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CONSTRUCTION OF AN ALGORITHM OF CONDUCT OF SIGNS AND SYMPTOMS IN MALIGNANT NEOPLASTIC WOUNDS IN ADULTS

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ABSTRACT

Objective: To build an algorithm of conducts to control signs and symptoms of malignant neoplastic wounds in adults. **Method:** Methodological research, of an exploratory nature, for the construction-production of a clinical algorithm based on the scoping review. **Results:** A total of 107 studies was found in the databases, nine of which were included in this review. Four studies are randomized experimental studies, four are case studies and one is retrospective documentary observational study. Odor was the most addressed sign, followed by exudate, bleeding, infection, moisture-associated dermatitis, and pain. **Conclusion:** Gaps were observed, such as the need for more original and experimental studies, in addition to the lack of a specific descriptor for malignant neoplastic wound. However, it was possible to build an algorithm that offers conducts that are based on the literature for greater theoretical support and nursing safety in relation to cancer patients.

DESCRIPTORS: Nurses. Oncology nursing. Signs and symptoms. Wounds and injuries. Neoplasms.

CONSTRUÇÃO DE ALGORITMO DE CONDUTAS DE SINAIS E SINTOMAS NAS FERIDAS NEOPLÁSICAS MALIGNAS EM ADULTOS

RESUMO

Objetivo: Construir um algoritmo de condutas sobre controle de sinais e sintomas de feridas neoplásicas malignas em adultos. **Método:** Pesquisa metodológica, de caráter exploratório, para construção de algoritmo clínico fundamentado em uma revisão de escopo. **Resultados:** Foram encontrados 107 estudos nas bases de dados, dos quais nove foram incluídos nessa revisão. Quatro estudos são experimentais randomizados, quatro são estudos de caso e um estudo é observacional documental retrospectivo. O odor foi o sinal mais abordado, seguido de exsudato, sangramento, infecção, dermatite associada à umidade e dor. **Conclusão:** Foram observadas lacunas, como a necessidade de mais estudos originais e experimentais, além da inexistência de um descritor específico para ferida neoplásica maligna, contudo foi possível construir o algoritmo, que oferece condutas fundamentadas na literatura para maior respaldo teórico e segurança da enfermagem em relação aos pacientes oncológicos.

DESCRITORES: Enfermeiras e enfermeiros. Enfermagem oncológica. Sinais e sintomas. Ferimentos e lesões. Neoplasias.

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CONSTRUCCIÓN DE UN ALGORITMO DE CONDUCTA DE SIGNOS Y SÍNTOMAS EN HERIDAS NEOPLASICAS MALIGNAS EN ADULTOS

RESUMEN

Objetivo: Construir un algoritmo de conductas para el control de signos y síntomas de heridas neoplásicas malignas en adultos. **Método:** Investigación metodológica, de carácter exploratorio, para la construcción-producción de un algoritmo clínico a partir de la revisión de alcance. **Resultados:** Se encontró un total de 107 estudios en las bases de datos, nueve de los cuales se incluyeron en esta revisión. Cuatro estudios son estudios experimentales aleatorizados, cuatro son estudios de casos y uno es un estudio observacional documental retrospectivo. El olor fue el signo más discutido, seguido de exudado, sangrado, infección, dermatitis asociada a la humedad y dolor. **Conclusión:** Se observaron lagunas, como la necesidad de estudios más originales y experimentales, además de la falta de un descriptor específico para herida neoplásica maligna. Sin embargo, fue posible construir el algoritmo que ofrece comportamientos que se basan en la literatura para mayor sustento teórico y seguridad de enfermería en relación a los pacientes oncológicos.

DESCRIPTORES: Enfermeras y enfermeros. Enfermería oncológica. Signos y síntomas. Heridas y lesiones. Neplasias.

INTRODUCTION

Malignant neoplastic wounds (MNF) are chronic wounds arising from primary or metastatic cancers that can appear anywhere on the body. They occur when cancer cells infiltrate the skin structures, becoming exophytic[1]. In underdeveloped countries, such as Brazil, there is no record of the incidence of MNF. Some studies suggest that the incidence is 5% from primary sites and 10% from metastatic sites[2].

MNF can have several impacts on the quality of life of a person with cancer. A Swiss study published in 2013 by Sebastian Probst et al.[3] demonstrated that when there is no control over the signs or symptoms of MNF (such as bleeding, odor, pain and exudation), patients experience a lack of control over their bodies, over their own life, beyond oneself. Other studies corroborate that managing signs and symptoms of MNF positively impacts the quality of life[4].

Adequate treatment for MNF encompasses a broad spectrum of procedures that involve several professionals, from diagnosis to end-of-life care. The only treatment that remains in all phases of the disease and MNF is the effective control of signs and symptoms. Nursing stands out in this scenario due to its great responsibility in the treatment of wounds, and the treatment of MNF requires more in-depth knowledge about the pathophysiology, as well as adequate management of the signs and symptoms, in addition to knowing the impacts of the disease on the person with cancer[1,5].

The most common symptoms in cancer wounds are: bleeding or hemorrhage, odor, pain, itching, exudation and symptoms of infection. Based on these frequent symptoms, the HOPES[6] mnemonic was created, in which each letter represents a symptom in English: H hemorrhage, O odor, P pain, E exudate and S superficial infection. Current studies confirm that the symptoms covered in the mnemonic are the most frequent[2].

With technical-scientific advances in nursing, the use of technologies in hospital care conceptualized as care technology, has been observed. They are characterized by using technical-scientific knowledge to construct systematic, procedural and instrumental interventions to serve human beings in a qualified manner. Therefore, the technology this research proposed to build is in the format of a clinical algorithm[7].

An algorithm is understood as a sequence of actions to be performed for a given problem, and despite being widely used in computing, it is not restricted to this area. Clinical algorithms are simple and essential instruments to guide decision-making in care practice. Therefore, they need to be based on sound scientific evidence[8].

This type of tool has already been used to treat acute and chronic wounds[8,9]. Only one symptom management algorithm was identified in oncological wounds, produced through a literature review and the author's practical knowledge in 2005[10].

As this is an old study, there is a need to incorporate other research that encompasses new technologies and appropriate practices for managing oncological wounds.

Therefore, this research sought to answer the question: how are signs and symptoms of cancer wounds controlled in adult cancer patients in a hospital environment? To this end, the general objective was to build an algorithm for controlling signs and symptoms of oncological wounds by mapping scientific evidence on the control of signs and symptoms of oncological wounds.

METHODS

This is a methodological research, of an exploratory nature, for the construction-production of the clinical algorithm based on the scoping review. The methodological research sought to demonstrate scientific methods and procedures based on different points adopted in the study, such as the techniques used to develop the research[11].

A scoping review is conceptualized by the Joanna Briggs Institute (JBI) as a type of review that seeks, in a systematic way, to map the existing evidence in a research field and understand the different methods used. As it is more flexible, it does not require evaluation of the evidence, as the focus is on understanding what is available and identifying gaps[12].

This research adopted the scoping review method proposed by JBI and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR)[12] checklist. Methodologically, the scope review steps were followed and, in the end, the construction of the algorithm[13].

The first step was developing the research question. The PCC mnemonic was used (P: patient, C: concept, C: context), where P are adult patients with MNF; C is control of signs and symptoms related to MNF; and C, the hospital environment. Thus, the research question was defined: how is the control of signs and symptoms manifested by adult patients hospitalized with MNF carried out?

Before proceeding to the second stage, prior research was conducted to find other reviews or protocols with the same theme. A recent systematic review was found in the Medical Literature Analysis and Retrieval System Online (MEDLINE), which aimed to review therapeutic algorithms for oncological wounds beyond topical treatment, such as surgery, radiotherapy and chemotherapy[1].

In the Virtual Health Library (VHL), a literature review was found that was more than five years old but had a different methodological approach, in addition to needing updating[9]. No studies with similar designs or proposals were found in the International Prospective Register of Systematic Reviews (PROSPERO) and the JBI and Cochrane databases.

The second stage consisted of identifying relevant studies. For this purpose, the following inclusion criteria were defined: original studies available in full, with any methodological design, in Portuguese, English and Spanish, which address interventions to alleviate at least a sign or symptom of oncological wounds in patients aged 18 and over, without a time frame. The exclusion criteria were: clinical trials with animals, duplicate studies, review protocols, study protocols not yet carried out, editorials and gray literature.

The search occurred in January 2023 in the Cochrane Library, MEDLINE/PubMed (via the National Library of Medicine), VHL, Web of Science and Scopus. The databases were accessed through the Periodical Portal of the Coordination for the Improvement of Higher Education Personnel through the Federated Academic Community.

The search strategy used descriptors indexed in the Health Sciences Descriptors and Medical Subject Headings: "Oncological Nursing", "Oncological Nursing", "Oncology Nursing", "Oncologic Nursing", "Cancer Nursing," and "Oncological Nursing", combined with the keywords: "malignant wound", "malignant wounds", "fungating wound", "fungating wounds", "malignant wound", "malignant wounds", "malignant fungating wound" and "malignant fungating wounds". To cross the descriptors, the Boolean operators AND and OR were used. Table 1 shows the search syntax in each database.

Table 1. Data search syntax. Belém, PA, Brazil, 2023.

DATABASE	Search strategy
Cochrane Library	("ferida maligna" OR "feridas malignas" OR "fungating wound" OR "fungating wounds" OR "malignant wound" OR "malignant wounds" OR "malignant fungating wound" OR "malignant fungating wounds")
Medical Literature Analysis and Retrieval System Online/PubMed	("ferida maligna" OR "feridas malignas" OR "fungating wound" OR "fungating wounds" OR "malignant wound" OR "malignant wounds" OR "malignant fungating wound" OR "malignant fungating wounds") AND ("Enfermagem Oncológica" OR "Enfermería Oncológica" OR "Oncology Nursing" OR "Oncologic Nursing" OR "Cancer Nursing" OR "Oncological Nursing")
Web of Science	("ferida maligna" OR "feridas malignas" OR "fungating wound" OR "fungating wounds" OR "malignant wound" OR "malignant wounds" OR "malignant fungating wound" OR "malignant fungating wounds") AND ("Enfermagem Oncológica" OR "Enfermería Oncológica" OR "Oncology Nursing" OR "Oncologic Nursing" OR "Cancer Nursing" OR "Oncological Nursing")
Scopus	("ferida maligna" OR "feridas malignas" OR "fungating wound" OR "fungating wounds" OR "malignant wound" OR "malignant wounds" OR "malignant fungating wound" OR "malignant fungating wounds") AND ("Enfermagem Oncológica" OR "Enfermería Oncológica" OR "Oncology Nursing" OR "Oncologic Nursing" OR "Cancer Nursing" OR "Oncological Nursing")
Biblioteca Virtual em Saúde	("ferida maligna" OR "feridas malignas" OR "fungating wound" OR "fungating wounds" OR "malignant wound" OR "malignant wounds" OR "malignant fungating wound" OR "malignant fungating wounds") AND ("Enfermagem Oncológica" OR "Enfermería Oncológica" OR "Oncology Nursing" OR "Oncologic Nursing" OR "Cancer Nursing" OR "Oncological Nursing")

Source: Elaborated by the authors.

We used the strategy with keywords only to increase the amount of data in the Cochrane Library. Subsequently, the studies were extracted from the databases in the Research Information Systems format and then imported into the Rayyan software, a free tool for literature reviews.

The third step was the selection of studies. After excluding duplicates, the title and abstract were read to select eligible studies according to the inclusion and exclusion criteria[14].

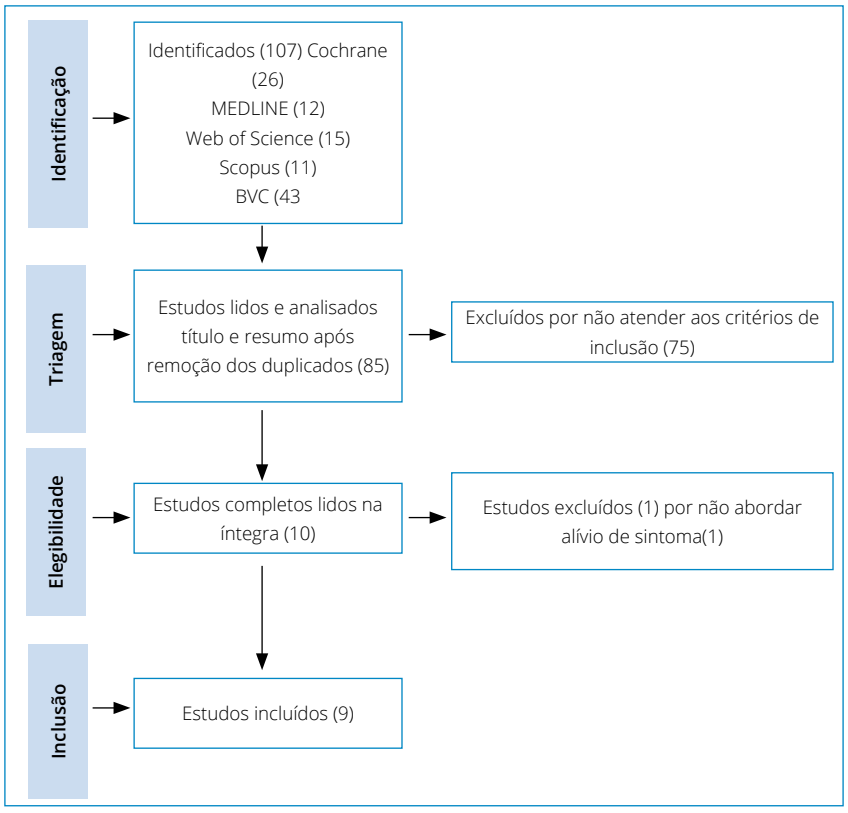
The fourth stage involved mapping and extracting the results found. For this, the eligible studies were read in full and the data were extracted into a data collection instrument previously structured in Microsoft Word 365. The data extracted were: authors, year, country, published journal, study design, sample, signals and symptoms addressed, intervention and results.

RESULTS

The search strategies in the researched databases found a total of 107 studies. After excluding duplicates, the titles and abstracts of 85 studies were read, of which 75 were excluded for not meeting the inclusion criteria. Therefore, 10 studies were selected to be read in full. Then, one was excluded, as it did not address the relief of signs and symptoms, leaving only nine studies included in this review. Fig. 1 presents the study search and selection process as recommended by PRISMA-ScR[13].

The studies presented a time frame from 2007 to 2022, and two of them (22.22%) were published in 2021. As for the continents, the Asian one stood out, with five (55.55%) studies produced, China with three (33.33%), Singapore and Taiwan with one study each. Next came Europe, with three (33.33%) studies, from Denmark, Greece and France. Finally, there is one (11.11%) Brazilian study, which is also the only study in Portuguese included in the review. The other eight (88.88%) were published in English.

Regarding study design, four (44.44%) are randomized experimental studies, four (44.44%) are case reports and one (11.11%) is an observational, documentary and retrospective study. It is worth noting that the most discussed symptom in all studies was odor, followed by exudate, pain, bleeding, symptoms of infection, and dermatitis associated with humidity.



MEDLINE: Medical Literature Analysis and Retrieval System Online; BVS: Biblioteca Virtual em Saúde.

Source: Elaborated by the authors.

Figure 1. Flowchart of selection of identified studies, according to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews. Belém, PA, Brazil, 2023.

As some signs or symptoms may be closely related to others (such as odor, exudate and symptoms of infection), five (55.55%) of the studies addressed more than one symptom, of which four (44.44%) were case studies . Those studies that addressed only one sign or symptom are mostly composed of three (33.33%) randomized studies and one (11.11%) retrospective observational study. The main characteristics of the included studies are shown in Table 2.

Table 2. Presentation of studies included for review.

Authors (year)/ country/ journal	Type of study/ sample	Sign or symptom	Intervention	Results
Lo et al.[15] (2007)/Taiwan/ Journal of Wound Care	Case report/1	Odor/symptom of infection	Metronidazole gel on the wound bed with hydrofiber dressing coverage with silver	Odor reduction in one week and antibacterial control
		Exudate	Hydrofiber dressing with silver/hydrogel dressing	Hydrofiber with silver reduced daily exchanges (six times a day) to twice a week. After 30 days, the wound began to lose moisture and become dry. Therefore, the hydrofiber with silver changed to hydrogel
		Moisture-associated dermatitis	Alcohol-free barrier product/hydrocolloid dressing	Maintained the perilesional skin intact

Continue...

Table 2. Continuation...

Authors (year)/ country/ journal	Type of study/ sample	Sign or symptom	Intervention	Results
Lund-Nielsen et al.[16] (2011)/ Dinamarca/ Wound Repair and Regeneration	Randomized experimental study Total: 69 Group A: 34 Group B: 35	Odor/exudate/pain	Primary alginate dressing with Manuka Activion honey, secondary dressing without high absorption active ingredients and tertiary foam dressing/primary dressing with bandage impregnated with silver nanocrystals and secondary foam dressing	The two interventions used did not demonstrate major statistical differences between them, both being effective in controlling exudate and odor. Pain control was ineffective with any of the interventions
Kalemikerakis et al.[17] (2012)/ Grécia/Journal of B.U.ON.	Randomized experimental study Total: 26 Group A: 13 foam with silver Group B: 13 silver-free foam	Odor	Foam dressing with silver/ foam dressing without silver	Foam treatment with silver demonstrated superior odor control compared to treatment without silver
Lian et al.[18] (2014)/ Singapura/ Proceedings of Singapore Healthcare	Randomized experimental study Total: 30 Control (metronidazole): 15 Treatment (green tea): 15	Odor	Green tea/metronidazole powder packet (macerated tablet)	There was no difference between the interventions used, both managed to reduce the odor within seven days
Silva et al.[19] (2015)/Brasil/ *Revista Brasileira de Cancerologia*	Case report 2	Odor	Activated charcoal dressing added to oral metronidazole	Decrease in odor from grade III to grade II (INCA)
		Pain	Non-adherent dressings added to prescribed analgesia	Pain reduction: EVA 6/7 to 3
		Exudate	Sodium Calcium Alginate Fiber Dressing/Activated Charcoal Dressing	In one of the cases after using alginate, there was an increase in exudate and bleeding, changing to activated charcoal, which in both cases effectively controlled the exudate without causing trauma.
		Bleeding	Calcium and sodium alginate fiber dressing added to hemostatic radiotherapy	In one case, bleeding was controlled without causing trauma.

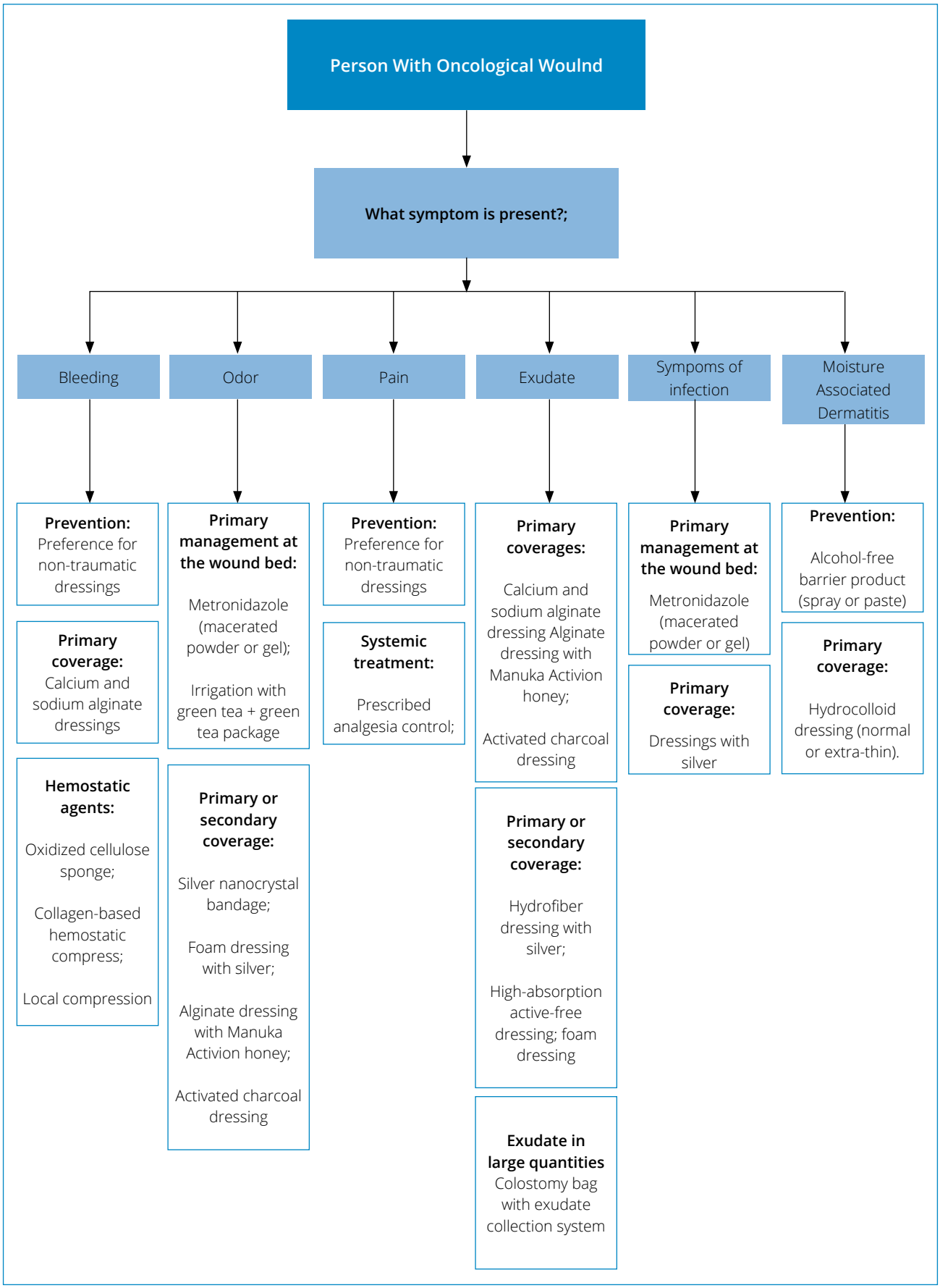
Continue...

Table 2. Continuation...

Authors (year)/ country/ journal	Type of study/ sample	Sign or symptom	Intervention	Results
Peng e Dai[20] (2020)/China/ Journal of International Medical Research	Randomized experimental study Total: 73 Observational: 36 Control: 37	Odor	Autolytic debridement gel/ autolytic debridement gel with metronidazole powder (macerated tablet)	The combined therapy of autolytic debridement with metronidazole powder proved to be superior in controlling odor
Nicodème et al.[21] (2021)/ França/Journal of Pain and Symptom Management	Retrospective documentary observational study 90 with malignant wounds > 10 cm2	Bleeding	Preference for non-traumatic dressings	Reduced chances of bleeding when changing the dressing (80% occurred during change)
			Hemostatic agents: oxidized cellulose sponge, collagen-based hemostatic compress Local compression	Bleeding control in 70% of cases Combined with other methods, it controlled bleeding in 49% of cases
			Hemostatic agents: oxidized cellulose sponge, collagen-based hemostatic compress Local compression	Bleeding control in 70% of cases Combined with other methods, it controlled bleeding in 49% of cases
			Calcium alginate dressings	Control of occasional bleeding, but with a high risk of causing trauma when changing the dressing
You et al.[22] (2021)/China/ Asia-Pacific Journal of Oncology Nursing	Case report 1	Symptom of infection	Hydrofiber dressing with silver	Antibacterial control
		Exudate	Hydrofiber dressing with silver/foam dressing	Hydrofiber for partial exudate control and foam for large amounts of exudate
Luo et al.[23] (2022)/China/ Asia-Pacific Journal of Oncology Nursing	Case report 1	Moisture-associated dermatitis	Barrier paste and extra-thin hydrocolloid plate	Protect the skin from contact with exudate by avoiding maceration
		Excessive exudate/odor	Colostomy bag with exudate collection system (500 mL/ day)	Reduced daily dressing changes (every two hours) to every 3–5 days, considerably reducing odor

Source: Elaborated by the authors.

Through data mapping, it was possible to build the algorithm for managing the main signs and symptoms in MNF (Fig. 2). The instrument follows a two-step sequence. The first is focused on identifying a sign or symptom, and the second stage deals with the care to be provided, whether preventatively or through intervention by the nurse. The generated algorithm is presented in Fig. 2.



Soure: Elaborated by the authors.

Figure 2. Algorithm for managing signs and symptoms in malignant neoplastic wounds in adults.

DISCUSSION

The signs and symptoms arising from MNF are closely related to the pathophysiological process. When an oncological wound appears, the venous and lymphatic networks are compromised, causing exudation and facilitating bleeding episodes. As a consequence of this, hypoxia and then necrosis occur. Contamination of MNF with aerobic and anaerobic microorganisms causes the characteristic odor, due to their metabolism and the elimination of gases such as cadaverine and putrescine[24].

Some studies found in this review focused on odor, as it is one of the signs that causes the most discomfort in patients, resulting in social isolation and, consequently, greater psychosocial impact. In order to effectively control odor, it is important to consider other signs and symptoms that are intrinsically related, such as exudate and infection[24].

As the literature considers metronidazole as the first treatment of choice for odor control, as it is an effective antibiotic against gram-negative and positive bacteria, it can be used safely in gel or powder formulations, when the tablet is macerated. , being applied directly to the wound bed, or even used systemically. However, for its use, a medical prescription is necessary, which can make it difficult for nurses to provide assistance if the institution does not have a defined protocol that facilitates access to the medication[19,20].

As it is an antibiotic that can generate antimicrobial resistance in patients who use it for a long time, a randomized study in Singapore decided to compare metronidazole to green tea for odor control. In the end, he concluded that the latter is as effective as metronidazole. Green tea has the advantage of being more cost-effective, not causing antimicrobial resistance and not requiring a medical prescription. The authors' recommendation is that green tea be used to irrigate the cancer wound, in addition to using tea packets directly on the bed after irrigation.[18].

Only in the final considerations of this study do the authors inform that they used a cheaper type of Japanese tea available in the country's markets. So, it is not clear which tea is effective, as in Brazil there is a variety of Japanese green tea. A recent review investigated the bioactive effects of green tea from the Camellia sinensis plant on specific targets that inhibited cell proliferation and angiogenesis, presented anti-inflammatory properties, which corroborated the properties of green tea mentioned in the previous study[18,25].

Another known antiseptic solution is polyhexamethylene biguanide (PHMB), which acts against gram-negative and gram-positive bacteria, fungi and parasites. The mechanism of action consists of permeabilizing the membrane of these microorganisms, creating pores and, thus, being able to destroy them. Because of its potential to reduce the colonization of microorganisms in wounds, Villela-Castro et al.[26] compared the effectiveness of metronidazole solution and PHMB in controlling odor in FNM. As a result, both products proved to be satisfactory. PHMB is advantageous because it does not require a medical prescription or cause resistance like metronidazole[27].

Still observing the interrelationship between the odor, signs of infection and exudate, they share similar behaviors, such as dressings with silver and activated charcoal. Silver ions are known to have a broad-spectrum bactericidal action, and the absorptive action occurs due to the type of material, such as foams, alginate and hydrofibers, which, when added to silver, control odor, exudate and symptoms of infection[17,22]. Activated carbon is known for having adsorption capacity, which involves retaining molecules on its surface, therefore reducing odor and exudation[19].

Dressings with honey have hygroscopic properties, which is the ability to absorb moisture, in addition to acidic pH, which helps with microbial control by dehydrating bacteria and promoting autolytic debridement, being able to control symptoms of infection, exudation and odor. Calcium and sodium alginate dressings promote the exchange of ions in a humid environment, being indicated for wounds with moderate and high exudation, in addition to having hemostatic properties due to the presence of calcium[16,28,29].

For MNF with high exudation, absorbent dressings may not be sufficient for adequate control, considering that there is a need to change the dressing more frequently. In a case study, a patient suffering from MNF with a strong odor and who produced 500 mL of exudate per day with a dressing change every two hours was effectively approached by the authors, who adapted a colostomy bag around the wound and attached it in an exudate collection system in which only the collection bag was changed daily and the entire system every three to five days. As a positive result, there was effective odor control, in addition to a considerable improvement in quality of life[23].

However, it is important to emphasize that FNM can appear anywhere on the body, as well as presents different sizes and shapes, which are factors that can make it difficult to attach a collection bag. Therefore, not all patients can benefit from this strategy. Another important issue to consider is the care of the skin around the wound, which is exposed to exudate, which can cause another known symptom, which is moisture-associated dermatitis, defined as dermatitis [23].

The best way to control dermatitis is to prevent it from occurring. In this case, the amount of exudate to which the skin is exposed must also be considered. When there is little exudate, barrier products in spray or paste formulations can be effective. In the presence of excess exudate, in addition to a barrier product, it is interesting to add a hydrocolloid dressing[15,23].

Bleeding is a sign associated with a poor prognosis, in addition to causing anxiety. A French observational retrospective documentary study investigated effective measures to control bleeding. Among the recommendations, the main one was prevention, the suggestion being to avoid dressings that adhere too closely to the wound bed and to be extra careful when removing them. In this study, 80% of bleeding events were associated with dressing changes[21].

Calcium and sodium alginate, despite having hemostatic properties, can cause trauma when exchanged and cause bleeding, a fact that was reported in the case study by Silva et al.[19] Hemostatic agents are also mentioned as therapeutic measures widely used in centers. surgical procedures and pre-hospital emergencies to control bleeding[21].

Pain is a difficult symptom to control with dressings because of its causative aspects, such as compression of underlying organs and tissues, considering that MNF are generally large and deep, which corroborates the fact that few studies have addressed this symptom. Furthermore, the psychological impact of the wound on the patient must be considered, which can also cause or increase pain. To control pain, it is necessary to have a multidisciplinary team to act on the different dimensions that involve it[1,16].

Pain is a subjective symptom and must be addressed, measured and controlled. To achieve this, professionals must offer space for patients to express their complaints so they are not ignored. Pharmacological treatment is important and should not be ignored or delayed. In nursing practice, pain during dressing must be prevented. To do this, you should avoid adherent dressings, reduce many changes during the day and prioritize administering pain control medications before the procedure[2,19].

CONCLUSION

Given the various signs and symptoms that a person with MNF may present, the complexity and importance of appropriate management are evident. Several material options can be used to care for signs and symptoms of MNF adequately, and it is up to the nurse to know how to apply each. Therefore, an algorithm that assists in decision-making has the potential to facilitate this process, as it is a quick and easily accessible tool.

The main limitation in building the algorithm through the scoping review was the absence of a specific descriptor for MNF. However, it is a routine clinical topic, which makes searching in databases difficult. It is recommended that more studies be promoted in the area to reinforce the need for a specific descriptor.

From the searches in this review, it became clear that there are still many gaps. There is a need for more original experimental studies to offer theoretical support for behaviors that nursing carries out in practice. An example of this is the fact that few studies in this review addressed pain.

The behavior algorithm for managing signs and symptoms in MNF could be constructed based on good evidence, offering more outstanding theoretical support and security to the professional who applies it. It is worth noting that the technology still needs to go through validation processes with expert judges and validation with the target audience to be used in practice.

To apply this algorithm, the professional must have experience and skill in evaluating the oncological wound to apply the type of intervention the technology suggests better.

AUTHOR CONTRIBUTION

Conceptualization: Furtado ARD e Ramos AMPC; **Methodology:** Furtado ARD, Sagica TP e Silva MJRB; **Writing – First Draft:** Furtado ARD, Sagica TP e Silva MJRB; **Writing – Review and Editing:** Mendes CP, Simor A, Pereira OV, Silva AB e Ramos AMPC. **Supervision:** Ramos AMPC.

DATA AVAILABILITY STATEMENT

All datasets were generated or analyzed in the current study.

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