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APPROACHES AND INTERVENTION STRATEGIES IN ONCOLOGICAL EMERGENCIES: AN INTEGRATIVE REVIEW

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Abstract: Cancer is one of the main chronic diseases that affect individuals today. In the meantime, forms of treatment such as chemotherapy and radiotherapy are used to combat the proliferation of cancer cells, therefore, like all treatments, there are adverse reactions in this combat phase. As long as these patients are monitored in a specific environment in the secondary and tertiary health care sector, it is not uncommon for emergency physicians to have to manage patients with adverse reactions to therapy or worsening of the condition. This way, we sought, through a literature review, to structure the primary causes of seeking emergency care, such as neutropenic fever, hypercalcemia, tumor lysis syndrome and hyperviscosity syndrome. This way, treatment strategies for such recurrences are discussed so that not only oncologists are prepared, but doctors who are in emergency care are also able to reverse serious cases and avoid the suffering of neoplastic patients.
Keywords: Treatment; Oncology; Cancer; Emergency

INTRODUCTION

It is estimated that by 2025 Basil will register around 704 thousand new cases of cancer per year (INCA, 2022). In this sense, it is known that oncological complications occur significantly in older individuals, as there are other comorbidities common to senility associated with the disease, such as systemic arterial hypertension (SAH), diabetes, dyslipidemia and obesity. (ANANTHARAMAN et al, 2022). These emergencies are related to both the primary manifestations of cancer, the progression of the disease and also complications arising from drug or radiological therapy (HIGDON et al, 2018). Although the treatment of an individual's neoplasms is established in the secondary sector in a specialized hospital for the treatment and there are sectors responsible for emergency care for the disease, it is common to seek urgent and emergency care for care, whether this search is motivated by proximity or due to the lack of a specialized center for care close to the patient's home (ANANTHARAMAN et al, 2022). Oncological emergencies can occur at any level of medical care or phase of treatment, so the most frequent causes of care are neutropenic fever (NF), tumor lysis syndrome (TLS), malignant hypercalcemia and hyperviscosity syndrome (HVS).

GOAL

In this sense, the objective of this article was to analyze and guide health professionals on the management, diagnosis and evaluation of patients undergoing neoplastic treatment when they present to the emergency department with the aforementioned complaints.

METHODOLOGY

A bibliographic review was carried out based on books, cataloged scientific articles, being published on digital platforms including the Scientific Library Online (SciELO), Pubmed, Periódico Capes and Cochrane. Due to the theme having a consistent origin, works were selected from 2010 to 2023. In this study, the keywords were used to search the database: Emergency; Oncology; Cancer and Treatment.

Neutropenic fever (NF) is one of the most common complications in cancer patients undergoing chemotherapy treatment, around 80% of patients develop this side effect (Klemencic S, Perkins J, 2019). NF normally occurs 5-7 days after the end of chemotherapy and its severity is related to the total neutrophil count (ANC) and the progression of fever. This complication can be classified as an oral or axillary temperature greater than

38ºC for more than 60 minutes with an ANC less than 500/μL. NF can be characterized as mild, moderate, severe or intense. Moderate fever is considered with ANC of 1,000-1,500/μL, moderate with 999-500/μL, severe with 499-100/μL and chronic count less than 100/μL. (Melendez E, Harper MB, 2010). NF is due to several causes, for example, bacterial infections, it is very likely that the source of contagion is the individual's own microbiota or due to *Escherichia coli*, *Enterobacter* of the intestine, *Staphylococcus e Streptococcus* of the skin or *Streptococcus* of the respiratory tract. In view of this, the febrile condition developed by these patients is the ideal environment for association with bacterial infections and, to a lesser extent, fungal contaminations. (CASTAGNOLA et al, 2013).

Once NF is identified in the emergency room, it is duly recommended that a complete blood count be performed to investigate the case and the level of involvement of the white blood cell series, accompanied by a metabolic panel and urinary culture. (MELENDEZ et al, 2014). After laboratory confirmation, the administration of broad-spectrum antibiotics is indicated. The choice of antibiotic to be used is at the discretion of the doctor and the availability of medicines at the place of care. (BAUGH et al, 2017) Furthermore, it is important to highlight that any measure regarding a patient with NF must be communicated to the patient's oncologist.

Tumor Lysis Syndrome (TLS) is a metabolic disorder due to the extravasation of cellular material into the bloodstream, such as phosphate, potassium and uric acid, which has a high lethality rate. It frequently occurs in patients with hematological malignancies due to the high rate of multiplication of hematopoietic cells. Patients with kidney disorders, elderly patients with chronic diseases and patients who self-medicate excessively become more likely to develop TLS (HOWARD et al, 2011). Phosphate is present in quadruple quantity in neoplastic cells compared to normal cells, consequently, its extravasation into the bloodstream will direct it to bind to soluble calcium and form calcium phosphate crystals. This way, the solid content is deposited in the tissues and can contribute to the loss of function of several organs. Furthermore, the connection removes circulating calcium, which causes, in the background, hypocalcemia (KLEMENCIC et al, 2019). The inorganic content released will cause hyperkalemia, hyperphosphatemia, hypercalcemia and hyperuricemia, triggering symptoms of fatigue, cardiac dysrhythmia, nausea and vomiting. Initial treatment occurs through the administration of fluids and correction of electrolyte disorders (CAIRO et al, 2010).

Malignant hypercalcemia is a metabolic dysfunction that can occur in different types of malignancy such as: breast cancer, lung cancer, lymphoma and myeloma. It occurs mainly due to the increase in the metabolic rate of the parathyroid protein (PTHrP), which stimulates the excessive action of osteoclasts and also increases the reabsorption of calcium in the kidney nephrons (ANANTHARAMAN et al, 2022). The second common cause is the proliferation of cancer cells into the bone matrix with subsequent degradation, which can be observed through an increase in serum calcium. The emergency physician must pay attention to patients who present high levels of calcium of uncertain origin, even if the individual does not present neoplasms, it is pointed out that from the diagnosis of hypercalcemia it is possible to have an analogy with malignancies (ANANTHARAMAN et al, 2022). Frequent symptoms involve anorexia, polyuria, polydipsia, lethargy and mental confusion. Emergency treatment will take place through the infusion of electrolytes so that there is diuresis with adequate

concentrations of calcium. The administration of the hormone calcitonin can also be used to increase the excretion of the element in question. According to the article, patients who present high levels of hypercalcemia need to be taken into consideration for monitoring and possible hospitalization according to their general condition and diagnostic tests. (ANANTHARAMAN et al, 2022).

Hyperviscosity Syndrome occurs due to an increase in blood viscosity due to excess plasma proteins or cellular components (Adams et al, 2010). Patients who have a considerable increase in plasma proteins are more likely to develop Hyperviscosity (Stone MJ, Bogen SA, 2012). VHS triggers low relative tissue perfusion, which results in dysfunction in the target organ. The emergency physician must take into consideration, complementary tests that show a marked leukocyte and erythrocyte count accompanied by hypoperfusion to diagnose the disease (Stone MJ, Bogen SA, 2012). It is pointed out that blood transfusions must be avoided, as they can lead to worsening of HVS-related conditions. The classic symptoms of VHS are mucosal bleeding, visual dysfunction, dyspnea and neurological disorders. Treatment occurs through the infusion of intravenous fluids to restore the osmolarity of blood tissue and the removal of white blood cells and blood plasma (Stone MJ, Bogen SA, 2012).

CONCLUSION

It is evident that oncological emergencies in emergency rooms are gradually becoming more recurrent and require immediate drug intervention with broad approaches to reduce mortality. Lethal metabolic syndromes such as Tumor Lysis, Hypercalcemia, Hyperviscosity and Neutropenic Fever require early emergency intervention given their potential for rapid worsening. As for NF, the healthcare team must be aware that treatment with broad-spectrum antibiotics is essential for the patient's improvement. TLS is a syndrome with high fatality rates that requires monitoring of body fluids and electrolytes. Malignant hypercalcemia indicates an unfavorable prognosis and treatment strategies must be simultaneous to combating calcium elevation. Finally, Hyperviscosity is associated with common neoplasms, however it must be a differential in certain cases according to laboratory tests. These oncological emergencies must be monitored early by oncology so that third-party damage is minimized and pain and suffering for the patient is avoided.

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