collaborators in care throughout the process of monitoring patients who test positive for the signs and symptoms of myeloid leukemia.

Leukemia originates from hematopoietic cells and thus begins in the bone marrow, after which it invades the peripheral blood and can affect various organs, tissues and cells of the patient. There are four main types of leukemia: Acute Lymphocytic Leukemia (ALL); Acute Myelocytic Leukemia (AML); Chronic Lymphocytic Leukemia (CLL); Chronic Myelocytic Leukemia (CML) (FIGUEIREDO; GONÇALVES; ALMEIDA, 2020).

RISK FACTORS

However, little is known about the exact risk factors, although the pathology is still of unknown cause, several literatures point to: continuous exposure to chemicals such as benzene, genetic alterations and even if there is no evidence that it is hereditary, some family syndromes are risk factors, such as "Down's Syndrome" (SHINZATO *et al*, 2020).

However, there are some risk factors for the development of the disease, which can be environmental or even toxic exposure, addressing a genetic predisposition and acquired diseases, some risk factors can be listed: prenatal, alcohol, pesticides and viral infections. Environmental exposure includes ionizing radiation, alkylating agents, epipodophyllotoxins, anthracyclines, benzenes and chemotherapeutic agents (SEKERES *et al*, 2020).

And in various aspects, in their totality of hereditary conditions, such as Down Syndrome, Fanconi Anemia, Bloom Syndrome, Kostmann Syndrome, Schwachan-Diamond Syndrome, Neurofibromatosis type I and Klinefelter Syndrome (XXY). And finally, within acquired diseases, aplastic anemia and paroxysmal nocturnal hemoglobinuria (LOGGETTO; BRAGA; PARK, 2012).

SYMPTOMATOLOGY

According to Souza *et al* (2020), however, it is generally observed that the pathology is initially asymptomatic, which makes it imperceptible, or shows some signs of anemia, especially the acute form. However, the most common sign observed in patients with chronic myeloid leukemia is splenomegaly, growth of the viscera due to hematopoietic imbalance, and occasionally hepatomegaly, which are signs that indicate the disease is already in its advanced stage.

The clinical presentation of AML during childhood consists of signs and symptoms that can highlight leukemic infiltration in the bone marrow and in extramedullary sites present in strategic parts of the marrow. Replacement of normal hematopoietic cells in the bone marrow is assessed, resulting in neutropenia, anemia and thrombocytopenia. Some children, even those of different or similar age groups, produce different symptoms, as each patient presents in different ways (LOGGETTO; BRAGA; PARK, 2012).

Hochhaus *et al*, (2020) emphasize that infiltrations of extramedullary sites can present according to the following pathologies: lymph node enlargement, hepatomegaly, myeloblastoma or even sarcoma, skin infiltrations, orbit,

epidural space and in rarer cases, testicular involvement and finally affecting the Central Nervous System (CNS) in 15% of cases.

DIAGNOSTICS

In the words of Dutra *et al* (2020), the medical professional will request a study, evaluating, monitoring and analyzing the liquid that appears in the spine (cerebrospinal fluid) to find out if there are leukemia cells in the central nervous system. In addition, a complete blood count (CBC) to count and evaluate blood cells, an enlarged spleen and liver, which are common signs in some AML patients, should be analyzed through physical examination, complaints and a critical clinical look to close the diagnosis as soon as possible, and through imaging tests such as ultrasound.

Morphology and cytochemistry

The initial diagnosis of AML is based on the precise evaluation and interpretation of morphology and cytochemistry in peripheral blood and bone marrow smears, adding the two together for a more accurate diagnosis. The cytochemical reactions that determine the color and lineage of granulocytes, eosinophils and monocytes are myeloperoxidase (MPO) and Sudan Black (SBB) (LOGGETTO; BRAGA; PARK, 2012).

Immunophenotyping

The use of multiparameter flow cytometry using a broad panel of monoclonal antibodies in clinical analyses has been evaluated in order to correctly discriminate myeloid from lymphoid differences in approximately 98% of pediatric patients and, in a way, cytochemistry has been widely used as a strong tool for detecting minimal residual disease (MRD) in acute leukemias (LOGGETTO; BRAGA; PARK, 2012).

Cytogenetics

Cytogenetic analyses are essential in order to diagnose and treat AML. These chromosomal abnormalities have a serum prognostic value and can be used as a tumor marker. In pediatric patients, the incidence of cytogenetic abnormalities is higher than in adult patients (LOGGETTO; BRAGA; PARK, 2012).

TREATMENT OF CHILDHOOD ACUTE MYELOID LEUKEMIA

Silva *et al* (2020) state that the treatment is nothing more than combating the diseased cells present in the bone marrow and blood. Medicines are used in this therapy to inhibit the abnormal proliferation of leukocytes, the cells most commonly found in tests, as they are the sickest. Chemotherapy, antibiotics, alkaloids, corticosteroids and hormones are administered. Blood transfusions, oxygen therapy, antiemetics, antipyretics and painkillers are also often necessary, bone marrow transplants, vitamin complexes, a nutritious diet, adequate hydration, and the maintenance of the patient's unit, keeping it free of germs, bacteria, protozoa, viruses, keeping it as clean and sanitized as possible to avoid infections.

According to Loggetto, Braga and Park (2012), patients with Down's syndrome under the age of 02 have improved treatment and prognosis. Studies have shown that polymorphism in the genes involved in drug metabolism, DNA repair or total regulation of hematopoiesis contribute to a beneficial response to the requested therapy, actively seeking the patient's improvement.

NURSING IN CHILDREN WITH ACUTE MYELOID LEUKEMIA

In the face of this type of assistance, the professional nurse's main focus is to make the patient and their family ready to deal with all these changes in lifestyle and the whole process of the patient's journey. Home support and education are very much addressed and developed devices, becoming valuable to pediatric patients, where they can help them during treatment and even at the time of hospital discharge, and it is up to the nurse to stimulate the family to participate, to help and support the patient in their entirety throughout this health-disease process (KLAUS *et al*, 2020).

Also helping with the issue of the rights of patients with CA, according to the Brazilian Federal Constitution (2000) Art. 196, provides for the rights that clients have in a broad, integral and humanitarian way within the legislation ensured by law, since health is the right of all in society and the total duty of the State, guaranteed through means of adapting strategies and specificities in social and economic policies aimed at reducing the risk of disease and other injuries and universal and equal access to actions and services for their promotion, protection and recovery. These include guarantees for study and work, exemption from the Urban Property Tax (IPTU) for adapted cars, free medicines through the Unified Health System (SUS), exemption from income tax, withdrawal from the Severance Indemnity Fund (FGTS), life insurance and many others (ABRALE, 2020).

CHALLENGES IN THE THERAPEUTIC APPROACH TO CHEMOTHERAPY IN PATHOLOGY

This is a constant challenge regarding cancer (CA), as most pediatric illness situations cause crises within the family, leading to psychosocial and emotional imbalance in its organization and total functioning. It is usually the mother who accompanies the patient's hospitalization process (FONSECA; AFONSO, 2020).

In an update, the Federal Council of Psychology (CFP) published the following CFP Resolution No. 11/2018, updating CFP Resolution No. 11/2012, which reports on online psychological care and other services carried out by technological means of distance communication, making and carrying out the accompaniment of professionals in their different levels of processes that the pediatric patient and his family may be going through (FEDERAL COUNCIL OF PSYCHOLOGY, 2018; ABRALE, 2020).

In particular, nursing is involved in providing care, guidance, in a broad sense, so as not to contain cross-infections, hospital, nursing care on the devices used during chemotherapy treatment, on the food in question in the diet, so as to avoid side effects. Nursing acts in making decisions about continuing, intensifying and changing or stopping the treatment itself.

After treatment, pediatric patients go into remission and have a complete response to the effects of the entire therapeutic process, where they continue to be examined regularly by the multidisciplinary team. Always evaluating the patient's signs and symptoms together with their entire family, welcoming each visit and maintaining the most sincere possible dialog about the positive and negative prognosis, in total holistic health care with cell counts and, if indicated, bone marrow samples, which may also be required periodically for analysis. Pos-

sibly the time of this follow-up is more spaced out, but it will continue for a while (ABRALE, 2020).

FINAL CONSIDERATIONS

Based on actions, attributions, rationale and technical procedures within nursing, in order to develop complete and concise strategies and actions for child patients diagnosed with acute leukemia, observing their symptoms and their treatment, as study material, and methodology based on reading and understanding scientific articles with the purpose of individual and holistic assessment of the patient and their family.

Understanding the role of nursing in the face of the disease, acute myeloid leukemia, has been gaining ground, especially among pediatric patients. Thus, using the careful form of monitoring and analysis within the systematized clinical look towards patients in a careful and scientific way, following guidelines focused on prevention, treatment and recovery of the disease's health process, with the aim of practicing guidelines in clinics and consultations in pediatric evaluation.

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