revista de pesquisa ISSN 2175-5361

CUIDADO É FUNDAMENTAL

Escola de Enfermagem Alfredo Pinto – UNIRIO

Original Article 10.9789/2175-5361.rpcfo.v16.13209

Eventos adversos da hipodermóclise em pacientes oncológicos sob cuidados paliativos: revisão de escopo

Adverse events of hypodermoclysis in cancer patients under palliative care: scoping review

Eventos adversos de la hipodermoclisis en pacientes con cáncer bajo cuidados paliativos: revisión del alcance

Clarissa de Jesus Ferraciolli[1] 0000-0002-4229-337X
Isabel Yovana Quispe Mendoza[2] 0000-0002-7063-8611z
Raquel Eustáquia de Souza[3] 0000-0002-8980-2784
Márcia Nogueira de Almeida[4] 0000-0003-1556-9657
Flávia Falci Ercole[5] 0000-0002-1356-0854
Luana Vieira Toledo[6] 0000-0001-9527-7325

RESUMO

Objetivo: mapear as evidências científicas sobre os eventos adversos locais decorrentes do uso da hipodermóclise em pacientes oncológicos sob cuidados paliativos. **Método:** revisão de escopo baseada nas diretrizes Prisma, cuja busca foi realizada nas bases de dados: Portal Regional da Biblioteca Virtual em Saúde; National Library of Medicine; Cochrane Library, Scopus, Web of Science e Embase via Portal de periódicos da Capes. **Resultados:** Os eventos adversos mais citados nos estudos foram eritema, edema, desconforto no local, abcesso e sangramento. Considerações finais: a hipodermóclise é uma técnica útil e segura para hidratação e administração de medicamentos em pacientes oncológicos em cuidados paliativos, porém apresenta eventos adversos que precisam ser mais bem esclarecidos.

DESCRITORES: Hipodermóclise; Oncologia; Cuidados paliativos.

[1,2,3,4,5] *Universidade Federal de Minas Gerais, Minas Gerais, Belo Horizonte, Brasil.*
[6] *Universidade Federal de Viçosa, Minas Gerais, Viçosa, Brasil.*

AUTOR CORRESPONDENTE: *Clarissa de Jesus Ferraciolli*
Email: *clarissaferraciolli@yahoo.com.br*

Recebido em: 2024/04/02
Aceito em: 2024/05/09

ABSTRACT

Objective: to map the scientific evidence on local adverse events resulting from the use of hypodermoclysis in cancer patients under palliative care. **Method:** scoping review based on the Prisma guidelines, whose search was carried out in the databases: Regional Portal of the Virtual Health Library; National Library of Medicine; Cochrane Library, Scopus, Web of Science and Embase via Capes Journal Portal. **Results:** The adverse events most cited in the studies were erythema, edema, local discomfort, abscess and bleeding. **Final considerations:** hypodermoclysis is a useful and safe technique for hydration and medication administration in cancer patients undergoing palliative care, but it presents adverse events that need to be better clarified.

DESCRIPTORS: Hypodermoclysis; Oncology; Palliative care.

RESUMEN

Objetivo: mapear la evidencia científica sobre eventos adversos locales resultantes del uso de hipodermoclisis en pacientes con cáncer en cuidados paliativos. **Método:** revisión de alcance basada en los lineamientos Prisma, cuya búsqueda se realizó en las bases de datos: Portal Regional de la Biblioteca Virtual en Salud; Biblioteca Nacional de Medicina; Biblioteca Cochrane, Scopus, Web of Science y Embase vía Capes Journal Portal. **Resultados:** Los eventos adversos más citados en los estudios fueron eritema, edema, malestar local, absceso y sangrado. Consideraciones finales: la hipodermoclisis es una técnica útil y segura para la hidratación y administración de medicamentos en pacientes oncológicos sometidos a cuidados paliativos, pero presenta eventos adversos que necesitan ser mejor esclarecidos.

DESCRIPTORES: Hipodermoclisis; Oncología; Cuidados paliativos.

INTRODUCTION

Hypodermoclysis is a technique for the subcutaneous administration of fluid and electrolytes to achieve fluid maintenance in dehydrated patients who have difficult intravenous access or who cannot tolerate oral intake.[1,2] However, the use of this technique in clinical practice has been limited due to lack of training of the team and the occurrence of complications described in the literature as local or systemic.

Possible infusion site adverse events include: edema,[3] warmth,[4] erythema,[4] pain,[5] hematoma,[6] tissue necrosis, bleeding, and local infection.[4,7] Systemic adverse events, which have been described as minimal, may include: signs of infection (fever, chills, aches), cardiac overload (tachycardia, jugular tachycardia, hypertension, cough, dyspnea), headache, and anxiety.[7]

Adverse events at the infusion site may be related to factors such as the solubility and size of the molecules, the volume administered, and individual patient factors such as capillary perfusion and subcutaneous tissue thickness.[1] In a study of hospitalized patients with advanced cancer receiving palliative care, adverse events were observed to be more frequent up to the second day after puncture, with the thigh being the most frequent site compared to other sites (abdomen, deltoid, and subclavicular), although this did not reach statistical significance.8 Medications, type of solution, electrolytes, and volume administered in the infusion can also be cited as factors associated with adverse events. The factors that showed statistical significance were glucose solution, electrolytes (20% NaCl and 19.1% KCl), higher volumes, and number of drugs greater than or equal to three per puncture,[8] demonstrating that although hypodermoclysis is considered a safe route for administration of fluids and drugs, there are factors that may cause risks.

Thus, there is a need to elucidate the adverse effects of hypodermoclysis in adult cancer patients and what factors would be related to its occurrence, considering that studies have presented more results related to the description of complications developed using the subcutaneous route in elderly patients and/or in care. This review aimed to map the scientific evidence on local adverse events resulting from the use of hypodermoclysis in cancer patients under palliative care.

METHOD

Research Description

This is a scoping review based on the recommendations of the Prisma-ScR international guide for scoping reviews.[9]

Protocol and logging

The protocol that guided this study is registered in the Open Science Framework, available at: https://osf.io/dvu96.

Search Strategy and Information Sources

The guiding question was defined using the PCC strategy, where P (population) is cancer patients, C (concept) is adverse events at the hypodermoclysis infusion site, and C (context) is palliative care. The question made was: What are the local adverse events resulting from the use of hypodermoclysis in cancer patients in palliative care?

The search was performed between April and May 2023 in the following databases: Regional Portal of the Virtual Health Library (BVS), which includes a search in the databases and portals of Latin American and Caribbean Health Sciences Literature (Lilacs), Spanish Bibliographic Index of Health Sciences (Ibecs), Scientific Electronic Library (SciELO) and Nursing Database (Bdenf); Medical Literature Analysis and Retrieval System Online (Medline) via Pubmed; Cochrane Library, Scopus, Web of Science and Embase via Capes Journal Portal. In addition, a manual search was performed in other sources such as free search in Google Scholar and reverse search that met the inclusion criteria. Descriptors appropriate to the databases searched (Medical Subject Headings - MeSH and Descriptors in Health Sciences - DeCS) were selected.

The search strategies constructed with the descriptors using the Boolean operators AND and OR are shown in Chart 1.

Quadro 1 – Definição de estratégias de busca em bases de dados. Belo Horizonte, MG, Brasil, 2022

Database	Search strategy
BVS Lilacs Ibecs SciELO Bdenf	(Hipodermóclise OR Hypodermoclysis OR Hipodermoclisis OR Hypodermoclyse OR Cateteres OR Catheters OR Catéteres OR Cathéters OR "Subcutaneous Fluid Administration" OR "Subcutaneous Hydration") AND (Oncologia OR "Medical Oncology" OR "Oncología Médica" OR "Oncologie médicale" OR Neoplasias OR Neoplasms OR Neoplasias OR Tumeurs OR Câncer OR Tumor OR Cancer) AND ("Cuidados Paliativos" OR "Palliative Care" OR "Cuidados Paliativos" OR "Soins palliatifs")
Medline/Pubmed Cochrane Scopus Web of Science	(Hypodermoclysis OR Catheters OR "Subcutaneous Fluid Administration" OR "Subcutaneous Hydration") AND ("Medical Oncology" OR Neoplasms OR Tumor OR Cancer) AND ("Palliative Care")
Embase	(hypodermoclysis or câncer) AND (oncology or câncer) AND ('palliative therapy')

Eligibility Criteria: Inclusion and Exclusion Criteria

Inclusion criteria were articles published without a time frame, reporting adverse events at the site of hypodermoclysis infusion in adult patients, in Portuguese, English and Spanish. Articles that were not fully available were excluded, as well as studies that addressed systemic adverse events resulting from hypodermoclysis, qualitative studies, conceptual studies and studies developed in animals.

Study Selection

The selection of studies was performed independently by two reviewers. Duplicate articles were identified and deleted using Excel. The studies were then read in two stages (title/abstract and full article). Discrepancies were assessed by a third reviewer. At this stage, the reverse search was performed based on the selected articles. The full articles were obtained from the Capes portal, a service for bibliographic switching between libraries (Comut) (http://comut.ibict.br).

Data Extraction

A specific form was used that included the following information: 1) characterization of the studies in terms of authorship, methodological design, language, type of study; 2) objectives, age of participants, number of participants/number of infusions, study period and adverse events; 3) site of infusion, type of catheter, length of stay, infused solutions, medications, volume and rate of infusion.

The results of the analysis were presented in a descriptive manner, and they were organized in tables with the characterization of the primary studies of the review, characterization of the studies and participants, characteristics of hypodermoclysis according to puncture site, type of catheter, catheter permanence time, solutions, medications, infusion volume and infusion rate.

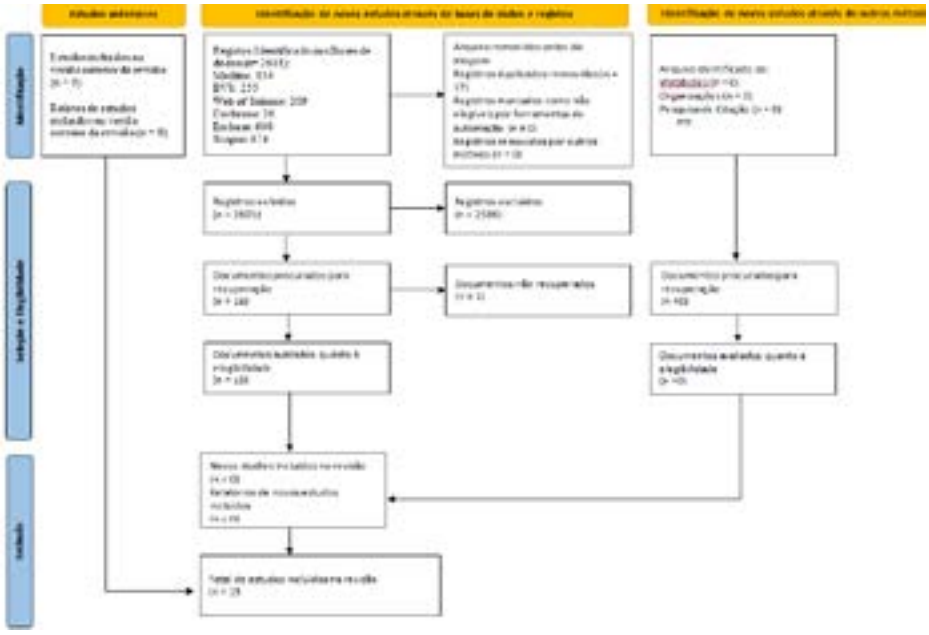
Risk of bias and quality of evidence analysis

It was developed following the recommendations published in the JBI, Manual for Evidence Synthesis, version 2020,[10] which include the following steps: 1) identification of the research question; 2) identification of relevant studies; 3) selection of studies; 4) data analysis; and 5) clustering, synthesis, and presentation of data.

Summary of Results

The flowchart describing all stages of study selection is shown in Figure 1. The process of searching and selecting articles follows the recommendations of the Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist.[11]

Figure 1 – Flowchart for identification and selection of review studies, Prisma ScR. Belo Horizonte, MG, Brazil, 2022



RESULTS

The search strategy identified a total of 2,618 articles, and after applying the inclusion criteria, 15 articles were selected (Chart 2).
In the sample, 11 (73%) were published since 2000, of which eight (53%) were in English (Chart 2).
In terms of study type, 12 (80%) were observational studies and three (20%) were randomized controlled trials (RCTs) (Chart 2).
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Quadro 2 – Caracterização dos estudos primários da revisão. Belo Horizonte, MG, Brasil, 2022

Identification	Author	Year	Language	Type of study
E1	LAGOL et al.[12]	2021	Portuguese	Observational: Longitudinal
E2	MOREIRA et al.[13]	2020	Portuguese	Observational: descriptive
E3	COELHO et al.[14]	2020	English	Observational: descriptive
E4	PONTALTI et al.[15]	2018	Portuguese	Observational: cross-sectional
E5	VIDAL et al.[16]	2016	English	Database (randomized study extension)
E6	JUSTINO et al.[6]	2013	Portuguese	Observational: descriptive
E7	ADEM e ALMOUA-ALAMY[17]	2021	English	Observational (pilot study): descriptive
E8	PERERA et al.[18]	2011	Spanish	Observational: descriptive
E9	CENTENO et al.[19]	2008	Spanish	Observational: descriptive
E10	CERCHIETTI et al.[20]	2000	English	ECR
E11	BRUERA et al.[21]	1999	English	ECR
E12	BRUERA et al.[22]	1996	English	Observational: descriptive
E13	FAINSINGER et al.[23]	1994	English	Observational: descriptive
E14	BRUERA et al.[24]	1995	English	ECR
E15	BOLELA et al.[25]	2022	Portuguese	Observational: descriptive, multicentric

Most studies, 10 (66.6%), aimed to evaluate and/or describe the use of hypodermoclysis[6,15-21,23,24] and five (33.4%) studies[12-14,22,25] compared subcutaneous puncture with venipuncture. The mean age of the participants is over 60 years (Chart 3).

The number of participants ranged from nine to 333, and the duration of the studies was 12 months in most cases[14,15,17,20,23,25] (Chart 3). Adverse events reported in the studies included: erythema,[6,14-17,20,25] edema,[14-16,19,23,25] site discomfort (pain),[15,16,19,20,25] abscess,[14,19,23] bleeding,[15,19,23] other,[14,16,23] extravasation,[15,16] hematoma[6,23] and needle displacement.[16]

In the studies,[16,19] adverse events were described by the authors separately by study site, but for the purposes of the present study, the total number of adverse events in the two studies referred to was considered. On the other hand, in the studies[16,17] the authors described the adverse event as redness, but for the present study, when this term was described, it was considered as erythema due to the similarity between the terms. In the study[25] one of the adverse events was described as phlogistic sign. In this study, this event is considered to be pain, erythema (flushing and heat) and edema.

Chart 3 – Characterization of studies and participants. Belo Horizonte, MG, Brazil, 2022

Identification	Objective	Mean age (years)	Number of participants/hypodermoclysis	Period (months)	Adverse events
E1	To identify complications associated with peripheral venipuncture and hypodermoclysis in palliative care oncology patients.	68,8	70; Peripheral venipuncture: 180 Subcutaneous puncture: 20	6	SC: 0 IV: 85 Pain: 30,5% Extravasation: 25,9% Bent catheter: 24,7% Pulled catheter: 18,8%
E2	To characterize palliative care oncology patients undergoing peripheral venipuncture and hypodermoclysis according to sociodemographic and clinical variables.	66,5	45; Peripheral venipuncture: 117 Subcutaneous puncture: 17	5	I.N

E3	To evaluate the use and benefits of HDC in end-of-life cancer patients supported by a single home palliative care program.	73,1	333; Peripheral venipuncture: 41 Subcutaneous puncture: 258	12	SC: 23 Edema: 3% Abscess: 2,1% Erythema: 1,7% Others:3% IV: N.I.
E4	To analyze the use of hypodermoclysis in cancer patients receiving palliative care.	62,3	80; Subcutaneous puncture: 105	12	SC: 18 Edema: 3,8% Extravasation: 3,8% Pain: 3,8% Flushing and hyperemia: 3,8% I Swelling: 1% Minor bleeding: 1% IV: N.I.
E5	To determine whether caregivers were able to administer hypodermoclysis in the home environment.	67	21; Subcutaneous puncture: 118	N.I.	SC:66 Needle Displacement: 7% Extravasation: 5% Edema: 16% Discomfort: 23% Pain: 13% Erythema: 3% Pruritus: 16% Others: 1% IV: N.I.
E6	To describe the experience of using hypodermoclysis in patients undergoing palliative care and pain management.	61	16; Subcutaneous puncture: 30	11	SC: 3 Erythema: 12% Hematoma: 6% IV: N.I.
E7	To evaluate the efficacy and safety of hypodermoclysis in closing the treatment gap for palliative home care patients with cancer.	70	9; Subcutaneous puncture: 25	12	SC: 1 Erythema: 3,6% IV: N.I.
E8	To demonstrate the feasibility of subcutaneous hydration in our setting, to update this technique, and to learn about its difficulties and possible adverse events.	67	10; Subcutaneous puncture: 18	5	SC: N.I. IV: N.I.
E9	To show the feasibility of subcutaneous hydration.	59	33; Subcutaneous puncture: 101	4	SC: 52 Edmonton-Valladolid Edema: 37% Drainage: 28% Discomfort at site: 8% Inflammation: 6% Bleeding: 10% SC: 5 IV: N.I.
E10	To evaluate the usefulness of hydration by hypodermoclysis in relieving thirst, nausea, and delirium.	54	42; Subcutaneous puncture: 42	12	SC: 1 Discomfort at Site: 2,38% Erythema: 2,38% IV: N.I.

E11	To determine the effect of hyaluronidase on patient comfort during subcutaneous hydration.	64	21	N.I.	Not quantified
E12	To determine hydration volume in terminal cancer patients.	61	233; Peripheral venipuncture: 30 Subcutaneous puncture: 203	N.I.	N.I.
E13	Evaluate the indications for hypodermoclysis for hydration.	66	69; Subcutaneous puncture: 231	12	SC: 151 Edema: 47% Inflammation: 37% Bleeding: 11% Unknown: 5% IV: N.I.
E14	To determine hyaluronidase concentrations in patients during subcutaneous hydration.	67	25	N.I.	Not quantified
E15	To identify events related to peripheral venipuncture and hypodermoclysis in patients admitted to a general hospital and a hospital dedicated to palliative cancer care.	64	160	12	SC: 77 Flushing, heat, pain, and edema (phlogistic signs): 6,7% Hematoma: 0,5%

SC: Subcutaneous; IV: Intravenous; N.I.: Unidentified.

Source: The Author, 2023.

A variety of infusion sites were reported, with the most common being the abdomen, chest, anterolateral region of the thigh, and anterior and upper arm. The needled catheter was used in eight studies (52.8%);[6,17-22,24] the non-needled catheter was used in one study (6.6%), and the type of catheter was not identified in five studies (33.0%).[13-16,23] The numbering ranged from 20G to 27G, and the catheter replacement time observed in the studies ranged from two to 23 days (Chart 4).

Among the solutions administered by hypodermoclysis, the following stand out 0.9% saline[6,12,15-20,22-24] and 5% glucose solution;[6,15,18,19] potassium chloride 10% and sodium chloride 20% were reported in one study.15 The drugs that stood out were in the analgesic, corticosteroid, and antiemetic classes, and the infusion rate ranged from 20 to 120 mL/h (Chart 4).

Chart 4 – Characteristics of hypodermoclysis according to puncture site, catheter type, catheter length of stay, solutions, drugs, infusion volume, and infusion rate. Belo Horizonte, MG, Brazil, 2022

Identification	Puncture site	Catheter type/ size	Length of stay	Solutions	Class/Drug	Volume at infusion site/day	Infusion rate
E1	Anterolateral Thigh Abdominal Deltoid	Non-needled: 22 20 and 24	N.I.	SF 0,9%	Analgesics (dipyrone) Corticosteroids (dexamethasone) Antiemetics (ondansetron)	N.I.	N.I.
E2	Abdominal Anterolateral Thigh Deltoid	N.I.	N.I.	N.I.	Analgesics (dipyrone) Opioids (morphine) Antiemetics (ondansetrone) Corticosteroids (dexamethasone)	N.I.	N.I.
E3	Chest Abdomen Others	N.I.22 and 24	11.42 ±23.90 days	-	Opioids Analgesics Antiemetics Non-opioid analgesics Antipyretics Peptic ulcer medications Continuous palliative sedation Corticosteroids Antibiotics Antipsychotics Diuretics Hypnotics	1.500 to2.000mL	N.I

E4	Chest Abdomen Anterior and upper arm Anterior thigh	22	7,25 days	Glucose solution SF 0.9% Electrolyte (potassium chloride 10% and sodium 20%) 5% glucose solution	Opioids (morphine) Analgesics (dipyrone) corticosteroids (dexamethasone) Antiemetics (ondansetron, metoclopramide) Histamine H2-receptor antagonists (ranitidine; dimenhydrinate) butyrophenone antipsychotic (haloperidol) benzodiazepine (midazolam) Antagonist of the NMDA receptor antagonists (ketamine) Muscarinic receptor competitive antagonists (scopolamine) Diuretics (furosemide) Antibiotics (cefepime, ampicillin) Proton pump inhibitors (omeprazole) other (chlorpromazine, octreotide)	N.I.	N.I.
E5	N.I	N.I	4.7±5.4Days	SF 0,9%	N.I	1.000mL	N.I
E6	Infraclavicular Abdominal	Needles 21, 23, 25 and 27G;	(1 to 55 days) average = 10,16 days	SF 0,9% 5% glucose solution; Hypertonic glucose 50%;	Opioid (Morphine)	N.I	N.I
E7	Upper Back Chest Outer Arms, Abdomen Outer Thighs	Needles: 24 and 25	3 to 4 days	SF 0,9%	N.I	1.000mL	0,5-2 mL per minute
E8	Deltoid Chest	Needles 23 and 25	3 to 6 days	SF 0,9% Glycosaline (SF 0,9% + dextrose 5%, in equal parts)	N.I	1.000 mL	20 and 80mL/h
E9	Deltoid Chest Abdominal	Needle 23	Edmonton 3,4 days Valladolid 2,1 days	SF 0,9% Glycosaline (SF 0,9% + dextrose 5%	N.I	Edmonton 1,0 L Valladolid 1,42 L (mean volume in 24 hours)	Edmonton 20-400mL/h Valladolid 20-80 mL/h
E10	Supraclavicular Chest	Needled	2 days	SF 0,9% Dextrose 5%	Antipsychotic: haloperidol Antiemetic: Metoclopramide	1.000 mL	42 mL/h
E11	Chest Abdomi--nal	Needle 25	2 days	SF Dextrose 5%	N.I.	1.000 mL	N.I.
E12	Chest Abdomi--nal	Needle 25	5,2 days	SF 0,9%	N.I.	1.015 mL	40-100 mLh 60-120 mL/h
E13	N.I.	N.I.	4,7±5,4 days	SF 0.9% Dextrose 5% Hyaluronidase	N.I.	1.203 mL	72 mL/h
E14	Chest Abdomi--nal	Needle: 25	2 days	SF 0,9% Hyaluronidase	N.I.	1.000 mL	N.I.
E15	N.I.	N.I.	N.I.	N.I.	N.I.	N.I.	N.I.

N.I.: Not identified. PF. Physiological solution

Source: The Author, 2023.

DISCUSSION

Despite being an old technique with proven efficacy, hypodermoclysis is rarely used.[26,27] This underutilization of the pathway is also related to the lack of studies on the topic, so evidence-based knowledge that strengthens practice and demystifies misconceptions is essential. In a literature review study of nurses' knowledge of hypodermoclysis, it was found that most nurses were unaware of the technique[26.]

In terms of adverse effects, erythema, edema, site discomfort (pain), abscess, bleeding, extravasation, needle displacement, and hematoma were the most commonly reported. These are minimal, reversible risks, but they can only be properly recognized and prevented with knowledge of the technique, the drugs that can be administered, the infusion rate, and the puncture sites.[14,16]

In hypodermoclysis, the catheter should be inserted in the deltoid, anterior thoracic, abdominal, scapular, anterior and lateral surfaces of the thigh, and the tolerance of each region for infusion varies according to the general condition of each patient and the volume to be infused.[1] In cancer patients, aspects such as the amount of adipose tissue should be considered, as they are thin patients with a compromised vascular network.

In the selected studies, the average length of catheter stay ranged from two to 23 days and was removed due to adverse events, total infused volume, or time of established protocol. In Brazil, according to the National Health Surveillance Agency, the recommended time is 72 hours, regardless of the type of catheter used.[12] However, the results of the present study showed a longer length of stay. It is known that irritating medications, such as corticosteroids, require more frequent site rotation, whereas morphine allows the same site to be maintained for up to two weeks.[1] It is recommended that the new site be at least two inches from the previous site.[1,2]

Among the solutions administered, saline was the most commonly cited for hydration of cancer patients in palliative care, as evidenced by the study[17] conducted in the home setting. In this study, the average volume was 833 mL and was well tolerated over three to four days, with a significant impact on the control of symptoms such as nausea, lack of energy and appetite.[28] Only one patient had redness at the catheter insertion site.[28] It has also been demonstrated that another factor that can influence the occurrence of adverse events is the volume of infusion administered at the puncture site. In the present review, the highest volume of infusion administered in the study23 was 1,203 mL in 24 hours, with a variation of ±505 mL and an infusion rate of 72 mL/h.17 In this study, hyaluronidase was used for greater volume tolerance, at a rate of 750 U per liter of volume.[17]

In Brazil, most drugs for hypodermoclysis are used off-label, i.e. their indication is not included in the package inserts or protocols, and administration is based on the care practices of the institutions, at the discretion of the prescriber. It is important to note that medications with extreme pH values (< 2 or > 11) carry an increased risk of precipitation or local irritation, as do solutions with near-neutral pH. Isotonic solutions are better tolerated.[1]

The volume of fluids infused into the study subjects is consistent with that reported in the literature. Some authors report that the volume of fluids should not exceed 2,000 mL in 24 hours.[7] However, other authors mention that it is possible to administer up to 1,500 mL/day at each puncture site, with two sites being acceptable, for a total of 3,000 mL in 24 hours if necessary.[1,2] Nurses are responsible for regularly assessing and observing the puncture site to avoid adverse events resulting from the excessive volume of fluids administered by this route.

Limitations of this review include that in three studies[13,18,22] the authors did not report adverse events and in two studies[21,24] the authors did not quantify adverse events; on the other hand, most studies did not report variables related to catheter retention time, volume, and infusion rate. It is suggested that research with different methodological designs be conducted to clarify the doubts that still limit the use of hypodermoclysis in clinical practice in cancer patients in palliative care.

CONCLUSION

Erythema, edema, site discomfort (pain), abscess, bleeding, extravasation, needle displacement, and hematoma were identified as the most common adverse events. Most of the studies were observational, followed by randomized clinical trials, and their main objective was to evaluate and describe the use of hypodermoclysis. The most commonly reported infusion sites were the abdomen, thorax, anterolateral region of the thigh, and anterior and upper arm. The most common type of catheter used was a needle, and the number ranged from 20G to 27G. The solutions administered were 0.9% saline and 5% glucose. The drugs used for hypodermoclysis were analgesics, corticosteroids, and antiemetics.

The results of this study can contribute to the care process of cancer patients under palliative care, as the specific knowledge on the subject subsidizes complex decision-making and clinical competence for safe and problem-solving practice.

BIBLIOGRAPHIC REFERENCES

1. Azevedo DL. O uso da via subcutânea em geriatria e cuidados paliativos. 2. ed. Rio de Janeiro: SBGG; 2017.

2. Gabriel J. A Guide to Subcutaneous Infusion. Br. J. Nurs. [Internet]. 2019 [cited 2023 feb 05];1(28). Available from: https://doi.org/10.12968/bjon.2019.28.Sup14c.1.

3. Souza RE. Incidência e fatores associados aos eventos adversos no uso da hipodermóclise em idosos em cuidados paliativos [Internet]. Tese. Universidade Federal de Minas Gerais, Belo Horizonte, 2020 [cited 2023 jun 13]. Available from: http://hdl.handle.net/1843/49236.

4. Macmillan K, Bruera E, Kuehn N, Selmser P, Macmillan A. A prospective comparison study between a butterfly needle and a Teflon cannula for subcutaneous narcotic administration. J. Pain. Symp. Manag. [Internet]. 1984 [cited 2023 feb 05];9(2). Available from: https://doi.org/10.1016/0885-3924(94)90160-0.

5. Arinzon Z, Feldman J, Fidelman Z, Gepstein R, Berner YN. Hypodermoclysis (subcutaneous infusion) affective mode of treatment of dehydration in longterm care patients. Arch. Gerontol. Geriatr. [Internet]. 2004 [cited 2023 feb 05];38(2). Available from: https://doi.org/10.1016/j.archger.2003.09.003.

6. Justino ET, Tuoto FS, Kalinke LP, Mantovani MF. Hipodermóclise em pacientes oncológicos sob cuidados paliativos. Cogitare Enferm. [Internet]. 2013 [cited 2023 feb 12];18(1). Available from: http://dx.doi.org/10.5380/ce.v18i1.31307.

7. Brasil. Ministério da Saúde. Instituto Nacional de Câncer. Terapia Subcutânea no Câncer Avançado. Rio de Janeiro: INCA; 2009.

8. Carone GF. Estudo observacional do uso da hipodermóclise em cuidados paliativos oncológicos [Internet]. Dissertação. Universidade de São Paulo, São Paulo, 2016 [cited 2023 jun 13]. Available from: https://doi.org/10.11606/D.5.2016.tde-30062016-144200

9. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann. Intern. Med. [Internet]. 2018 [cited 2023 feb 05];169(7). Available from: https://doi.org/10.7326/M18-0850.

10. Peters MDJ. Scoping Reviews. In: Aromataris E, Munn Z. JBI Manual for Evidence Synthesis [Internet]. JBI, 2020 [cited 2023 aug 12]. Available from: https://synthesismanual.jbi.global.

11. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Int. J. Surg. [Internet]. 2021 [cited 2023 feb 05];88:105906. Available from: https://doi.org/10.1016/j.ijsu.2021.105906.

12. Lagol AJO, Carolina ACDSA, Souza FBFB. Complicações relacionadas à punção venosa periférica e à hipodermóclise em pacientes oncológicos sob cuidados paliativos. Rev. Enferm. UFSM [Internet]. 2021 [cited 2023 feb 05];11:e76. Available from: https://doi.org/10.5902/2179769264392.

13. Moreira MR, Souza AC, Villar J, Pessalacia JDR, Viana AL, Bolela F. Characterization of patients under palliative care submitted to peripheralvenipuncture and hypodermoclysis. Rev. Enferm. Cent. O. Min. [Internet]. 2020 [cited 2023 aug 15];10:e4032. Available from: https://doi.org/10.19175/recom.v10i0.4032.

14. Coelho TA, Wainstein AJ, Drummond-Lage AP. Hypodermoclysis as a strategy for patients with end-of-life cancer in home care settings. Am. J. Hosp. Palliat. Med. [Internet]. 2020 [cited 2023 aug 15];37(9). Available from: https://doi.org/10.1177/1049909119897401.

15. Pontalti G, de Oliveira Riboldi C, Gioda RS, Echer IC, Franzoi MA, Wegner W. Benefícios da hipodermóclise na clínica paliativa de pacientes com câncer: relato de caso. Rev. Bras. Cancerol. [Internet]. 2016 [cited 2023 aug 15];62(3). Available from: https://doi.org/10.32635/2176-9745.RBC.2016v62n3.222.

16. Vidal M, Hui D, Williams J, Bruera E. A prospective study of hypodermoclysis performed by caregivers in the home setting. J. Pain Symptom. Manage. [Internet]. 2016 [cited 2023 aug 15];52(4). Available from: https://doi.org/10.1016/j.jpainsymman.2016.04.009.

17. Adem S, Almouaalamy N. Effectiveness and safety of hypodermoclysis patients with cancer: A single-center experience from Saudi Arabia. Cureus. 2021 [cited 2023 aug 15];13(3):e13785. Available from: https://doi.org/10.7759/cureus.13785.

18. Perera AH, Hall Smith C, Hernández Perera A. Hipodermoclisis en pacientes con cáncer terminal [Internet]. Rev. Cubana Med. [Internet]. 2011 [cited 2023 aug 12];50(2). Available from: http://scielo.sld.cu/pdf/med/v50n2/med05211.pdf.

19. Centeno C, Rubiales ÁS, Hernansanz S. Hidratación por vía subcutánea en pacientes con cáncer avanzado. Rev. Med. Univers Navarra. [Internet]. 2008 [cited 2023 aug 15];52(3). Available from: https://doi.org/10.15581/021.7722.

20. Cerchietti L, Navigante A, Sauri A, Palazzo F. Hypodermoclysis for control of dehydration in terminal-stage cancer. Int. J. Palliat. Nurs. [Internet]. 2000 [cited 2023 aug 15];6(8). Available from: https://doi.org/10.12968/ijpn.2000.6.8.9060.

21. Bruera E, Neumann CM, Pituskin E, Calder K, Hanson J. A randomized controlled trial of local injections of hyaluronidase versus placebo in cancer patients receiving subcutaneous hydration. Ann. Oncol. [Internet]. 1999 [cited 2023 jul 12];10(10). Available from: https://doi.org/10.1023/A:1008331727535.

22. Bruera E, Belzile M, Watanabe S, Fainsinger RL. Volume of hydration in terminal cancer patients. Support Care Cancer. [Internet]. 1996 [cited 2023 aug 15];4(2). Available from: https://doi.org/10.1007/BF01845764.

23. Fainsinger RL, MacEachern T, Miller MJ, Bruera E, Spachynski K, Kuehn N, et al. The use of hypodermoclysis for rehydration in terminally ill cancer patients. J. Pain Symptom Manage. [Internet]. 1994 [cited 2023 aug 15];9(5). Available from: https://doi.org/10.1016/0885-3924(94)90187-2.

24. Bruera E, de Stoutz ND, Fainsinger RL, Spachynski K, Suarez-Almazor M, Hanson J. Comparison of two different concentrations of hyaluronidase in patients receiving one-hour infusions of hypodermoclysis. J. Pain Symptom Manage. [Internet].1995 [cited 2023 aug 15]; 10(7). Available from: https://doi.org/10.1016/0885-3924(95)00060-C.

25. Bolela F, Lima RD, Souza ACD, Moreira MR, Lago AJDO, Simino GPR, et al. Cancer patients in Palliative Care: occurrences related to venipuncture and hypodermoclysis. Rev. Lat. Am. Enfermagem. [Internet]. 2022 [cited 2023 aug 15];30:e3624. Available from: https://doi.org/10.1590/1518-8345.5825.3624.

26. Riegel F, Costa KC, de Oliveira Junior NJ, Migowski ER, Siqueira DS. Efficacy of hypodermoclisis in palliative care drug administration. Rev. Enferm. UFIP. [Internet]. 2018 [cited 2023 aug 15];7(2). Available from: https://doi.org/10.26694/reufpi.v9i0.6807.

27. Gomes NS, Silva AMBD, Zago LB, Silva ÉCDL, Barichello E. Nursing knowledge and practices regarding subcutaneous fluid administration. Rev. Bras. Enferm. [Internet]. 2017 [cited 2023 oct 23];70(5). Available from: https://doi.org/10.1590/0034-7167-2016-0424.

28. Brasil. Medidas de Prevenção de Infecção Relacionada à Assistência à Saúde [Internet]. 2017 [cited 2022 jan 2]. Available from: http://www.corensc.gov.br/wp-content/uploads/2017/03/Medidas-de-Preven%C3%A7%C3%A3o-IRAS-ANVISA-20171.pdf.