



NURSING INTERVENTIONS RELATED TO THE TREATMENT OF SYNDROMIC ONCOLOGIC EMERGENCIES

INTERVENÇÕES DE ENFERMAGEM RELACIONADAS AO TRATAMENTO DAS EMERGÊNCIAS ONCOLÓGICAS SINDRÔMICAS

LAS INTERVENCIONES DE ENFERMERÍA RELACIONADAS CON EL TRATAMIENTO DE LAS EMERGENCIAS ONCOLÓGICAS SINDRÓMICAS

Natália de Melo Manzi¹, Nayara Nárley Pires², Christiane Inocêncio Vasques³, Carolina de Souza Custódio⁴, Giovana Paula Rezende Simino⁵, Paula Elaine Diniz dos Reis⁶

ABSTRACT

Objective: to report on oncological emergencies and the main nursing interventions in the literature, used to treat them. **Method:** update paper, which presents aspects of the predisposing factors and nursing care during treatment for; Tumor Lysis Syndrome (TLS), the Superior Vena Cava Syndrome (SVCS) and Spinal Cord Compression Syndrome (SCCS). **Results:** TLS, SCCS and SVCS syndromes are serious, potentially fatal, requiring specific nursing care to control the clinical manifestations and better patient outcomes. This requires that nurses learn to recognize the main signs and symptoms of each syndrome for early detection and implementation of effective measures to solve them. **Conclusion:** understanding the patient's clinical status and the factors that lead to the development of specific oncologic emergencies is paramount in guiding the construction of a nursing care plan for resolving the patient's problem. The need for the skilled and specialized nurses is evident in these situations of risk to cancer patients and the importance of clinical studies on the subject to better contribute in supporting, nursing interventions. **Descriptors:** oncologic nursing; tumor lysis syndrome; superior vena cava syndrome; spinal cord compression.

RESUMO

Objetivo: informar sobre as emergências oncológicas e as principais intervenções de enfermagem relacionadas presentes na literatura. **Método:** artigo de atualização, o qual apresenta aspectos sobre os fatores predisponentes e sobre a assistência de enfermagem durante o tratamento da Síndrome de Lise Tumoral (SLT), da Síndrome de Veia Cava Superior (SVCS) e da Síndrome de Compressão Medular (SCM). **Resultados:** SLT, SVCS e SCM são síndromes graves, potencialmente fatais, que exigem cuidados de enfermagem específicos para controle das manifestações clínicas e melhor prognóstico do paciente. Para tanto é necessário que o enfermeiro saiba reconhecer os principais sinais e sintomas de cada síndrome para detecção precoce e realização de medidas efetivas para resolução das mesmas. **Conclusão:** compreender o estado clínico do paciente e os fatores que levam ao desenvolvimento de uma determinada emergência oncológica é primordial para orientar a construção de um plano de assistência de enfermagem resolutivo para o quadro do paciente. É evidente a necessidade da atuação de enfermeiros capacitados e especializados nessas situações de risco ao paciente oncológico e a importância de estudos clínicos a respeito do tema para melhor embasar as intervenções de enfermagem. **Descritores:** enfermagem oncológica; síndrome de lise tumoral; síndrome da veia cava superior; compressão da medula espinal.

RESUMEN

Objetivo: informar sobre las emergencias oncológicas y en las principales intervenciones de enfermería en la literatura para el tratamiento de los mismos. **Método:** documento de actualización, que presenta aspectos de los factores predisponentes y los cuidados de enfermería durante el tratamiento para el síndrome de lisis tumoral (SLT), el síndrome de vena cava superior (SVCS) y el síndrome de compresión medular (SCM). **Resultados:** SLT, SCM y SVCS son graves, potencialmente mortal, que requiere cuidados de enfermería específicos para controlar las manifestaciones clínicas y mejorar los resultados de los pacientes. Para ello es necesario que las enfermeras aprendan a reconocer los principales signos y síntomas de cada síndrome para detección precoz y llevar a cabo medidas eficaces para resolverlos. **Conclusión:** la comprensión de la situación clínica del paciente y los factores que conducen al desarrollo de unas determinadas urgencias oncológicas es de suma importancia en la orientación de la construcción de un plan de cuidados de enfermería para la resolución de la mejora del paciente. Es evidente la necesidad de que las enfermeras cualificados y especializados en estas situaciones de riesgo para los pacientes con cáncer y la importancia de los estudios clínicos sobre el tema para contribuir mejor a apoyar las intervenciones de enfermería. **Descriptores:** enfermería oncológica; síndrome de lisis tumoral; síndrome de la vena cava superior; compresión de la médula espinal.

¹Nurse, Master's Degree in the Nursing Graduate's Program at the University of Brasília (UnB). Brasília (DF), Brazil. E-mail: naty_manzi@hotmail.com; ²Nurse, Resident in the area of Oncology Care in the Multiprofessional Residency Program in Health at the University Hospital of Brasília (HUB). Brasília (DF), Brazil. E-mail: nayaranarley@hotmail.com; ³Nurse Oncologist, Phd Professor in the Department of Nursing, Faculty of Health Sciences at the University of Brasília (UnB). Brasília (DF), Brazil. E-mail: chvasques@unb.br; ⁴Nurse Oncologist, Head Nurse at the High Complexity Center in Oncology at the University Hospital of Brasília (CACON/HUB). Brasília (DF), Brazil. E-mail: carol_custodio@yahoo.com.br; ⁵Nurse Oncologist, Master's Sciences. Phd Professor in the Department of Nursing, Faculty of Health Sciences at the University of Brasília (UnB). Brasília (DF), Brazil. E-mail: gsimino@yahoo.com.br; ⁶Nurse Oncologist, Phd, Professor of the Graduate Program in the Nursing Department at the University of Brasília (UnB). Brasília (DF), Brazil. E-mail: pauladiniz@unb.br

INTRODUCTION

The characteristic of invasive tumors or the type of antineoplastic treatment can determine the occurrence of emergency situations that can put the cancer patient in a risky clinical situation. Such situations, called oncologic emergencies (OEs), they are in acute conditions that require prompt and systematized intervention to prevent death or serious permanent injury.¹

The OEs can be classified in three distinct groups: structural or obstructive emergencies, caused by compression of the tumor mass, body structures, metabolic emergencies and secondary emergency treatment.² Within these groups, some syndromic clinical situations can be highlight, namely: medullary compression syndrome (MCS), tumor lysis syndrome (TLS) and the superior vena cava syndrome (SVCS).

The increased incidence of cancer in the general population ultimately determines an increased frequency of care provided to patients in oncological emergencies, which should be readily identified by the health team. It is essential that these professionals are able to intervene before the patient's condition becomes irreversible. In this context, the nurse must have skills and abilities for early detection of clinical manifestations and guidance for patients and families about the emergency signs and symptoms, as they may start at home, as well as the implementation of actions based on scientific evidence to ensure full and quality patient care.

Therefore, the objective of this article is to update and inform on the MCS, SVCS and TLS, in addition to the main nursing interventions in literature for the treatment of these oncologic emergencies.

• Medullary Compression Syndrome (MCS)

THE MCS is characterized by the compression of the spinal cord resulting in expansion of the tumor mass that invades the epidural space. It is a common occurrence in patients with solid tumors that easily metastasize to the bone structures, for example, lung cancer and prostate cancer, and may cause neurological dysfunctions in the structures innervated by the affected site.

In the initial phase of the procedure of spinal cord injury, occurs compression and venous stasis, with consequent vasogenic edema, responsible for the neurological deficit. The signs and symptoms relating to MCS occur because there is greater spinal cord and/or nerve roots compression. Pain and hypersensitivity located in the back are the most common and early symptoms. Neurological motor dysfunction is the second most common finding. The sensory neurological impairments occur later and in a later phase, leads to autonomic dysfunction with impotence and sphincter incontinence. Therefore, it is important to note that when the is treatment promptly initiated it avoids irreversible neurological damage.^{1,3}

The administration of analgesics for pain relief and corticosteroids in order to reduce local inflammation caused by compression is important for the control of the symptoms.³⁻⁶ It is worth noting that dexamethasone - corticosteroids commonly used in these conditions - can cause changes in serum glucose, especially in diabetic patients, thus, some authors discuss the need to assess the side effects of this drug, by monitoring blood glucose levels. There is also the need to evaluate side effects of opioids, mainly in relation to the intestinal patterns.⁵⁻⁶

The spinal cord compression can damage some body functions, which requires specific nursing care. Safe and comfortable movement of the patient, in cases of impaired physical mobility is highlighted by some intervention studies, as well as the establishment of bowel a training program, if there is loss of sphincter control.⁶⁻⁸

Considering that the MCS often requires radiotherapy intervention, the nurse should be attentive to skin care⁶⁻⁸ as well as nausea and vomiting management.⁸

The provision of nursing emotional support and guidance, this decreases the patient and their family member's anxiety, making them active agents in their health-disease process.^{3,8} The patient's functional capacity and the high possibility of home care for rehabilitation must be continuously evaluated.⁶

Nursing interventions in MCS
Early detection of MCS signs and symptoms. ³⁻⁸
Strict administration of analgesics, and corticosteroids. ³⁻⁶
Skin care during radiotherapy. ⁶⁻⁸
Moving the patient in a safely and comfortably. ⁶⁻⁸
assessment of dexamethasone side effects, monitoring of glycemia. ⁶⁻⁸
Guidance for patients as to the detection of urinary tract infection signs and the need to increase fluid intake. ⁶⁻⁸
Providing clear information about the MCS to the patient and their family. ^{3,6}
Monitoring side effects of opioids, particularly constipation. ⁵⁻⁶
Continuous pain assessment, ⁷⁻⁸
Establishment of bowel training program as needed. ⁷⁻⁸
Maintenance and restoration of neurological function. ⁷⁻⁸
Evaluation of the patient's functional capacity and need for home care, rehabilitation plan and discharge ⁶
Preparation of a professional care plan based on individual needs. ³
Offering emotional support to the patients and their families. ⁶
Monitoring of respiratory pattern ⁵

Figure 1. Overview of nursing interventions for the treatment of SCM proposed in the literature. Brasília, DF (1995-2010)

• Superior Vena Cava Syndrome (SVCS)

The SVCS is characterized by a set of signs and symptoms resulting from the compression or occlusion of the superior vena cava, caused by mediastinal masses or lung masses which invade the mediastinum, and prevent or inhibit the venous drainage of the head, neck, the upper portion of the chest and upper limbs. The result is a congestion and venous hypertension that may cause symptoms such as facial edema, venous dilatation, dyspnea, headache, alteration of consciousness, dizziness, nasal congestion, hoarseness and cough. The treatment aims to provide relief of symptoms.⁹⁻¹⁰

As the superior vena cava obstruction leads to a set of signs and symptoms resulting from the change of blood flow in this vessel, in particular to respiratory function impairment and of extreme importance for monitoring the respiratory pattern. Measures such as oxygen support, elevation of the headboard and guidance on the limitation of physical activities are nursing interventions that minimize the dyspnea.^{3,5,9,11-3}

The obstruction of blood flow in the superior vena cava can lead to increased intracranial pressure, and some studies indicate the monitoring of neurological function and assessment of the presence of cerebral edema signs, as important nursing interventions.^{3,5,11-3} Monitoring vital signs is

fundamental for the hemodynamic evaluation of the patient, since this shows compromise of the circulatory system.^{3,11 -3} Compression of the superior vena cava affects the venous return of the upper limbs, with consequent edema in this region. It is recommended to avoid venous punctures in edematous limbs, blood pressure measurement and other invasive procedures.^{9,12 3}

The administration of corticosteroids, diuretics and anticoagulants, when prescribed, is important to minimize swelling and prevent thrombus formation resulting from the blood stasis.^{5,12} The use of anticoagulants requires constant monitoring of coagulation factors and the nursing staff must be attentive to signs of bleeding, also in guiding the patient and family members for the detection and notification of them.¹¹⁻³

The understanding of health problem and forms of treatment by the patient and families is highlighted as relevant for the SVCS treatment in several other scientific nursing literature studies, because it contributes to patient adherence to therapy and decreases their anxiety.¹¹⁻⁵ another factor associated with anxiety minimization refers to the promotion of comfort and tranquility, by means of a calm and relaxing environment.¹¹

Nursing interventions in SVCS
Monitor and maintain proper breathing pattern: assess for signs of respiratory distress, maintaining supplemental oxygen, advise on the limitation of activities and maintain a high head in Fowler position., ^{3,5,9,11 -3}
Monitor neurological functions, in search of cerebral edema signs, ^{3,5,11 -3}
Monitor vital signs, ^{3,11 -3}
Conduct hydric and electrolytic balance. ^{3,12}
Avoid invasive or constricting procedures in the affected extremity, such as peripheral venous access and blood pressure measurements. ^{9,12 -3}
Administer medications: corticosteroids, diuretics, anticoagulants. ^{5,12}
For patients that require anticoagulant therapy, establish precautions for bleeding and conduct coagulation exams. ¹¹⁻³
Advise the patient and family members on the syndrome and their treatment. ¹¹⁻⁵
Provide emotional support to patients and their families. ¹¹⁻³
Promote comfort and security by providing a calm and relaxing environment. ¹¹

Table 2. Overview of proposed nursing interventions for the treatment of SVCS. Brasília, DF (1995-2010).

● **Tumor Lysis Syndrome (TLS)**

TLS is a metabolic emergency that can happen spontaneously in patients with advanced cancer, it is also common after beginning treatment with antineoplastic agents. It is defined by an intense process of cell death not programed from the malignant cells, with the release of their fragments, which to achieve the intravascular content, end up interfering in the homeostatic mechanisms. This is due to the consequent electrolyte imbalance characterized by hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia. For this reason, monitoring biochemical parameters related to the syndrome (serum levels of phosphate, potassium, uric acid, calcium and creatinine, urine pH, arterial gasometry) is important to determine the patient's clinical condition.^{5,14-8}

The administration of medication varies according to the patient's clinical condition.^{5,11,14-7;19-20} The administration of allopurinol is shown to inhibit xanthine oxidase, an enzyme essential for the degradation of purines in uric acids. Sodium bicarbonate, in turn, is used for alkalization of the urine, thus increasing the solubility of the uric acid. However, the use of diuretics, as well as hyperhydration is useful for

stimulating the correction function renal.¹⁰ Correcting other metabolic disorders associated, the use of aluminum hydroxide in the case of hyperphosphatemia, is also important.

It is known that the renal impairment is a significant complication often associated with the elevation of uric acid in the body, metabolite resulting from the massive destruction of the tumor. The increase of this substance causes the tubular obstruction and inflammatory changes by interstitial crystals of uric acid, causing nephropathy.¹⁰ For that reason, one must evaluate and stimulate the renal function.^{5,11,14-7;20-1} In addition, it is important to monitor possible cardiac and neurological involvement resulting from hypocalcemia, hyperkalemia, hyperphosphatemia, intensified by renal insufficiency.^{5,11,15,18,21}

Guidelines about the syndrome and provision of emotional support also become necessary.¹⁴ The nurse, and the team member who possesses greater contact with the patient and their family members, has the opportunity to offer information and comfort, which will result in a reduction of anxiety. Thus, the nurse also encourages self-care, play its role of facilitator of the teaching-learning process.²²

Nursing interventions in the TLS
Evaluate and stimulate kidney function: perform hydric balance, hydration and daily weighing of the patient and assess for signs of hydric overload. ^{5,11,14-7;20-1}
Administer medications according to the clinical condition: allopurinol (hiperuremia), sodium bicarbonate (metabolic acidosis), aluminum hydroxide (hyperphosphatemia), diuretics (hydric overload). ^{5,11,14-7;19-20}
Monitor biochemical parameters related to the syndrome: serum levels of phosphate, potassium, uric acid, calcium and creatinine, urine pH, arterial gasometry. ^{5,14-8}
Monitor cardiac and neurological functions. ^{5,11,15,21}
Prevent the patient from ingesting foods rich in potassium and to be attentive to other administered drugs that can cause renal impairment. ¹⁶
Providing emotional support to patients and their families. ¹⁴
Conduct electrocardiograms in patients diagnosed with hyperkalemia. ¹⁸

Figure 3. Overview of proposed nursing interventions for the treatment of TLS. Brasília, DF (1995-2010)

CONCLUSION

Considering the relevance of the clinical manifestations of OEs and their relationship with high morbidity and mortality rates, it becomes clear that the need for trained and specialized nurses to work in the treatment for these risky clinical situations with the cancer patients. In this sense, the actions of this professional should be subsidized by scientific knowledge for the early detection of the oncologic emergency that is installed and relevant intervention to improve prognosis and reestablishment of vital functions. Thus, it is possible for an effective quality nursing care, through prevention of clinical

complications and providing comfort to patients and their families.

Although there are studies on the topic, clinical research with a methodological outline that bring reliable scientific evidence become necessary for better basement of nursing practices.

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Corresponding Address

Natália de Melo Manzi
QSD 17, casa 36 – Taguatinga Sul
CEP: 72020-170 – Brasília (DF), Brazil