

Nursing care in oncological emergencies: integrative review

*Cuidados de enfermagem em emergências oncológicas: revisão integrativa**Atención de enfermería en emergencias oncológicas: revisión integradora*

ABSTRACT

Objective: To identify the nursing care described for the management of oncological emergencies. **Method:** Integrative review, carried out in the CINAHL, Cochrane, LILACS, PubMed, SCOPUS, Web of Science and Google Scholar databases. The risk of bias was assessed using the tools of the *Joanna Briggs Institute*. The level of evidence was assessed using the *Oxford Centre for Evidence-Based Medicine* scale. **Results:** 17 studies were identified addressing nursing care for the management of 9 oncological emergencies, with the most frequent being about: hypercalcemia (n = 4), tumor lysis syndrome (n = 3), superior vena cava syndrome (n = 3) and febrile neutropenia (n = 3). Nursing care includes physiological and psychological aspects of the disease. The risk of bias was low to moderate in most studies. **Conclusion:** The studies provide comprehensive observation and monitoring care for the patient. Knowing nursing care for oncological emergencies is essential to improve the quality of care.

Descriptors: Emergencies; Nursing; Oncology Nursing; Nursing Care; Review.

RESUMO


Objetivo: Identificar os cuidados de enfermagem descritos na literatura para o manejo das emergências oncológicas. **Método:** Revisão integrativa, cuja busca foi realizada nas bases de dados CINAHL, Cochrane, LILACS, PubMed, SCOPUS, Web of Science e Google Acadêmico. O risco de viés foi avaliado usando as ferramentas do *Joanna Briggs Institute*. O nível da evidência foi avaliado usando a escala do *Oxford Centre for Evidence-Based Medicine*. **Resultados:** Foram identificados 17 estudos abordando cuidados de enfermagem para o manejo de 9 emergências oncológicas, sendo as mais frequentes: hipercalemia (n=4), síndrome de lise tumoral (n=3), síndrome da veia cava superior (n=3) e neutropenia febril (n=3). Os cuidados de enfermagem contemplam aspectos fisiológicos e psicológicos da doença. O risco de viés foi baixo a moderado na maioria dos estudos. **Conclusão:** Os estudos destacam cuidados integrais de observação e monitoramento do paciente. Conhecer os cuidados de enfermagem para emergências oncológicas são essenciais para melhorar a qualidade da assistência.

Descritores: Emergências; Enfermagem; Enfermagem Oncológica; Cuidados de Enfermagem; Revisão.

RESUMEN

Objetivo: Identificar los cuidados de enfermería para el manejo de emergencias oncológicas. **Método:** Revisión integrativa, realizada en CINAHL, Cochrane, LILACS, PubMed, SCOPUS, Web of Science y Google Scholar. El riesgo de sesgo se evaluó mediante herramientas del *Joanna Briggs Institute*. El nivel de evidencia se evaluó mediante la escala del *Oxford Center for Evidence-Based Medicine*. **Resultados:** 17 estudios abordaron la atención de enfermería para el manejo de 9 emergencias oncológicas, siendo las más frecuentes: hipercalemia (n = 4), síndrome de lisis tumoral (n = 3), síndrome de vena cava superior (n = 3) y neutropenia febril (n = 3). La atención de enfermería incluye los aspectos fisiológicos y psicológicos. El riesgo de sesgo fue de bajo a moderado en la mayoría de los estudios. **Conclusión:** Los estudios brindan atención de seguimiento y observación del paciente. Conocer la atención de enfermería para emergencias oncológicas es fundamental para mejorar la atención.

Descriptorios: Urgencias Médicas; Enfermería; Enfermería Oncológica; Atención de Enfermería; Revisión.

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INTRODUCTION

Cancer is the second leading cause of death in Brazil and it is estimated that 625 thousand new cases of the disease will appear every year in the triennium 2020-2022, including non-melanoma skin cancer cases⁽¹⁾. During treatment, conditions may worsen the patient's health, requiring immediate treatment in emergencies, for they causing cause suffering or imminent risk of death^(2,3). Certain diseases can be characterized as oncological emergencies, that is, acute conditions that affect patients with cancer, and may be related to the antineoplastic treatment itself or to complications resulting from the disease itself^(3,4).

Oncological emergencies usually appear suddenly and demand specialized and immediate treatment to stabilize symptoms, revert the condition and consequently preserve life^(5,6). Some examples of oncological emergencies that usually affect cancer patients are Spinal Cord Compression Syndrome, Superior Vena Cava Syndrome, hypercalcemia, pericardial effusion, Disseminated Intravascular Coagulation, and Tumor Lysis Syndrome⁽⁷⁾. Faced with situations like these, health professionals, especially nurses who work directly in the care aimed at such patients, must be prepared to identify and manage them^(5,7).

The hospitalizations of patients with cancer are commonly related to complications of the disease itself or even to toxicities resulting from treatment; and, depending on their severity and need for immediate care, they are characterized as oncological emergencies. With the knowledge of preventive strategies and early detection of signs and symptoms of these complications, the management of these oncological emergencies can be conducted in outpatient settings, which requires greater mastery of the involved professionals⁽⁶⁾. With the adequate approach and management of oncological emergencies, it is possible to increase the life expectancy and well-being of these patients^(4,8). Accordingly, knowledge about health care in oncological emergencies enables quick and effective interventions, and it is up to the nurse to establish measures aimed at patient safety, recognizing and intervening early in any of these situations^(2,6,8).

Previous literature reviews have addressed the knowledge about nursing care and interventions for the management of oncological emergencies^(2,3,7). Nevertheless, these reviews established, in their eligibility criteria, a time limitation for the inclusion of studies^(2,3,7). Therefore, it was chosen to perform an integrative

literature review to carefully select the results obtained and synthesize the knowledge about nursing care for the management of oncological emergencies. Thus, this review has the objective of identifying the nursing care described in the literature for the management of oncological emergencies.

METHODS

This is an integrative literature review, which consists of a search, critical analysis, and synthesis of studies identified in the literature, enabling the filling of gaps and/or the development of new research questions that serve as a basis for future studies⁽⁹⁾.

The review was structured following the six steps proposed by Mendes, Silveira, and Galvão⁽⁹⁾, namely: (1) identification of the theme and selection of the hypothesis or research question for the preparation of the integrative review, (2) establishment of criteria for inclusion and exclusion of studies/sampling or literature search, (3) definition of the information to be extracted from the selected studies/categorization of the studies, (4) evaluation of the studies included in the integrative review, (5) interpretation of the results and (6) presentation of the review/knowledge synthesis.

The guiding question of the research was defined from the PICO strategy, based on the acronym: (P) patient, (I) intervention, (C) comparison, and (O) outcome; however, in this study, a comparison was not used. Accordingly, the study question was "What nursing care are described in the literature for cancer patients in oncological emergencies?"

Studies that addressed nursing care aimed at the management of oncological emergencies were included. Those excluded were: (1) studies with children and/or adolescents; (2) studies addressing only the pathophysiological and/or therapeutic process of oncological emergencies; (3) studies addressing the management of oncological pain; (4) studies addressing the management of chemotherapy extravasation; (5) studies that limited the management of oncological emergencies to interventions restricted to other professions, such as surgical procedures and drug prescriptions; (6) surveys, reviews, letters to the editor, book chapters, congress abstracts, expert opinions, and pre-clinical studies; (7) studies that addressed other emergencies that were not characterized as oncological emergencies; and (8) articles not

available for a full reading. Publications in Portuguese, English, and Spanish were considered, without an established limit for the date of publication.

The search strategy was developed and adapted for each of the following electronic bibliographic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library CENTRAL, Latin American and Caribbean Literature in Health Sciences (LILACS), PubMed Central (PMC), Scopus and Web of Science. A manual search was also performed from the reference lists of articles selected for full reading, as well as a search in gray literature, using Google Scholar. The descriptors used in the search strategy were selected by reading studies related to the research question, as follows: *Cancer Related Emergencies, Oncological Emergencies, Cancer Emergencies, Oncologic Emergencies, Oncologic Emergency, Emergency, Urgency, Urgencies, Oncology, Oncologic, Cancer, Nursing Interventions, Emergency Nurse, Nursing Management, Critical Care Nurse and Nurse*. In addition, the following Medical Subject Headings (MeSH) and *Descritores em Ciências da Saúde* (DeCS) were used: *Emergencies, Emergency Treatment, Neoplasms, Oncology Nursing, Nursing Care and Nursing*. The descriptors were combined using the Boolean operators *AND*, and *OR*. The search took place on May 13, 2021.

The selected studies were exported to the *EndNote Web*® reference manager, to perform the removal of duplicates, and later to the *Rayyan*® *Software*, to perform the paired analysis of the references found by two reviewers. In case of disagreement in the evaluation, the two reviewers reached a consensus on the inclusion or exclusion of the study. In the first stage, the articles were critically evaluated by reading the titles and abstracts of all references identified in the selected databases and gray literature. After the selection of studies that met the eligibility criteria, the second stage started, with the full reading of the previously selected studies.

To perform the data collection of the included primary studies, an adapted version of the instrument validated by Ursi⁽¹⁰⁾ was used. Accordingly, the following data were collected: name of the article, author, year, country, journal in which it was published, type of study (design),

type of cancer, oncological emergencies addressed and nursing care described in the article.

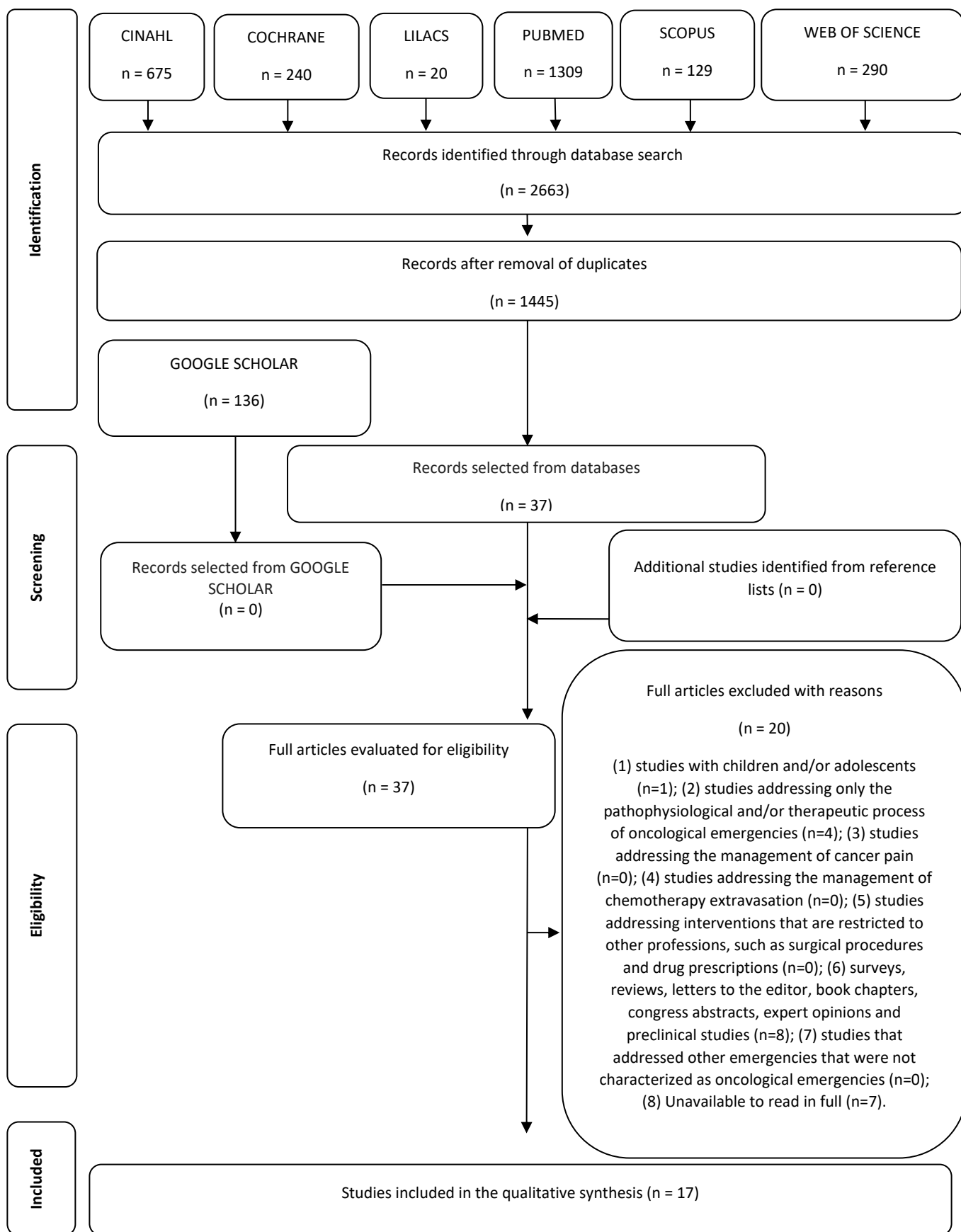
To evaluate the risk of bias, two reviewers independently performed judgment on the items of the Joanna Briggs Institute (JBI) critical appraisal tools⁽¹¹⁾. Specific checklists were used for each design of the included studies and each item was answered with “yes”, “unknown” or “no”. The judgment was made considering all the content addressed in the article, taking into account the relationship between theoretical bases of oncological emergencies and the data revealed by the sample that was part of each study. The final classification as to the risk of bias was made using as reference the percentage of “yes” that each study received for the total number of questions that make up the evaluation tool and, finally, classified as: low risk of bias – if the study reached a “yes” score of 70% or more; moderate risk of bias – if the study reached a “yes” score between 50% and 69%; and high risk of bias – if the “yes” score was equal to or less than 49%⁽¹²⁾.

The *Oxford Centre for Evidence-Based Medicine* (OCEBM) scale was applied to evaluate the level of evidence⁽¹³⁾. The OCEBM proposal divides the evaluation of evidence levels according to thematic areas or clinical scenarios (treatment, prevention, etiology, and damage; prognosis; diagnosis; differential diagnosis/study of the prevalence of symptoms; and economic and decision analysis). Accordingly, it was possible to hierarchize the evidence according to the study theme. In this tool, the evidence is classified into 1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 4, and 5, with the hierarchical classification taking into account the greatest scientific evidence.

RESULTS

A total of 2,663 articles were identified from the database search strategy. After removing duplicates, 1,445 articles remained for analysis of the titles and abstracts. The titles and abstracts of the studies were read for pre-selection based on the inclusion and exclusion criteria, and 37 studies were selected for the next phase. These studies were evaluated from the full-text reading, leaving 17 studies in the final review sample. The flow chart of the selection and inclusion of studies is shown in Figure 1.

Figure 1 – Flowchart of the literature search and selection process. Brasilia, DF, Brazil, 2021.



All 17 included studies were published in the English language, in the period between 1995 and

2018. Nine oncological emergencies were identified in the included studies, namely:

Disseminated Intravascular Coagulation (n=1)⁽¹⁴⁾; Tumor Lysis Syndrome (n=3)⁽¹⁵⁻¹⁷⁾; hypercalcemia (n=4)⁽¹⁸⁻²¹⁾; cardiac tamponade (n=1)⁽²²⁾; Inappropriate antidiuretic hormone secretion syndrome (n=1)⁽²³⁾; increased intracranial pressure (n=1)⁽²⁴⁾; metastatic spinal cord compression (n=1)⁽²⁵⁾; Superior Vena Cava Syndrome (n=3)^(18,26,27); and febrile neutropenia (n=3)⁽²⁸⁻³⁰⁾.

The types of cancer addressed by the studies were: colon and rectal adenocarcinoma^(14,30), lung cancer^(18,20,21,26,27,30), breast carcinoma^(18,19,25,30),

thymic carcinoma⁽²²⁾, diffuse large B-cell lymphoma⁽²³⁾, glioblastoma⁽²⁴⁾, Hodgkin lymphoma⁽¹⁵⁾, leukemia^(16,17,30), Non-Hodgkin lymphoma⁽²⁸⁾, gynecological lymphoma, myeloma, sarcoma, upper gastrointestinal, skin (unspecified), pancreatic, prostate, hepatobiliary, head and neck, bladder, renal, Central Nervous System (CNS), genitourinary and unknown primary⁽³⁰⁾. The characteristics of the individual studies are described in Table 1.

Table 1 – Characterization of the articles included in the final sample (n=17). Brasília, DF, Brazil, 2021

Author(s), year, country	Title	Journal	Type of study	Level of evidence	Oncological emergency	Type of cancer (n)
King, 1995, EUA ⁽¹⁸⁾	<i>Oncologic Emergencies: assessment, identification, and interventions in the emergency department</i>	<i>Journal of Emergency Nursing</i>	Case Report	4	Superior Vena Cava Syndrome Hypercalcemia	Prostate (1), Breast (1), Lung (1)
Barnett, 1999, EUA ⁽¹⁹⁾	<i>Hypercalcemia</i>	<i>Seminars in Oncology Nursing</i>	Case Report	4	Hypercalcemia	Breast (1)
Bucholtz, 1999, EUA ⁽²⁵⁾	<i>Metastatic Epidural Spinal Cord Compression</i>	<i>Seminars in Oncology Nursing</i>	Case Report	4	Spinal Cord Compression	Breast (1)
Gobel, 1999, EUA ⁽¹⁴⁾	<i>Disseminated Intravascular Coagulation</i>	<i>Seminars in Oncology Nursing,</i>	Case Report	4	Disseminated Intravascular Coagulation	Colon-rectal (1)
Knoop, Willenberg, 1999, EUA ⁽²²⁾	<i>Cardiac Tamponade</i>	<i>Seminars in Oncology Nursing,</i>	Case Report	4	Cardiac Tamponade	The thymus gland (1)
Baltic, Schlosser, Bedell, 2002, EUA ⁽²⁹⁾	<i>Neutropenic Fever: One Institution's Quality Improvement Project to Decrease Time from Patient Arrival to Initiation of Antibiotic Therapy</i>	<i>Clinical Journal of Oncology Nursing</i>	Retrospective Cohort	2b	Febrile Neutropenia	Unspecified (22)
Cantril, Haylock, 2004, EUA ⁽¹⁵⁾	<i>Emergency: Tumor Lysis Syndrome</i>	<i>The American Journal of Nursing</i>	Case Report	4	Tumor Lysis Syndrome	Hodgkin lymphoma (1) Lung (1)
Shuey, Brant, 2004, EUA ⁽²⁰⁾	<i>Hypercalcemia of Malignancy: Part II</i>	<i>Clinical Journal of Oncology Nursing</i>	Case Report	4	Hypercalcemia	Lung (1)
Jibrin, Lawrence, Miller, 2006, EUA ⁽²¹⁾	<i>Hypercalcemia of Malignancy in Hospitalized Patients</i>	<i>Hospital Physician</i>	Case Report	4	Hypercalcemia	Lung (1)
Salmi et al, 2007, Itália ⁽²⁷⁾	<i>Massive thrombosis of brachiocephalic veins and superior vena cava syndrome in a patient with non-small cell lung cancer treated with the epidermal growth factor receptor inhibitor erlotinib</i>	<i>Clinical Drug Investigation</i>	Case Report	4	Superior Vena Cava Syndrome	Lung (1)

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Author(s), year, country	Title	Journal	Type of study	Level of evidence	Oncological emergency	Type of cancer (n)
Lee, Armstrong, 2008, EUA ⁽²⁴⁾	<i>Increased Intracranial Pressure</i>	<i>Clinical Journal of Oncology Nursing</i>	Case Report	4	Increased Intracranial Pressure	Glioblastoma (1)
McGraw, 2008, EUA ⁽¹⁶⁾	<i>At an Increased Risk: Tumor Lysis Syndrome</i>	<i>Clinical Journal of Oncology Nursing</i>	Case Report	4	Tumor Lysis Syndrome	Acute myeloid leukemia (1)
Maloney, Denno, 2011, EUA ⁽¹⁷⁾	<i>Tumor Lysis Syndrome: prevention and detection to enhance patient safety</i>	<i>Clinical Journal of Oncology Nursing</i>	Case Report	4	Tumor Lysis Syndrome	Acute myeloid leukemia (1)
Hawley, Loney, Wiece, 2011, EUA ⁽²⁸⁾	<i>Development of tools and processes to improve treatment times in patients with febrile neutropenia</i>	<i>Clinical Journal of Oncology Nursing</i>	Retrospective Cohort	2b	Febrile Neutropenia	Non-Hodgkin lymphoma (1)
Koettters, 2012, EUA ⁽²⁶⁾	<i>Superior vena cava syndrome</i>	<i>Journal of Emergency Nursing</i>	Case Report	4	Superior Vena Cava Syndrome	Lung (1)
Mattison et al, 2016, Inglaterra ⁽³⁰⁾	<i>A nurse-led protocol improves the time to first dose intravenous antibiotics in septic patients post-chemotherapy</i>	<i>Support Care Cancer</i>	Retrospective Cohort	2b	Febrile Neutropenia	Colon-rectal (103), Breast (102), Lymphoma (78), Leukemia (72), Lung (51), Gynecological (43), Myeloma (35), Sarcoma (32), Gastrointestinal (28), Unspecified skin cancer (25), Pancreas (23), Prostate (20), Hepatobiliary (19), Head and neck (16), Bladder (13), Renal (13), Central Nervous System (10), Genitourinary (7), Unknown (7), Total (607)
Tasler, Bruce, 2018, EUA ⁽²³⁾	<i>Hyponatremia and SIADH A Case Study for Nursing Consideration</i>	<i>Clinical Journal of Oncology Nursing</i>	Case Report	4	Inappropriate Antidiuretic Hormone Secretion Syndrome	Lymphoma (1)

Source: The authors.

Table 2 shows the nursing care used for the management of oncological emergencies identified in the included studies.

Table 2 – Nursing care described for the management of oncological emergencies. Brasilia, DF, Brazil, 2021

Oncological Emergency	Nursing Care
Disseminated Intravascular Coagulation ⁽¹⁴⁾	<ul style="list-style-type: none"> To monitor any signs or symptoms of bleeding⁽¹⁴⁾ To apply pressure to sites of bleeding⁽¹⁴⁾ To measure the amount of blood loss⁽¹⁴⁾ To evaluate excreta with the presence of blood⁽¹⁴⁾ To guide patients and families on the report of any bleeding⁽¹⁴⁾ To remove any tight or restrictive clothing⁽¹⁴⁾ To elevate the swollen limb and evaluate that affected limb daily⁽¹⁴⁾ To minimize compression of the knee vessels, avoiding any pressure on them⁽¹⁴⁾ To perform active or passive movement of extremities in bedridden patients⁽¹⁴⁾ To administer intravenous fluids to control hypotension and proteinuria, as prescribed⁽¹⁴⁾ To administer blood component therapy, as needed⁽¹⁴⁾ To check the need for oxygen therapy⁽¹⁴⁾ To manage patient and family anxiety⁽¹⁴⁾
Tumor Lysis Syndrome ⁽¹⁵⁻¹⁷⁾	<ul style="list-style-type: none"> To administer intravenous fluids 24 to 48 hours before starting therapy and within 72 hours after completion to ensure adequate diuresis, as prescribed by the physician⁽¹⁵⁻¹⁷⁾ To administer diuretics to control fluid retention, as prescribed by the physician⁽¹⁷⁾ To redress electrolyte imbalances, as prescribed by the physician^(16,17) To measure the patient's weight daily^(16,17) To evaluate fluid overload^(16,17) To evaluate signs and symptoms of hyperuricemia, hyperphosphatemia, hypocalcemia, and hyperkalemia^(16,17) To evaluate renal function⁽¹⁵⁻¹⁷⁾ To promote the education of patients and their caregivers regarding the prevention of the syndrome^(15,17)
Hypercalcemia ⁽¹⁸⁻²¹⁾	<ul style="list-style-type: none"> To identify patients who are at risk of developing hypercalcemia, evaluate patients for signs and symptoms of hypercalcemia and monitor their pertinent laboratory values⁽¹⁹⁾ To apply intravenous fluid therapy (saline), as prescribed by the physician⁽¹⁸⁻²¹⁾ To monitor serum calcium rates, electrolytes, creatinine, albumin, urea, total protein and electrocardiogram (ECG*)^(18,19,21) To monitor vital signs⁽¹⁹⁾ To evaluate bone pain⁽¹⁹⁾ To evaluate fluid overload every 4 hours and, as needed⁽¹⁹⁾ To increase glomerular filtration rate and promote calcium excretion⁽¹⁹⁾ To monitor daily weight, mental status (neurological evaluation), gastrointestinal disorders, and changes in renal and cardiac functions^(19,21) To evaluate respiratory signs and heart failure⁽²¹⁾ To administer medications as prescribed by the physician (glucocorticoids, loop diuretics, bisphosphonates)⁽²¹⁾
Cardiac Tamponade ⁽²²⁾	<ul style="list-style-type: none"> To recognize patients at risk early⁽²²⁾ To check early cardiovascular signs and symptoms⁽²²⁾ To monitor vital signs⁽²²⁾ To evaluate paradoxical pulse⁽²²⁾ To evaluate jugular venous pressure⁽²²⁾ To place the patient in a position to promote functional respiration⁽²²⁾ To administer intravenous fluids and drugs for anxiety and pain relief, as prescribed⁽²²⁾ To evaluate skin and wounds (post-surgical)⁽²²⁾ To perform pericardial drain care⁽²²⁾ To evaluate drainage fluid changes⁽²²⁾ To check the need for oxygen therapy⁽²²⁾ To administer cardiac drugs and drugs to relieve anxiety and treat pain, as prescribed by the physician⁽²²⁾
Inappropriate Antidiuretic Hormone Secretion Syndrome ⁽²³⁾	<ul style="list-style-type: none"> To evaluate neurological system (evaluation of changes in mental status, irritability, headache, confusion, tremors, restlessness, nausea and vomiting, fatigue and weakness)⁽²³⁾ To perform strict fluid control⁽²³⁾ Hydration with hypertonic saline solution, as prescribed⁽²³⁾ To administer diuretics, as prescribed⁽²³⁾ To maintain water restriction and hemodynamic monitoring⁽²³⁾ To monitor laboratory values including electrolytes, serum osmolarity, and urine density⁽²³⁾
Increased Intracranial Pressure ⁽²⁴⁾	<ul style="list-style-type: none"> To detect early signs and symptoms⁽²⁴⁾ To evaluate neurological system (hemiparesis, aphasia, short-term memory loss, headache, and altered level of consciousness)⁽²⁴⁾ To maintain the headboard elevated at a 30° to 45° angle⁽²⁴⁾ To evaluate hypersensitivity, dehydration, electrolyte imbalance, fluid retention, and hypotension⁽²⁴⁾ To promote health education about the disease⁽²⁴⁾

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Oncological Emergency	Nursing Care
Spinal Cord Compression Syndrome ⁽²⁵⁾	To reduce skin pressure areas ⁽²⁵⁾ To evaluate pain and neurological system (paraplegia) ⁽²⁵⁾ To perform sensory mapping ⁽²⁵⁾ To prevent injuries due to sensory and/or motor deficits ⁽²⁵⁾ To maintain skin integrity ⁽²⁵⁾ To prevent and/or make recognition of urinary tract infections early and establish a bowel training program when there is loss of sphincter control ⁽²⁵⁾ To prevent falls due to neurological deficits ⁽²⁵⁾
Superior Vena Cava Syndrome ^(18,26,27)	To monitor electrolyte balance and vital signs ⁽¹⁸⁾ To evaluate neurological system (confusion, lethargy, seizures, and coma) ^(18,26) To hold maintenance of the patent airways, minimizing the loss of gas exchange ⁽²⁶⁾ To evaluate the presence of edema ⁽²⁶⁾ To check the need for oxygen therapy ⁽²⁶⁾ To calm the patient and relieve anxiety ⁽²⁶⁾ To administer diuretics, corticosteroids, and analgesics, as prescribed by the physician ^(26,27)
Febrile Neutropenia ⁽²⁸⁻³⁰⁾	To evaluate vital signs ⁽³⁰⁾ To administer antibiotics and hydration early, as prescribed by the physician ⁽²⁸⁻³⁰⁾ To promote health education for patients regarding fever symptoms after chemotherapy ⁽²⁸⁾ To evaluate laboratory and imaging tests: blood cultures, urine culture, and chest X-ray ⁽²⁹⁾ To perform blood cultures every 24 hours for temperatures > 38.3°C ⁽²⁹⁾

*ECG = electrocardiogram

Source: The authors.

Among the included studies, 14 of them were case reports, with the level of evidence 4⁽¹⁴⁻²⁷⁾. The risk of bias, evaluated according to the Joanna Briggs Institute Critical Appraisal – Checklist for Case Reports⁽³¹⁾, demonstrated that eight case reports had a low risk of bias^(14,17,19,22-25,27) and six had a moderate risk of bias^(15,16,18,20,21,26). All case-control studies showed clear information on the patient's clinical condition and diagnostic methods used and provided information on signs and

symptoms that professionals should be aware of in clinical nursing practice. Three studies were retrospective cohort studies with a level of evidence 2b⁽²⁸⁻³⁰⁾, and all had a high risk of bias, according to the evaluation carried out using the Joanna Briggs Institute Critical Appraisal – Checklist for Cohort Studies⁽³²⁾, mainly because they revealed little information about the methodology used. The synthesis of the risk of bias judgment of the included studies is shown in Table 3.

Table 3 – Risk of bias judgment of the included studies according to methodological design. Brasilia, DF, Brazil, 2021

Reference	Risk of bias judgment											Total	Risk
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
King, 1995 ⁽¹⁸⁾ *	N	N	Y	Y	Y	N	N	Y	-	-	-	50%	Moderate
Barnett, 1999 ⁽¹⁹⁾ *	N	Y	Y	Y	Y	Y	N	Y	-	-	-	75%	Low
Bucholtz, 1999 ⁽²⁵⁾ *	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	100%	Low
Gobel, 1999 ⁽¹⁴⁾ *	N	N	Y	Y	Y	Y	Y	Y	-	-	-	75%	Low
Knoop, Willeberg, 1999 ⁽²²⁾ *	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	100%	Low
Baltic, Schlosser, Bedell, 2002 ⁽²⁹⁾ †	Y	Y	Y	Y	U	Y	U	N	U	U	U	45%	High
Cantril, Haylock, 2004 ⁽¹⁵⁾ *	Y	N	Y	Y	N	N	N	Y	-	-	-	50%	Moderate
Shuey, Brant, 2004 ⁽²⁰⁾ *	N	N	Y	Y	Y	N	Y	Y	-	-	-	62%	Moderate
Jibrin, Lawrence, Miller, 2006 ⁽²¹⁾ *	N	Y	Y	Y	U	N	N	Y	-	-	-	50%	Moderate
Salmi et al, 2007 ⁽²⁷⁾ *	Y	N	Y	Y	Y	Y	N	Y	-	-	-	75%	Low
Lee, Armstrong, 2008 ⁽²⁴⁾ *	N	Y	Y	Y	Y	Y	N	Y	-	-	-	75%	Low
McGraw, 2008 ⁽¹⁶⁾ *	N	N	Y	Y	Y	Y	N	Y	-	-	-	62%	Moderate
Maloney, Denno, 2011 ⁽¹⁷⁾ *	Y	Y	Y	Y	Y	Y	N	Y	-	-	-	87%	Low
Hawley, Loney, Wiece, 2011 ⁽²⁸⁾ †	U	U	U	N	N	U	U	N	U	U	U	0%	High
Koettters, 2012 ⁽²⁶⁾ *	Y	Y	Y	Y	N	N	N	Y	-	-	-	62%	Moderate
Mattison et al, 2016 ⁽³⁰⁾ †	Y	Y	U	N	N	Y	Y	N	U	U	U	36%	High
Tasler, Bruce, 2018 ⁽²³⁾ *	Y	Y	Y	Y	Y	Y	N	Y	-	-	-	87%	Low

Notes: Y (yes); N (no); U (unknown). * Study evaluated according to the Joanna Briggs Institute Critical Appraisal – Checklist for Case Reports tool⁽³¹⁾. † Study evaluated according to the Joanna Briggs Institute Critical Appraisal – Checklist for Cohort Studies tool⁽³²⁾.

In the risk of bias analysis of case-control studies, eight items were evaluated⁽³¹⁾, namely: Q1 – Were the patient’s demographic characteristics clearly described?; Q2 – Was the patient’s history clearly described and displayed as a timeline?; Q3 – Was the patient’s current clinical condition at presentation clearly described?; Q4 – Were the diagnostic tests or evaluation methods and results clearly described?; Q5 – Were the treatment intervention(s) or procedure(s) clearly described?; Q6 – Was the post-intervention clinical picture clearly described?; Q7 – Were adverse events (harms) or unforeseen events identified and described?; Q8 – Does the case report provide lessons to take forward?. In turn, in order to evaluate the risk of bias in cohort studies, 11 items were used⁽³²⁾, namely: Q1 – Were the two groups similar and recruited from the same population?; Q2 – Were exposures measured similarly to assign people to exposed and unexposed groups?; Q3 – Was exposure measured validly and reliably?; Q4 – Were confounding factors identified?; Q5 – Were strategies to deal with confounding factors established?; Q6 – Were the groups/participants free from the outcome at the beginning of the study (or at the time of exposure)?; Q7 – Were outcomes measured validly and reliably?; Q8 – Was the monitoring time reported and long enough for the results to occur?; Q9 – Was the monitoring complete, and if not, were the reasons for the loss of monitoring described and explored?; Q10 – Were strategies used to deal with incomplete monitoring?; Q11 – Was appropriate statistical analysis used? (Table 3).

DISCUSSION

This integrative review had the objective of identifying the nursing care described in the literature for the management of oncological emergencies that affect cancer patients. A total of 17 studies⁽¹⁴⁻³⁰⁾ addressing this theme were included. Among the included studies, nine oncological emergencies were evaluated, namely: Disseminated Intravascular Coagulation, Tumor Lysis Syndrome, hypercalcemia, cardiac tamponade, Inappropriate Antidiuretic Hormone Secretion Syndrome, increased intracranial pressure, Spinal Cord Compression Syndrome, Superior Vena Cava Syndrome, and febrile neutropenia.

Oncological emergencies are illnesses that require knowledge by health professionals involved in the care of cancer patients and require immediate treatment since they put the patient’s

life at risk. They are classified as metabolic, neurological, cardiovascular, hematological, infectious, respiratory, and urological, and may also be related to the adverse effects of drugs used during treatment and surgical interventions^(33,34). Most studies^(14-17,19-30) evaluated oncological emergencies in isolation, with only one study evaluating more than one oncological emergency⁽¹⁸⁾.

The care given to patients who develop Spinal Cord Compression Syndrome is directed to the symptoms that these patients may manifest⁽²⁵⁾. Because it promotes transient or definitive paresis or paralysis, depending on the level and complexity of the compression, skincare, management of pressure areas and sensory mapping must be adopted, in addition to preventing the risk of falls in patients not restricted to bed.

The Superior Vena Cava Syndrome is pointed out by the articles as an important oncological emergency from the clinical point of view since it brings numerous associated complications (cardiac, respiratory, and neurological). The objectives of the nursing team are to evaluate and identify prodromal signs and symptoms. In some situations, the nurse’s role includes the relief of discomfort, especially respiratory, calming the patient to control anxiety, since the symptoms associated with the Superior Vena Cava Syndrome can bring a feeling of suffocation and imminent death⁽²⁶⁾.

About increased intracranial pressure, cardiac tamponade and Disseminated Intravascular Coagulation, care must be immediate since they bring with them unstable and life-threatening complications. For Disseminated Intravascular Coagulation, nursing care is directed toward the continuous monitoring of symptoms such as neurological changes, cardiovascular and hemorrhagic symptoms, as well as their prevention.

Among the analyzed case reports, only one brought the case of a patient who died with Disseminated Intravascular Coagulation⁽¹⁴⁾. The severity of oncological emergencies must be taken into account. It is essential to invest in the preparation of the team, either to prevent, make an early diagnosis, or even act quickly to make assertive decisions, especially in situations with the possibility of an unfavorable outcome. It is underlined that the early identification of clinical signs of oncological emergencies is a differential in the prognosis of patients. In the case of Disseminated Intravascular Coagulation,

identifying systemic symptoms such as fever, hypoxia, acidosis, hypotension, and proteinuria is fundamental to the management of this condition.

Preventive factors must also be taken into consideration when addressing oncological emergencies, seeking measures that can prevent the onset of classic oncological emergencies. Among the evaluated studies, some preventive measures were addressed, as synthesized in Table 2.

Among the included studies, nursing care found covered physiological and psychological aspects of the disease, addressing emotional state, anxiety degree, and cognitive function. Considering the specificities of oncological emergencies, it is important to train nursing professionals, who should know not only how to recognize an oncological emergency, but also how to act in a quick and qualified way in these situations. To that end, nursing care is expected to address physiological and psychological aspects, acting in a technical, empathetic, competent, confident, and reassuring manner⁽³⁵⁾.

Among the studies included in the sample of this review, three of them⁽²⁸⁻³⁰⁾ were retrospective cohorts and dealt with febrile neutropenia. In one of the studies, the factors that delay the start of antibiotic therapy to the neutropenic patient were surveyed; and, among them, one can find the delay in the first evaluation, absence of a protocol for febrile neutropenia, and poor communication between the medical and nursing teams⁽³⁰⁾. The other retrospective cohort identified that a rapid and multidisciplinary approach, associated with early antibiotic administration, is related to the good prognosis of patients with febrile neutropenia⁽²⁸⁾.

CONCLUSIONS

The included studies brought out nursing care aimed at the intervention and monitoring of the patient, considering his/her clinical condition comprehensively, contemplating physiological and psychological aspects of the disease. Given the importance of the nurse's role in oncological emergencies, it is necessary to carry out other studies that offer a higher level of evidence and that address this issue, following rigorous guidelines in their execution.

As a limitation of this review, it is highlighted that the methodology of the studies hindered the development of a more robust synthesis of the results found, since the evidence obtained through case reports, despite showing the low or moderate

risk of bias, is insufficient for decision making in the context of nursing care practice to the person in an oncological emergency. Only three studies showed a better level of evidence concerning the scale of scientific evidence, because they were retrospective cohort, but showed a high risk of bias.

As oncological emergencies are situations that require rapid evaluation and intervention, the nursing team must be attentive and prepared to deal with these clinical situations. The identification of the main nursing care for these patients can favor the provision of care, since it allows the rapid identification of the main clinical procedures to be implemented, thus mitigating the risks of worsening the patient's health condition.

REFERENCES

1. Instituto Nacional de Câncer José de Alencar Gomes da Silva [INCA]. Estimativa 2020: incidência de câncer no Brasil [acesso em 29 jul 2020]. Disponível em: <http://www1.inca.gov.br/estimativa/2019/estimativa-2019.pdf>.
2. Pignatari SC, Silveira RCCP, Carvalho EC. Oncologic Emergencies: Nursing Care proposed in Literature. OBJN. 2008;7(3):1-9. DOI: [10.5935/1676-4285.20081863](https://doi.org/10.5935/1676-4285.20081863).
3. Ramos LGA, Sabóia VM, Fortini RG. O cuidado de enfermagem no atendimento de emergências oncológicas: uma revisão integrativa. Rev Enferm Atual In Derme. 2019;86(24):1-17. DOI: [10.31011/reaid-2018-v.86-n.24-art.367](https://doi.org/10.31011/reaid-2018-v.86-n.24-art.367).
4. Baruah M. Oncologic emergencies: a review. Int J Res Med Sci. 2018;6(5):1484-90. DOI: [10.18203/2320-6012.ijrms20181492](https://doi.org/10.18203/2320-6012.ijrms20181492).
5. Gonçalves MM, Guedes NAB, Matos SS, Tiensoi SD, Simino GPR, Corrêa AR. Perfil dos atendimentos a pacientes oncológicos em uma unidade de pronto atendimento. Rev Enferm Cent-Oeste Min. 2018;8:e2595. DOI: [10.19175/recom.v8i0.2595](https://doi.org/10.19175/recom.v8i0.2595).
6. Kameo SY, Souza DF, Nogueira JF, Santos LC, Amorim BF. Urgências e emergências oncológicas: revisão integrativa de literatura. Rev Bras Cancerol. 2018;64(4):541-550. DOI: [10.32635/2176-9745.RBC.2018v64n4.203](https://doi.org/10.32635/2176-9745.RBC.2018v64n4.203).
7. Junior SRAM, Matos SSMS. Assistência de enfermagem em emergências oncológicas: uma

- revisão integrativa da literatura no período de 2008 a 2016. *Cad Grad Ciênc Biol Saúde Unit*. 2018;4(3):105-112. DOI: [10.34117/bjdv6n1-358](https://doi.org/10.34117/bjdv6n1-358).
8. Barbosa RFM, Magri APS, Furtado TH, Barbosa LM, Fonseca CP, Toneti BF, et al. Enfermagem e emergências oncológicas: avaliação do conhecimento. *Braz J Hea Rev*. 2020;3(5):12080-95. DOI: [10.34119/bjhrv3n5-057](https://doi.org/10.34119/bjhrv3n5-057).
9. Mendes KS, Silveira RCCP, Galvão CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. *Texto & Contexto Enferm*. 2008;17(4):758-64. DOI: [10.1590/S0104-07072008000400018](https://doi.org/10.1590/S0104-07072008000400018).
10. Ursi ES. Prevenção de lesões de pele no perioperatório: revisão integrativa da literatura [dissertação]. Ribeirão Preto: Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto; 2005.
11. Aromataris E, Munn Z. *JBI Manual for Evidence Synthesis*. JBI, 2020. Disponível em: <https://synthesismanual.jbi.global>.
12. Polmann H, Melo G, Réus JC, Domingos FL, Souza BDM, Padilha AC, et al. Prevalence of dentofacial injuries among combat sports practitioners: a systematic review and meta-analysis. *Dent Traumatol*. 2019;00:1-17. DOI: [10.1111/edt.12508](https://doi.org/10.1111/edt.12508).
13. Oxford Centre for Evidence-based Medicine (CEBM). *Centre for Evidence-Based Medicine - Levels of Evidence*. 2009. Disponível em: <http://www.cebm.net/index.aspx?o=1025>.
14. Gobel, B.H. Disseminated intravascular coagulation. *Semin Oncol Nurs*. 1999;15(3):174-82. DOI: [10.1016/S0749-2081\(99\)80005-9](https://doi.org/10.1016/S0749-2081(99)80005-9).
15. Cantril CA, Haylock PJ. Tumor Lysis Syndrome: Prevention and early detection are crucial in caring for patients with cancer. *American J Nurs*. 2004;104(4):49-53. DOI: [10.1097/00000446-200404000-00017](https://doi.org/10.1097/00000446-200404000-00017).
16. McGraw B. At an increased risk: tumor lysis syndrome. *Clin J Oncol Nurs*. 2008;12(4):563-5. DOI: [10.1188/08.cjon.563-565](https://doi.org/10.1188/08.cjon.563-565).
17. Maloney K, Denno M. Tumor lysis syndrome: prevention and detection to enhance patient safety. *Clin J Oncol Nurs*. 2011;15(6):601-3. DOI: [10.1188/11.cjon.601-603](https://doi.org/10.1188/11.cjon.601-603).
18. King PA. Oncologic Emergencies: assessment, identification, and interventions in the emergency department. *J Emerg Nurs*. 1995;21(3):213-8. DOI: [10.1016/S0099-1767\(05\)80154-0](https://doi.org/10.1016/S0099-1767(05)80154-0).
19. Barnett ML. Hypercalcemia. *Semin Oncol Nurs*. 1999;15(3):190-201. DOI: [10.1016/S0749-2081\(99\)80007-2](https://doi.org/10.1016/S0749-2081(99)80007-2).
20. Shuey KM, Brant JM. Hypercalcemia of malignancy: part II. *Clin J Oncol Nurs*. 2004;8(3):321-3. Disponível em: <https://cjon.ons.org/file/1161/download>.
21. Jibrin IM, Lawrence GD, Miller CB. Hypercalcemia of malignancy in hospitalized patients. *Hosp Physician*. 2006;42(11):29-35. Disponível em: <https://www.semanticscholar.org/paper/%2C-MD-%2C-FACP-Hypercalcemia-of-Malignancy-in-Patients-Jibrin-Lawrence/Of25aa5fbd44abeedf500c1f9300d66984235635>.
22. Knoop T, Willenberg K. Cardiac Tamponade. *Semin Oncol Nurs*. 1999;15(3):168-73. DOI: [10.1016/S0749-2081\(99\)80004-7](https://doi.org/10.1016/S0749-2081(99)80004-7).
23. Tasler T, Bruce SD. Hyponatremia and SIADH: A case study for nursing consideration. *Clin J Oncol Nurs*. 2018;22(1):17-9. DOI: [10.1188/18.cjon.17-19](https://doi.org/10.1188/18.cjon.17-19).
24. Lee ELT, Armstrong TS. Increased intracranial pressure. *Clin J Oncol Nurs*. 2008;12(1):37-41. Disponível em: https://cjon.ons.org/sites/default/files/8KT73585MM751MR1_first.pdf.
25. Bucholtz JD. Metastatic Epidural Spinal Cord Compression. *Semin Oncol Nurs*. 1999;15(3):150-9. DOI: [10.1016/S0749-2081\(99\)80002-3](https://doi.org/10.1016/S0749-2081(99)80002-3).
26. Koettters, K. T. Superior Vena Cava Syndrome. *J Emerg Nurs*. 2012;38(2):135-8. DOI: [10.1016/S0749-2081\(99\)80002-3](https://doi.org/10.1016/S0749-2081(99)80002-3).
27. Salmi R, Gaudenzi P, Di Todaro F, Morandi P, Nielsen I, Manfredini R. Massive thrombosis of brachiocephalic veins and superior vena cava

syndrome in a patient with non-small cell lung cancer treated with the epidermal growth factor receptor inhibitor erlotinib. *Clin Drug Investig.* 2007;7(27):499-503. DOI: [10.2165/00044011-200727070-00007](https://doi.org/10.2165/00044011-200727070-00007).

28. Hawley EL, Loney M, Wiece M. Development of tools and processes to improve treatment times in patients with febrile neutropenia. *Clin J Oncol Nurs.* 2011;15(5):53-7. DOI: [10.1188/11.CJON.E53-E57](https://doi.org/10.1188/11.CJON.E53-E57).

29. Baltic T, Schlosser E, Bedell MK. Neutropenic fever: one institution's quality improvement project to decrease time from patient arrival to initiation of antibiotic therapy. *Clin J Oncol Nurs.* 2002;6(6):337-40. DOI: [10.1188/02.CJON.337-340](https://doi.org/10.1188/02.CJON.337-340).

30. Mattison G, Bilney M, Michael PH, Cooksley T. A nurse-led protocol improves the time to first dose intravenous antibiotics in septic patients post-chemotherapy. *Support Care Cancer.* 2016;24(12):5001-5. Disponível em: [10.1007/s00520-016-3362-4](https://doi.org/10.1007/s00520-016-3362-4).

31. Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, et al. Chapter 7: Systematic reviews of etiology and risk. Appendix 7.4 - Critical appraisal checklist for case reports. In: Aromataris E, Munn Z (Editors). *JBIManual for Evidence Synthesis.* 2020. Disponível em: <https://synthesismanual.jbi.global/>.

32. Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, et al. Chapter 7: Systematic reviews of etiology and risk. Appendix 7.1 - Critical appraisal checklist for cohort studies. In: Aromataris E, Munn Z (Editors). *JBIManual for Evidence Synthesis.* 2020. Disponível em: <https://synthesismanual.jbi.global/>.

33. Thandra K, Salah Z, Chawla S. Oncologic Emergencies-the old, the new, and the deadly. *J Intensive Care Med.* 2020;35(1):3-13. DOI: [10.1177/0885066618803863](https://doi.org/10.1177/0885066618803863).

34. Jafari A, Rezaei-Tavirani M, Salimi M, Tavakkol R, Jafari Z. Oncological Emergencies from pathophysiology and diagnosis to treatment: a narrative review. *Soc Work Public Health.* 2020;35(8):689-709. DOI: [10.1080/19371918.2020.1824844](https://doi.org/10.1080/19371918.2020.1824844).

35. Kesbakhi MS, ROHANI C. Exploring oncology nurses' perception of the consequences of clinical

empathy in patients and nurses: a qualitative study. *Support Care Cancer.* 2020;28:2985-93. DOI: <https://doi.org/10.1007/s00520-019-05118-z>.

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