Approach to hypodermoclysis in geriatric palliative care

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ABSTRACT

This study consists of an integrative review on the use of hypodermoclysis in palliative care for elderly patients, focusing on the practice of geriatric nursing. Objective: Aspects such as puncture sites, device fixation techniques, catheter management and post-insertion care were discussed. Method: Methodological steps were used and we selected articles published between 2014 and 2024 in the MEDLINE, LILACS, and BDENF databases. Results: The results highlighted hypodermoclysis as a safe and effective technique for the administration of drugs and fluids, especially in patients with swallowing difficulties or compromised venous access. Final thoughts: Hypodermoclysis is a safe and effective technique for administering medications to older adults, especially in palliative care. It is practical, less invasive and offers greater comfort, promoting treatment adherence and patient satisfaction. The study reviewed its advantages and applications, highlighting it as a viable alternative to intravenous administration, especially in elderly patients. However, it identified gaps in knowledge that indicate the need for more research, especially to develop protocols that allow greater autonomy to nursing.

Keywords: Hypodermoclysis, Geriatrics, Palliative Care.

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INTRODUCTION

In recent years, the aging of the world population has been a remarkable reality, driven by the reduction in mortality and fertility, resulting in an epidemiological transition characterized by a significant increase in the proportion of elderly people and the increasing prevalence of chronic diseases (Bonizio et al., 2021).

Currently, approximately 962 million people are 60 years of age or older, with projections indicating that this age group will represent 29.3% of the Brazilian population by 2050 (Silva et al., 2023).

In the context of geriatric care, hypodermoclysis emerges as a fundamental technique. This subcutaneous approach to fluid and medication administration not only meets the needs of elderly patients facing challenges with the oral route or venous access, but also offers a comfortable and safe alternative, with the potential to improve quality of life and treatment effectiveness (Bonizio et al., 2021).

Its benefits include better cost-effectiveness compared to other routes of administration and a lower risk of complications such as electrolyte congestion and infections (Martins et al., 2020).

In addition to its role in clinical management, hypodermoclysis plays a crucial role in palliative care, facilitating the continuous administration of fluids and medications, which are essential for relieving symptoms such as dehydration and pain in elderly patients during end-of-life (Guedes et al., 2019).

According to the Brazilian National Health Surveillance Agency (ANVISA), the device should be changed every 96 hours depending on the type of catheter used and checking for phlogistic signs at the insertion site (Guedes, *et al*. 2019).

Among the drugs that can be used subcutaneously, we can highlight analgesics, antibiotics (DEXAMETHASONE, DIPYRONE, SCOPOLAMINE, FUROSEMIDE, ONDANSETRON, TRAMADOL HYDROCHLORIDE, METOCLOPRAMIDE, CEFTRIAXONE, MIDAZOLAM, MORPHINE SULFATE, RANITIDINE, OCTREOTIDE, LEVOMEPROMAZINE, HALOPERIDOL AND SCOPOLAMINE) (Martins, *et. al*. 2020).

This study aims to explore current practices and available evidence on hypodermoclysis in the elderly, highlighting its importance in contemporary geriatric practice and seeking to contribute to the continuous improvement of care in this field.

METHODOLOGY

This is an integrative review that was developed based on the proposal of Souza *et al* (2010), which establishes six steps: (1) Definition of the theme/guiding question; (2) Search or sampling in the literature; (3) Data collection; (4) Critical analysis of the included studies; (5) Discussion of the

results; (6) Presentation of the integrative review. For a better understanding of these steps, the theme was identified and the guiding question of the present research was elaborated: "What does scientific research explore about the hypodermoclysis technique in palliative care in geriatrics?".

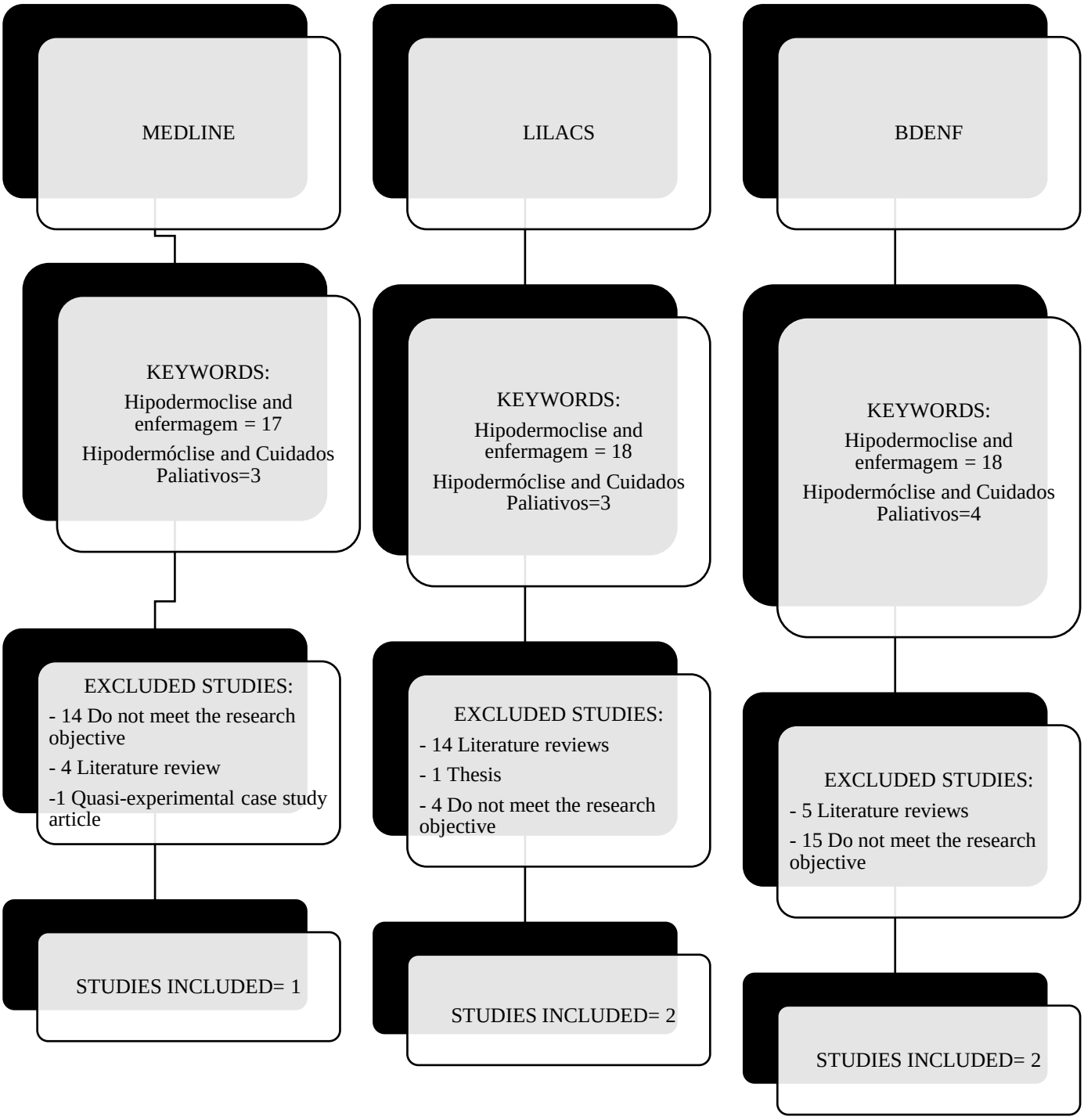
The selected samples had as inclusion criteria articles that were the objective of the research, and the exclusion criteria were articles that do not meet the objective of the research, case reviews, and quasi-experimental case study articles.

The data search was carried out in March 2024 in the Virtual Health Library (VHL), which includes the following databases: *Medical Literature Analysis And Retrieval System Online* (MEDLINE), Latin American and Caribbean Literature on Health Sciences (LILACS) and Brazilian Nursing Database (BDENF), in which they were "Hypodermoclysis AND Geriatrics AND Palliative Care".

In the search strategy, the following inclusion criteria were established: year of publication (2014 to 2024) in Portuguese and English, which addressed the proposed theme, and meta-analysis studies that were available in full. The exclusion criteria were: duplicate articles, available in the form of abstracts, which did not directly address the proposal studied, review articles, theses, dissertations, and articles that did not meet the other inclusion criteria.

After data collection, a critical analysis of the included studies was carried out, considering their relevance to the topic in question and their methodological quality. This stage involved evaluating the methods, results, and conclusions of each study, aiming to identify patterns, gaps in knowledge, and trends in the literature reviewed.

The identification of 05 articles was carried out through the VHL. Figure 1 shows the search process following the recommendations of the *Preferred Reporting Items for Systematic Reviews and Met-Analysis* (PRISMA).



Source: Prepared by the authors, 2024.

RESULTS AND DISCUSSION

Based on the selected articles, a table was developed containing the following information: year of the article, journal/level of evidence, title of the article, names of the authors, and objective. The five selected articles are presented in the table below.

YEAR	JOURNAL/ LEVEL OF EVIDENCE	ARTICLE TITLE	AUTHORS	OBJECTIVE
2016	Jornal os Nursing and Heath IV	Subcutaneous therapy for patients in palliative care: the experience of nurses in home care	CARDOSO; et AL.	To report the experience of nurses with the use of subcutaneous therapy to control symptoms in patients in palliative care cared for at home
2019	Rene- IV	Subcutaneous complications in the infusion of drugs and solutions in palliative care	GUEDES, N. A. B; et al.	To characterize the complications associated with the use of the subcutaneous route in the infusion of drugs and solutions in palliative care
2020	Geriatrics Gerontology and Aging/Brazilian Society of Geriatrics and Gerontology. II	Hypodermoclysis for correction of hyperosmolar dehydration and severe electrolyte disturbances: case report.	MARCO TÚLIO GUALBERTO CINTRA.	Treatment of dehydration and severe electrolyte disturbances is contraindicated by hypodermoclysis, but the level of evidence for the recommendation is based on expert opinion.
2020	Journal of Nursing of the Midwest of Minas Gerais III	Characterization of patients under palliative care undergoing peripheral venipuncture and hypodermoclysis	MICHELE ROCHA MOREIRA; et al.	To characterize cancer patients hospitalized under palliative care undergoing peripheral venipuncture and hypodermoclysis, according to sociodemographic and clinical variables.
2023	Nursing Journal of UFSM/ V	Analysis of peripheral intravenous drug use and hypodermoclysis in hospitalized elderly people	SILVA, R. M; et al.	To investigate the prevalence and complications of intravenous drug use and hypodermoclysis in hospitalized elderly people.

Source: Prepared by the authors, 2024.

As a result of the research, one level of evidence II study, one evidence study III, two evidence studies IV and one evidence study V are observed. In this context, we will have most of the levels of evidence classified as level IV. The final sample of the results was conducted by five articles selected in order to interpret the findings in the light of the objective of the integrative review, highlighting important clarity and possible implications for the practice of hypodermoclysis in geriatrics and the knowledge of the nursing team.

Hypodermoclysis is a procedure that can be used more frequently in the elderly in palliative care, a safe, easy, and acceptable technique for the administration of medications and infusions (Moreira, *et al*. 2023).

Although there is a differentiation between the terms hypodermoclysis and subcutaneous therapies in some contexts, in this study, both will be understood as the infusion of isotonic fluids and/or drugs subcutaneously. The indication for the use of this therapy in the context of palliative care occurs when other routes, such as intravenous or oral, are compromised or limited, due to clinical manifestations such as: nausea, gastrointestinal obstruction, dementia or unconsciousness. Although the oral route is preferred, many patients in palliative care need alternative routes of administration, since a large proportion have swallowing difficulties or other limitations (Cardoso *et al*., 2016).

In addition to the administration of medications, subcutaneous therapy may also be indicated for fluid replacement in cases of mild or moderate dehydration, especially when the intravenous route is compromised. One of the main advantages of this approach is the ease of application and handling, contributing to the autonomy and quality of life of patients in palliative care, while reducing the discomfort associated with invasive procedures (Cardoso *et al*., 2016).

The technique for inserting the catheter for subcutaneous therapy or hypodermoclysis is relatively simple and requires basic materials, including procedure gloves, cotton soaked in 70% alcohol, a catheter needled as a scalp (*butterfly*), sterile transparent film for device fixation, and a syringe with 0.9% saline solution to fill the catheter extension (Cardoso *et al*., 2016).

Although Guedes brings that the non-needled Abocath catheter (*Jelco*) is the most indicated, as it is more flexible and presents a lower risk of skin trauma for the patient and the lowest risk of occupational accident for the professional (Guedes *et al*., 2019).

As for the indication of catheters, in clinical contexts, ANVISA (National Health Surveillance Agency) advises against the use of devices with wings and a metal cannula (scalp) for the hypodermoclysis technique.

Before puncture, it is recommended to fill the catheter extension with saline solution to prevent air bubbles from entering the subcutaneous tissue during the administration of medication or fluids, which can cause local discomfort. This preventive measure aims to ensure a smooth and comfortable administration for the patient, minimizing possible complications (Cardoso *et al*., 2016).

After preparing the catheter and the insertion site, the chosen site is punctured. The device should be inserted at an angle of 30º to 45º and the bezel facing upwards. Next, it is important to aspirate the catheter to check that there is no presence of blood, making sure that it is located in the subcutaneous tissue and excluding the possibility of venipuncture. This step is crucial to ensure that the therapy is administered in the correct way, avoiding complications resulting from the inadvertent administration of drugs or fluids directly into the bloodstream (Cardoso *et al*., 2016).

Regarding puncture sites for subcutaneous therapy, the literature points to the subclavicular, interscapular, abdominal (flanks), anterolateral thigh, and deltoid region as the most appropriate (Guedes *et al*., 2019).

The high percentage of punctures in the anterolateral region of the thigh is attributed to the deficient nutritional status of most of the patients assisted. These regions are chosen because they have a greater layer of subcutaneous tissue, which facilitates the absorption of large volumes of liquids, and hydration is one of the main indications for the use of this route. When selecting the puncture site, it is essential to consider the volume of fluid to be administered, and the abdominal and anterolateral regions of the thigh are good options in situations that require larger volumes. This

approach aims to ensure effective and comfortable administration for the patient, optimizing treatment outcomes (Guedes *et al*., 2019).

Regarding the fixation of the device, the use of sterile transparent film is recommended by institutions, following the most recent guidelines, because in addition to protecting and preventing infections at the puncture site, it allows continuous visualization of the puncture site, contributing to the prevention of device loss (Guedes *et al*., 2019).

Regarding the average catheter permanence time, the institutional protocol indicates the replacement of the device every 5 days, with the possibility of extending this period in specific circumstances evaluated by the nursing team. However, it is recommended to remove the device in cases of complications and replace it with a new one with a minimum distance of five centimeters from the previous site, even if the puncture is recent, ensuring the safety and efficacy of the treatment. It is observed that the situations that require catheter removal due to complications are minority, evidencing the safety in the use of this resource in the context of health care (Guedes *et al*., 2019).

It is recommended to use hypodermoclysis with different accesses for hydration and administration of medications, and it is advisable that each puncture site receives a maximum of three drugs compatible with each other, in order to ensure the efficacy and safety of the procedure. The recommended daily volume for infusion is 2,000 ml over 24 hours, divided into 1,000 ml per puncture site (Cardoso *et al.*,2016).

Subcutaneous therapy emerges as a less painful and easy-to-manage option, complications are generally rare and tend to occur when the infusion rate is not adequate, resulting in mild local edema and mild discomfort, which can be alleviated by adjusting the infusion rate. In isolated cases of phlogistic signs at the puncture site, catheter removal and relocation have been sufficient, without significant adverse effects (Cintra, 2020).

The incidence of serious complications, such as cellulitis, allergic reactions to the catheter, hematomas, or tissue necrosis, has been minimal or nonexistent in recent studies. Although the technique is considered safe and with few complications, some limitations are observed, such as the restriction on the ability to administer large volumes, limitation with the use of electrolytes and certain medications, such as DIAZEPAM, PHENYTOIN, DICLOFENAC and undiluted electrolytes. Despite these limitations, most drugs needed for treatment and symptom control can be administered by this route (Cardoso *et al*., 2016).

The main drugs used in the hypodermoclysis technique are analgesics, such as dipyrone or Tramadol for pain relief; and antibiotics, such as ceftriaxone, to treat infections. In addition, saline solutions, such as saline or lactated Ringer's, are commonly administered to maintain hydration and replenish electrolytes (Guedes *et al*., 2019).

In addition, there is the option of performing the infusion discontinuously throughout the day, being interrupted according to the patient's wishes, or opting for nocturnal administration, synchronized with the sleep period, in order to provide comfort to the patient during the treatment process. These flexible approaches allow subcutaneous therapy to be adapted to the individual needs of each patient, maximizing the benefits of the treatment and minimizing possible discomfort (Cardoso *et al*., 2016).

The administration of drugs through hypodermoclysis provides gradual and prolonged absorption, which is especially advantageous in long-term treatments or in palliative situations. However, when administering multiple medications via hypodermoclysis, it is crucial to be mindful of potential interactions and incompatibilities between them. Some substances may interfere with the absorption or efficacy of others when administered simultaneously. Therefore, meticulous evaluation and careful supervision are necessary to ensure the safety and efficacy of treatment (Silva, *et al*. 2023).

FINAL CONSIDERATIONS

The literature review evidenced the importance of hypodermoclysis as a safe and effective alternative for the administration of medications in elderly patients, especially in palliative care. This technique offers significant advantages because it is a practical and less invasive procedure, with a lower risk of complications and greater comfort for elderly patients, thus contributing to treatment adherence and patient satisfaction, promoting humanized care.

This study achieved its objective by describing the available evidence on the knowledge and technique of hypodermoclysis, highlighting its applications and benefits.

We emphasize that the subcutaneous route is a viable alternative for the administration of drugs and solutions, especially in elderly patients who often have difficulties with other routes of administration, such as intravenous, offering a practical and less invasive solution for therapeutic management.

However, it was possible to observe gaps in knowledge and opportunities for future research, especially with regard to the implementation of specific protocols.

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