


Use of hypodermoclysis to improve the quality of life of patients in palliative care

 <https://doi.org/10.56238/sevened2024.003-061>

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ABSTRACT

Introduction: Palliative care can be understood as an approach that provides quality of life for individuals and their families, regardless of age, who face diseases that threaten the continuity of life. In addition, the approach values the prevention and relief of suffering based on early and adequate recognition and evaluation in order to consider all the dimensions involved in the subject. It is essential that nurses are sensitive and attentive to the needs of patients and their families, valuing their desires and values. **Objective:** To identify health education strategies to expand knowledge on hypodermoclysis in nursing. **Methodology:** this is a literature review inspired by the "scoping literature review", using some steps indicated by this methodology. A sample of 51 articles was reached, and the inclusion and exclusion criteria were applied, resulting in 12 articles consistent with the guiding question. **Results:** three categories emerged: nursing care in the application of hypodermoclysis, benefits and complications of hypodermoclysis and continuing education for professionals who provide care to patients in palliative care. **Final Considerations:** through the use of hypodermoclysis, it was possible to observe safety, acceptability and effectiveness for symptom management, in addition to the transition of care in patients in palliative care, enabling home use through the training of family members and relying on the support network of trained professionals.

Keywords: Nursing, Hypodermoclysis, Palliative care, Health education.

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INTRODUCTION

Due to the global and Brazilian demographic and epidemiological transition, the increase in life expectancy is an expected reality, but it impacts the need for public health organization and support in Brazil and in the world (IBGE, 2018). In this sense, nursing plays an important role in the care of patients and their families. Pain is one of the signs and symptoms that the patient most often presents and reports. According to the International Association for the Study of Pain, the concept of pain is considered an unpleasant sensory and emotional experience, which is described in terms of actual or potential tissue damage. In this way, pain is a unique perception of each individual, through their life experiences. (NASCIMENTO, 2020)

Control for the relief of discomfort and suffering is one of the most present concerns in the daily routine of nurses, especially in palliative care units (WATERKEMPER; REIBNITZ, 2010).

Thus, palliative care can be understood as an approach that provides quality of life for individuals and their families, regardless of age, who face diseases that threaten the continuity of life. In addition, the approach values the prevention and relief of suffering based on early and appropriate recognition and evaluation in order to consider all the dimensions involved in the subject (GÓMEZ-BATISTE; CONNOR, 2017).

The word "palliative" derives from the Latin word *pallium*, which means blanket or covering. The concept of palliative care, on the other hand, originates from the Latin *hospes*, which means stranger and then host; and *hospitalis*, which means kind, that is, welcome to the stranger, and has been transformed into the meaning of hospitality (CHAVES *et al.*, 2011).

Thus, according to Carvalho and Parsons (2012, p. 26):

Palliative Care is not based on protocols, but on principles. There is no longer talk of terminality, but of a life-threatening disease. Care is indicated from the moment of diagnosis, expanding our field of action. We will also not talk about the impossibility of a cure, but about the possibility or not of a disease-modifying treatment, thus removing the idea of "having nothing else to do". For the first time, an approach includes spirituality among the dimensions of the human being. Therefore, the family is remembered, and also assisted after the patient's death, during the mourning period.

Nurses who work in palliative care should provide care from a humanistic perspective, in which, despite the impossibility of cure, their relationship with the patient should not cease to happen, which can bring benefits to both. In this context, nursing professionals are on the front line of care and comfort for patients and families. According to studies, dealing with the finitude of life has shown obstacles to be faced by professionals and it is necessary for institutions to promote training and care for those who provide care (LOPES *et al.*, 2020).

According to the president of the Palliative Care Commission of the Brazilian Society of Geriatrics and Gerontology (2014), the Brazilian population is still unaware of the Palliative Care approach and, in many cases, relates only to end-of-life care. This therapeutic modality is much



broader, including care from the moment of diagnosis to the family's mourning (CARVALHO; PARSONS, 2012). Therefore, ethical considerations in health should be preceded by an analysis of the principles of bioethics, one of them being autonomy, which guarantees the patient's right to clarify and participate in decisions regarding their care plan (MAIELLO *et al.*, 2020).

Palliative care values the daily life of each patient, making each moment unique, where the principles are: to provide relief from pain and other unpleasant symptoms, to affirm life and consider death as a natural process, not to accelerate or postpone death, to integrate psychological and spiritual aspects in patient care, to offer a support system that enables the patient to live as actively as possible, until the moment of death, offer a support system to assist family members during the patient's illness and to cope with grief, a multidisciplinary approach to meet the needs of patients and their families, including grief accompaniment, improve quality of life and positively influence the course of the disease, which should be started as early as possible, together with other life-prolonging measures, such as chemotherapy and radiotherapy, and include all research needed to better understand and manage clinical complications (SILVA; SILVA, 2019).

The intravenous and intramuscular routes of administration cause discomfort and invasion in palliative care patients. The oral route should be kept as the first choice, since it is easy to administer and has minimal discomfort, although there are reasons that prevent the use of the oral route. use, such as: nausea and/or vomiting for prolonged periods, local obstruction, advanced dementia with dysphagia, patients with gastric intolerance, intestinal obstruction, diarrhea, mental confusion and severe dyspnea, or the need to use a medication more quickly (GALRIÇA NETO, 2008).

Therefore, it is important that there are alternative routes of clinical support for patients in palliative care, since they may present difficulties in the administration of medications and adequate control of hydration. Therefore, it is necessary to include other forms of care that help control pain and relieve symptoms to improve the quality of life of patients and their families (FERREIRA; SOUZA; STUCHI, 2008).

Hypodermoclysis is an alternative to be used, corresponding to the use of the subcutaneous route for infusion of solutions in larger volumes continuously or intermittently in patients who need clinical support for replacement of fluids, electrolytes and medications, both in the hospital environment and in the home environment. When a drug is administered as a *bolus* or diluted in smaller amounts, it should not be described as hypodermoclysis but as "subcutaneous use" (AZEVEDO, 2017). The hypodermoclysis technique is performed in order to administer solutions to the deepest layer of the skin, which is the hypodermis, due to its vascularization (SANTOS, 2021).

In 1914, the use of this route for hydration in pediatric patients was first described. Over time, this technique has become little used due to the iatrogenesis related to the solutions administered and the quality of the puncture. With the advancement of technology, it fell out of favor in the 1950s;



Severe complications resulting in fluid overload and circulatory shock have been identified after large volumes administered subcutaneously (JUSTINO *et al.*, 2013).

Through different studies designed and rediscovered to improve the quality of life of patients, hypodermoclysis consists of a therapy for pain management, when the oral and intravenous route is not adequate, such as in patients with impaired venous network due to rupture, drug therapy, long use of chemotherapy, obstruction of the gastrointestinal tract, mental confusion, among others (GODINHO; SILVEIRA, 2017).

According to the study by Pereira, Silva and Medeiros (2021), it was evidenced that this route can be used for cancer patients, as well as in patients in palliative care. It is necessary to expand research in this area so that the nursing team can use it in their clinical practice both in the hospital environment and at home, because the medications used are *for off-label use*, that is, their indication is not found in package inserts or protocols, being administered in the care practices of the institutions.

The fluids and medications used by hypodermoclysis are absorbed through the capillary diffusion mechanism, mainly for solutions with pH close to neutrality and water-soluble. From this perspective of care, the main sites for insertion of hypodermoclysis are: deltoid, anterior thorax, scapular area, abdominal, and lateral aspect of the thigh. It is important to rotate the site, minimizing tissue damage. The catheter permanence time varies from 5 to 7 days, if there are no signs of phlogiston (GODINHO; SILVEIRA, 2017).

According to Technical Opinion No. 02/2019 of the Regional Nursing Council (Coren) of Rio Grande do Sul, hypodermoclysis can be performed by both nurses and nursing technicians, according to the prescription and training of professionals. This is because it is a low-cost procedure, being an option for managing pain and other symptoms in patients with advanced diseases, as well as in palliative care.

Nursing professionals are the most important category in the use of this therapy, since they remain by the patient's side 24 hours a day and are responsible for the care and administration of medications. Nurses need to be constantly updated to improve their care practice, a survey showed that 86.49% of the nurses approached are not trained to perform the hypodermoclysis technique, as well as are unaware of the medications that can be used in this route (GODINHO, 2016).

In addition, nursing care perpetuates, throughout the therapeutic path that patients and their families face, it is necessary to be constantly updated in order to provide the best evidence-based humanized care. Managing pain control is an essential intervention in palliative care and care strategies must be individualized (RANALLO, 2017).

The definition of the research theme arose from the author's experience during her undergraduate studies, where she worked in an extracurricular internship in a palliative care and



geriatrics unit. During this experience, it was possible to learn and apply the use of hypodermoclysis in patients and realized how advantageous it is and how beneficial it is. Sometimes, the patient can return to the comfort of his home using the subcutaneous infusion.

However, some institutions do not have the execution of this procedure. Thus, health education is a process that requires the development of critical and reflective thinking, allowing us to unveil reality and propose transformative actions that lead the individual to his or her autonomy and emancipation as a historical and social subject, capable of proposing and giving an opinion on health decisions to take care of himself, his family and his community (FALKENBERG *et al.*, 2014).

In this perspective, the present study was originally published by the Brazilian Journal of Health Review, entitled Hypodermoclysis as a comfort strategy for patients in palliative care (CARDOSO *et al.*, 2024). It is considered relevant to promote the expansion of knowledge about this theme, through health education strategies, in view of the quality of life that is sought to be provided through the principles provided by the palliative care approach. In this sense, the research aims to illustrate the use of hypodermoclysis as a comfort strategy for patients in palliative care, in view of the lack of understanding of this approach. Thus, it is proposed to identify health education strategies to expand knowledge on hypodermoclysis.

METHODOLOGY

We opted for a methodology inspired by *the scoping study* or *scoping review*. Thus, there were some recommendations proposed by the study that make it possible to achieve vast results, through an overview of a broad theme. The adapted steps were: identification of the research question, identification of relevant studies, considering only those published in indexed journals, excluding theses, dissertations and books. Through the related publications, a selection of articles to be included was made, as well as summarized and reported in the results of the review (ARKSEY; O'Malley, 2005).

The PubMed databases were used with the descriptors "((nursing[MeSH Terms]), AND (hypodermoclysis[MeSH Terms])) AND (palliative care[MeSH Terms])" in the VHL, the descriptors (nursing) AND (hypodermoclysis) AND (palliative care) were established in the title, abstract, subject field; and on the Capes Portal the descriptors: "nursing; hypodermoclysis; palliative care" in the subject search field. The following descriptors (nursing), AND (hypodermoclysis) and AND (palliative care) were used using the Scielo index. The search was conducted in July 2023.

For the selection of articles, the following inclusion criteria were used: articles in English, Portuguese and Spanish available online, free of charge or found through the internal access of the University of Passo Fundo, which answer the research question. Studies that did not address hypodermoclysis in palliative care patients, theses, dissertations, editorials, and literature review

articles were excluded. To ensure the comprehensiveness of the research, it was decided not to establish a time frame.

The total number of productions found was 51 articles and, after applying the inclusion and exclusion criteria (Table 1), there was no time frame, and 12 articles were seized that were consistent with the guiding question.

Table 1 - Scientific studies on hypodermoclysis used in palliative care patients and their respective databases. Passo Fundo, RS. Brazil, 2023. Source: Survey data.

	VHL	PubMed	Portal da Capes	SciELO
Total productions found	20	2	23	6
No Summary	-	-	-	-
In another language	1	2	-	-
Not available online	-	2	-	-
Doesn't meet the survey question	15	-	18	4
Selected productions	5	-	5	2
Final corpus that will compose the analysis			12	

Data were organized in a synoptic table (Appendix A) according to authorship, year of publication, title of the article, objective, type of study, main results/conclusion, and journal published. The analysis of the results was done by translating and reading the articles to get to know the existing scientific publications.

Appendix A - Synoptic Table

AUTHOR/ YEAR/ CODE	TITLE	OBJECTIVE	DESIGN OF STUDY	MAIN RESULTS/ CONCLUSION	PUBLICATION MAGAZINE
SOUZA, E.R. et al. 2023 A1	Incidence and adverse events of hypodermoclysis in the elderly in palliative care	To estimate the incidence, time of occurrence of adverse events and duration of hypodermoclysis in the elderly	Quantitative	Incidence of adverse events was small and localized; The mean time of catheter permanence at the insertion site was four days, and the probability of complications increased over the days	Nursing Journal of the Brazilian Midwest
Bolla, F. et al. 2022	Cancer patients under palliative care: occurrences related to venipuncture and hypodermoclysis	To identify the occurrences related to peripheral venipuncture and hypodermoclysis among patients admitted to a general hospital and to an exclusive hospital for the care of patients in	Quantitative	The occurrences related to peripheral venous puncture were higher than those related to hypodermoclysis	Latin American Journal of Nursing



		palliative oncological care			
Moreira, R. m. et al. 2020	Characterization of patients under palliative care undergoing peripheral venipuncture and hypodermoclysis	OBJECTIVE: To characterize cancer patients hospitalized under palliative care who underwent peripheral venipuncture and hypodermoclysis, according to sociodemographic and clinical variables.	Descriptive observational study with prospective follow-up	The team's low adherence to hypodermoclysis was identified, which leads to the need for further studies with high levels of evidence to support the nursing practice and contribute to the patient's quality of life	Revista de Enfermagem do Centro-Oeste Mineiro
MARTINS, B. S. et al.2020	Family caregivers' perceptions of the use of hypodermoclysis at home	To know the perceptions of family caregivers about the use of hypodermoclysis at home	Qualitative	Follow-up by health professionals can help family caregivers adapt to the use of hypodermoclysis at home	Costa Rica Current Nursing
SANTOS, A.L. G. et al. 2020	Qualification of palliative care in the use of the subcutaneous approach	To describe the experience of conducting workshops for the teaching of subcutaneous fluid infusion therapy in palliative care patients	Experience report	Little knowledge about the theme was identified. The workshops were an important means of training, qualification and dissemination of nursing care in a palliative care environment.	Brazilian Journal of Nursing
GUEDES. B. A. N. et al. 2019	Subcutaneous complications in the infusion of drugs and solutions in palliative care	To characterize the complications associated with the use of the subcutaneous route in the infusion of drugs and solutions in palliative care	Observational Prospective	The infusion of solutions can be considered a safe alternative, which presents the risk of complications, most of which are easily reversible and with a low potential for causing harm to patients	Rev Rene
PONTALTI, G. et al. 2016	Benefits of Hypodermoclysis in the Palliative Clinic of Cancer Patients: Case Report	Expand knowledge and dissemination of experiences regarding their benefits	Case report	This practice was presented as a safe, minimally invasive and effective route in the symptomatic treatment of cancer patients in palliative care	Brazilian Journal of Cancerology
CARDOSO, H. D; MORTOLA, A. L; ARRIEIRA, O. C. I, 2016	Subcutaneous therapy for patients in palliative care: the experience of	OBJECTIVE: To report the experience of nurses with the use of	Experience report	Easy applicability, in addition to being low cost and ensuring	J Nurs Health

	nurses in home care	subcutaneous therapy to control symptoms in a palliative care patient treated at home		symptomatic control and comfort to patients in palliative care, however, it is still little known and standardized	
JUSTINO, T. E. <i>et al.</i> 2013	Hypodermoclysis in cancer patients under palliative care	OBJECTIVE: To describe the experience of using hypodermoclysis in patients under palliative care and pain management in an oncology referral hospital in Paraná, Brazil	Quantitative	The use of this alternative route for fluid administration in palliative care in the hospital in question is low, and the adoption of a standard protocol and dissemination may contribute to its use.	Cogitare Enferm
TAKAKI, I. Y. C. E KLEIN, S. F. G, 2010	Hypodermoclysis: the knowledge of nurses in hospitalization units	To verify the knowledge of the inpatient unit nurse in relation to hypodermoclysis	Quantitative	The lack of knowledge about hypodermoclysis among the nurses of the hospitalization unit, making it necessary to address the theme	Conscientiae Health
LAGO, O. J. A; SOUZA, C. A; BOLELA, F. 2021	Complications related to peripheral venipuncture and hypodermoclysis in cancer patients under palliative care	To identify complications related to peripheral venipuncture and hypodermoclysis in cancer patients hospitalized under palliative care.	Longitudinal descriptive	The complications observed during the study period were related only to venipunctures. There was a predominance of peripheral venipuncture to the detriment of the subcutaneous approach, a viable and recommended alternative for cancer patients under palliative care	UFSM Nursing Journal
PONTALTI, G. <i>et al.</i> 2018	Hypodermoclysis in cancer patients in palliative care	To analyze the use of hypodermoclysis in cancer patients in palliative care.	Descriptive cross-sectional	Hypodermoclysis has been shown to be an effective, safe and less invasive drug therapy in palliative care clinical practice.	UFSM Nursing Journal

Source: Survey data.

In accordance with the ethical aspects, the review was carried out in articles published in a public domain journal, respecting the ideas of each author of the articles found and analyzed. They



are referenced at the end of the work according to the standards of the Brazilian Association of Technical Standards (ABNT) of 2023, safeguarding the authorship of the selected articles.

PRESENTING THE RESULTS AND DISCUSSION

In order to characterize the articles, an analysis of the years of publication was performed. The first article was published in 2010 and the most recent in 2023, consistent with a time interval of 13 years.

Thus, in order to organize the analysis of the articles, three categories were elaborated: nursing care in the application of hypodermoclysis, benefits and complications of hypodermoclysis, and continuing education for professionals who provide care to patients in palliative care.

Through this study and its results, it was possible to identify that four articles were of quantitative methodology, two experience reports, two observational descriptive, one descriptive cross-sectional, one case report, one longitudinal descriptive and one qualitative. It is noteworthy that 100% of the articles were written by nurses, and it is emphasized that knowledge about hypodermoclysis should not be restricted only to nursing, but to the entire multidisciplinary team.

NURSING CARE IN THE APPLICATION OF HYPODERMOCLYSIS

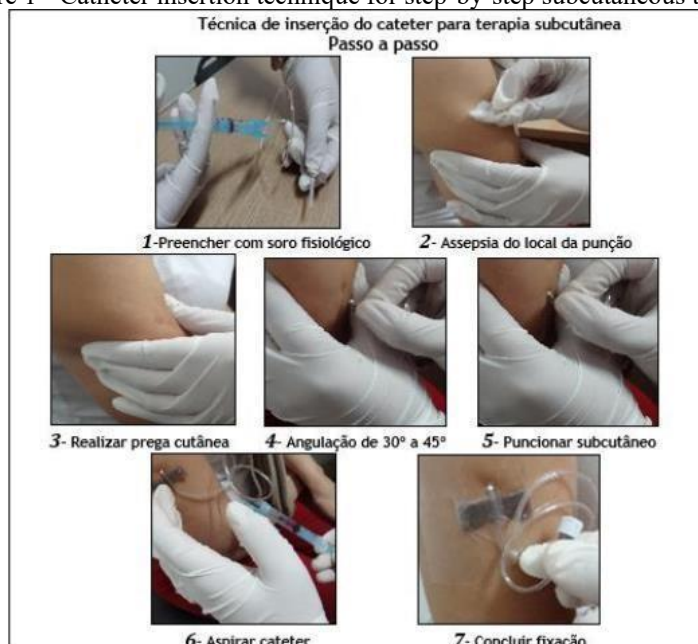
Although the intravenous route is the most obvious choice, the literature indicates that, due to the natural aging process, veins and skin elasticity can make it difficult to puncture a venous access, especially in elderly patients or those in palliative care. In individuals faced with the finitude of life, the oral route sometimes becomes unfeasible due to the reduction in the level of consciousness or the loss of absorption capacity by the digestive tract. However, hypodermoclysis may be a viable option for the administration of solutions and medications (AZEVEDO, 2017).

Health institutions lack teams specialized in palliative care and focused on a broad and integrated assessment approach, with the purpose of care ranging from prevention to relief of biopsychosocial symptoms that turn their gaze to the wishes and preferences of patients, ensuring their autonomy even in the face of the finitude of life (SILVA; SILVA, 2019).

Also in this sense, the use of alternative routes of care is necessary, the use of the subcutaneous route is not limited only to the administration of fluid replacement, it includes the prescription of medications/analgesics and antibiotics. Although the therapy is safe, some drugs do not have information on their use in the package insert, when used their use is classified as "*off-label*" (BRUNO, 2015)

In one of the articles found in the research by Cardoso, Mortola and Arrieira (2016), the Figure below demonstrates the step-by-step insertion of hypodermoclysis.

Figure 1 - Catheter insertion technique for step-by-step subcutaneous therapy.



Source: Cardoso, Mortola and Arrieira (2016).

It is essential that the nursing team knows how to perform the procedure correctly, first separating the material in the tray: procedure gloves, 70% alcohol, cotton, puncture device (needed or non-needed), syringe prepared with 3 ml of 0.9% saline, transparent dressing, a transparent plastic bag for disposal of the infective material (GODINHO; SILVEIRA, 2017).

For the puncture, it is necessary to wash the hands, explain to the patient and his family the procedure and its purpose, inspect the site to be punctured, open the device, put on the procedure gloves, fill the device with 0.9% saline, perform skin antisepsis with cotton soaked with 70% alcohol, remove the protector from the device, choose the puncture site where there is greater adipose tissue and that provides better mobility to the individual, perform a subcutaneous fold with the non-dominant hand, introduce the device into the skin at an angle of 30 to 45° with the bevel facing upwards, aspirate to check for the absence of venous blood, administer 1 ml of 0.9% saline solution and observe if there is the presence of extravasation, fix the device with transparent film, remove the glove, wash hands, identify the access, discard the material and proceed with the evolution of the procedure (GODINHO; SILVEIRA, 2017).

Corroborating the above, the use of hypodermoclysis is a technique for infusion of medications, its puncture is technically easier to use compared to intravenous puncture, taking into account the results found in the following articles:

The following nursing precautions were discussed with the participants: hand hygiene before each catheter handling; asepsis of the access route every time the system is opened, as well as friction of the ostium of the access lumen with gauze soaked in 70% alcohol; change of the luer lock cap after each manipulation, if in a hospital environment; orientation of patients, family members and team regarding the possibility of the occurrence of mild hyperemia and edema at the catheter insertion site soon after puncture; and puncture protection at the time of hygiene and comfort care (SANTOS *et al.*, 2020, p. 4).



In the workshops, it was decided to indicate the regular use of the non-needled catheter. This is because this indication is based on the greater possibility of permanence time and, also, on the possibility of detachment of the protective film that fixes the device due to intense sweating or even frequent mobilization of clients. In addition, there may be accidental removal of the device at the time of care, resulting in occupational accidents, or even with the patient himself (SANTOS *et al.*, 2020, p. 4).

The main objective of understanding hypodermoclysis and its practical use is to positively assist in the use of the technique, when appropriate, as well as the advantages it provides to the patient, caregiver/professional, and the health institution (BRUNO, 2015). The possibility of using it at home brings the health team closer to this family, so nursing experiences teaching and care, enhancing the technique outside the hospital environment (CORDEIRO *et al.*, 2023). The trained professional can train the family member/caregiver in the use of hypodermoclysis at home, as we can see in the following quotes from family caregivers:

I feel honored to be able to do this for him, I don't feel obligated, because when we love we choose to do it because we love, right!? So, I don't feel obligated. One thing I always tell him: that he is not a burden to me, he is not a burden" (CF4 – caregiver for 10 months) (MARTINS *et al.*, 2020, p. 7).

Of the 9 patients who at some point were cared for at home, six (66.7%) received care from family members for catheter maintenance, two (22.2%) in addition to receiving help from family members participate in catheter care, and only one (11.1%) had a formal caregiver (nursing assistant) (JUSTINO *et al.*, 2013, p. 87).

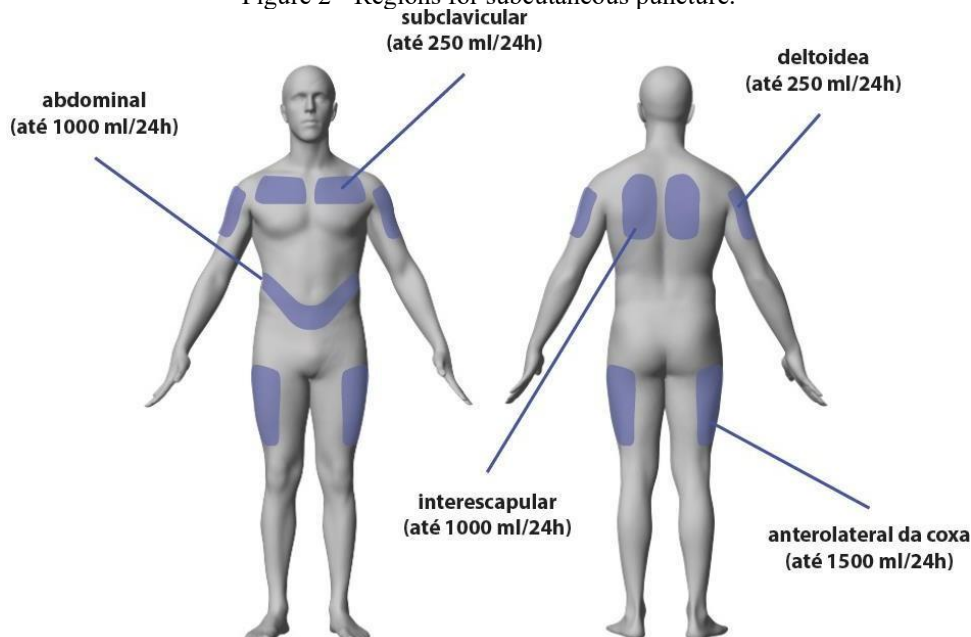
I feel like an important part of his life right now, a moment that no one wants to live, but I feel part of the group [referring to the health team] (CF4 – caregiver for 10 months) (MARTINS *et al.*, 2020, p. 9).

I didn't think I could do it, but I already knew how to handle the morphine. I looked at it and I thought I wouldn't be able to, that I would knead everything in my hands. The first time I was like: Oh my God, how am I going to move? Then even in the shower, I already do everything normal. I protect it right there. I didn't feel any difficulty, of course, you have to be careful, right? (CF2 – caregiver for 11 months) (MARTINS *et al.*, 2020, p. 6).

It can be seen in the statements of the family members about the home use of hypodermoclysis how important the preparation of this family is, the fear of not knowing about the use is present, but at the same time being able to provide this care to your family member makes it all worthwhile. In this mode, it is essential that the health team is always present to be able to assist this family in whatever is necessary.

In this sense, there are several options available for the location of the puncture according to the studies found in this research that meet the use of the subcutaneous route in geriatrics and palliative care (SBGG, 2016). The main areas include the deltoid, the anterior region of the thorax, the scapular area, the abdomen, and the lateral aspect of the thigh, as illustrated in Figure 2.

Figure 2 - Regions for subcutaneous puncture.



Source: SBGG (2016).

Regarding the permanence time of the device in the selected articles by Cardoso, Mortola and Arrieira (2016), Pontalti *et al.* (2018) and Justino *et al.* (2013) it was described that the subcutaneous catheter remained for 7 days; In some exceptions, it was removed earlier due to discomfort, presence of phlogistic sign, and rotation of the puncture site was performed. Lago, Souza and Bolela (2021) report the importance of regular inspection of the punctured site and the catheter permanence time ranged from 48 to 96 hours. As found in the literature, the subcutaneous catheter can sometimes remain longer than the peripheral venous access, and it is necessary to change the puncture site at a distance of 5 cm from the previous puncture site, with a permanence time of every 5 to 7 days, depending on skin conditions (GODINHO; SILVEIRA, 2017). Thus, some reports were observed in the studies:

Hypodermoclysis was used for 14 days, with rotation of sites between the right and left thorax to minimize damage to the underlying tissue, with a mean catheter permanence time of seven days, as recommended by the institution's standard operating procedure (PONTALTI *et al.*, 2016, p. 249).

The mean catheter permanence time was four days, with a minimum of one day and a maximum of 15 days. The probabilities of presenting complications increased over the days, so on the 1st day, the probability of not presenting adverse events was 94%; on the 5th day, 72% on the 10th day, 52% (SOUZA *et al.*, 2023, p. 5).

In PIDI, the nursing team is responsible for inserting the catheter for subcutaneous therapy and, therefore, always allows the patient to decide the puncture site that is most comfortable for them according to their routine and lifestyle habits, such as the sleeping position. Thus, the nursing team informs the patient of the possible places where there is presence of subcutaneous tissue and enables them to decide according to their needs and individualities.



The most comfortable sites reported were the abdominal and deltoid regions, and the infraclavicular region was also mentioned, but with less preference. Areas with scars, hyperemias, edema or irradiated areas are avoided for the execution of the technique (CARDOSO; MORTOLA; ARRIEIRA, 2016, p. 351).

Based on the explanations, nursing care for patients under care using hypodermoclysis are: evaluating the patient considering biopsychosocial factors, ensuring the patient's autonomy in accepting the procedure by explaining the technique, choosing the appropriate place for catheter insertion aiming at comfort and medications to be administered, preparing the material for puncture application, Proceed with aseptic technique, inspect the site continuously and if there are signs of phlogistic signs, rotate the site, evolve the procedure. The importance of training for the nursing team and safety to perform the procedure is highlighted (NOVELLI *et al.*, 2019).

In this context, through nursing care for patients in palliative care, it is necessary to look at the patient as a whole in a holistic way, aiming at comfort, observing the subcutaneous access on a daily basis and paying attention to phlogistic signs. It can be seen that the researched authors describe the importance of the use of hypodermoclysis, making it possible to provide care to their professionals in health institutions, as well as to caregivers/family members at home.

BENEFITS AND COMPLICATIONS OF HYPODERMOCLYSIS

The largest organ in the human body is the skin, which plays a key role in maintaining the integrity of the body and protecting against external influences, as well as being responsible for absorbing and excreting fluids, regulating temperature, and metabolizing vitamins. In addition, it is composed of three distinct layers: epidermis, dermis, and hypodermis. The hypodermis or subcutaneous tissue is located below the dermis, composed of fat cells, and has important functions such as storing energy and maintaining body temperature for development of organic functions. Thus, it becomes favorable for the administration of fluids and/or medications, which are absorbed and transported by the capillaries to the macrocirculation (INCA, 2009).

In this sense, hypodermoclysis is an old technique that has been gaining prominence in elderly patients and in palliative care through the use of the subcutaneous route, and it is necessary to verify the dilution of each medication administered, where each catheter insertion site has a maximum volume in twenty-four hours, and it is necessary to create protocols in institutions (VASCONCELLOS; MILAN, 2019). Regarding the use of hypodermoclysis, the results point to the following complications:

Throughout the study, 85 complications were observed, all related to PVP (peripheral venipuncture), the main ones being: local pain (30.5%; n=26), extravasation (25.9%; n=22), bent catheter (24.7%; n=21) and traction catheter (18.8%; n=16). No complications related to hypodermoclysis were identified (LAGO; SOUZA; BOLELA, 2021, p. 9).



The number of occurrences and complications related to peripheral venipuncture was considerably higher than those related to hypodermoclysis, the most common being blood contamination during venous catheter insertion, expired catheter, infiltration and inadequate fixation, making it impossible to monitor the catheter insertion site. Also, to a lesser extent, the occurrence of phlebitis was observed. Thus, it is suggested that hypodermoclysis offers greater safety to the patient with regard to complications resulting from the puncture and maintenance of a catheter in the subcutaneous tissue than peripheral venous puncture (BOLELA *et al.*, 2022, p. 8).

Among the 254 punctures performed, most of the time (65.4%) there were no complications. Of the 34.6% who had complications, edema (9.4%) and hyperemia (9.1%) prevailed among the complications (GUEDES *et al.*, 2019, p. 5).

Puncture site edema and catheter obstruction were the most prevalent adverse events. It is noteworthy that the adverse events identified are reversible and have a low potential to cause harm to elderly patients under palliative care (SOUZA *et al.*, 2023, p. 7).

According to the study found in this research, by Guedes *et al.* (2021), the main complication found was local pain resolved with the change of puncture site, the risks of complications were minimal, being easily treated and solved. However, complications with peripheral venous accesses were high compared to subcutaneous punctures.

According to Lago, Souza and Bolela (2021), it is noteworthy that the clinical characterization of cancer patients under palliative care were oncological diseases of Base: head and neck, lung, breast, colorectal, prostate, esophagus, among others, presenting metastases from the lung, bone, liver, lymph nodes, central nervous system, etc. In addition to comorbidities such as hypertension, diabetes, dyslipidemia, hypothyroidism, obstructive pulmonary disease, among others. In addition to thinking about the underlying disease, it is necessary to pay attention to humanized care, since the nursing team is present 24 hours a day during hospitalization. The result found in an article is justified:

It is considered that the nursing professional, aiming at the quality of care provided to patients, should obtain knowledge of the technique and the advantages of its use, regardless of the pathology that the patient presents and/or the stage of evolution of the disease in which he is (TAKAKI; KLEIN, 2010, p. 493).

One study shows that around 60% of patients in finitude were indicated for the use of the subcutaneous route (CARDOSO; MORTOLA; ARRIEIRA, 2016). Another study, which included 80 participating patients, pointed out that the predominant neoplasms in the study were pancreatic, gastric, intestinal, lung, head and neck, breast, esophagus, ovarian, kidney, melanoma, central nervous system, cervix, hepatic, bone, among others (PONTALTI *et al.*, 2018).

Oncological diagnosis is sometimes present in patients in palliative care, its philosophy is centered on the patient and his family, aiming at quality of life, control of pain and other symptoms, as well as preserving the patient's autonomy in decisions about their treatment in the face of a disease that threatens the continuity of life (MENDES; VASCONCELLOS, 2015). Also in this sense, in



agreement with the results observed in the study, the numerous benefits with the use of hypodermoclysis in patients in palliative care are notorious, in addition to the care that the nursing team can provide.

The indication of hypodermoclysis becomes significant due to the severity of the conditions of organ involvement, mainly hindering the feeding and absorption of drugs [...] The most commonly used drug was morphine, prescribed to 15 (93.75%) patients, administered alone or in combination with other drugs (JUSTINO *et al.*, 2013, p. 88).

It is necessary to consider that hypodermoclysis can be used outside the scope of palliative care, and nurses should have a holistic view, providing more humanized care. This technique has been shown to be effective, with a low risk of infection, provides comfort to the patient and optimizes the care of the nursing team (TAKAKI; KLEIN, 2010, p. 494).

According to Azevedo (2017), the advantages for the use of the subcutaneous route are: parenteral route is more accessible and comfortable than intravenous access, easy insertion and maintenance of the catheter, can be performed in any care setting, including at home, rare local complications, low risk of systemic adverse effects (hyponatremia, hypervolemia, congestion), reduction of fluctuation in plasma opioid concentrations, and low cost. Disadvantages are: limited infusion volume and speed (up to 1500 ml/24h per puncture site), variable absorption (influenced by perfusion and vascularization) and limitation of drugs and electrolytes that can be infused. It is contraindicated if the patient refuses to use it, is in anasarca, has severe thrombocytopenia, and in cases of rapid volume, such as shock or severe dehydration.

The selection of these data can guide both the pharmacist and the medical and nursing staff to evaluate the drugs to be used through hypodermoclysis, contributing to patient safety, while minimizing the risks of adverse events associated with the use of this route (BRUNO, 2015). It is necessary to have the knowledge of the multidisciplinary team for the use of subcutaneous medications, the studies point out some medications that can be applied:

Due to the severity and clinical worsening of the patient, despite the measures instituted, continuous sedation analgesia was implemented with morphine and midazolam in an infusion pump, 10 ml/h at a concentration of 240 ml of sF 0.9%, morphine 70 mg and midazolam 10 mg, according to the institutional protocol recommended by the PCP and with the consent of the family. The patient died after 72 hours of hospitalization, comfortable and without prolonging suffering, accompanied by their family members full-time and with active participation in decision-making throughout the care process (PONTALTI *et al.*, 2016, p. 250).

Among the solutions and medications administered subcutaneously, serum therapy (0.9% sodium chloride), with caloric intake or in combination with other medications, was administered in 155 (61.0%) situations. The most infused drug was morphine, prescribed in 124 procedures (48.8%), followed by dipyrone in 82 procedures (32.3%) and scopolamine which was administered in 58 procedures (22.8%). The other infused medications that appeared in less than 20% of the procedures were: haldol (16.5%); metoclopramide (15.7%); ondansetron (9.8%); ceftriaxone and meropenem (9.4% each); omeprazole (8.7%); furosemide (8.3%); dexamethasone (7.1%); ranitidine (5.9%); midazolam. Subcutaneous complications in the infusion of drugs and solutions in palliative care 5 (5.1%); teicoplanin (4.3%); phenobarbital



(3,9%); cefepime (3.1%); tramadol (1.6%); methadone (1.2%); and ampicillin (0.8%) (GUEDES *et al.*, 2019, p. 4-5).

The most commonly used drug was morphine, prescribed to 15 (93.75%) patients, administered alone or in combination with other medications. Hypodermoclysis as a route for hydration was used in five (31.25%) of the 16 patients, and in all situations 0.9% Saline Solution (DES) was administered; in three (60%) applications in association with 5% glucose solution and in one (20%) application, two ampoules of 50% glucose were added (JUSTINO *et al.*, 2013, p. 86).

According to Pontalti *et al.* (2018), Table 2 shows the drugs prescribed and administered for hypodermoclysis in patients.

Table 2 - Drugs prescribed and administered for hypodermoclysis in patients.

Variables	N=80	(%)
Medications prescribed and administered for hypodermoclysis*		
Morphine	76	95,0
Metoclopramide	49	61,3
Dipyrone	39	48,8
Ondansetona	29	36,3
Dexamethasone	12	15,0
Ranitidine	11	13,8
Haloperidol	9	11,3
Glycophysiological solution	8	10,0
Saline solution 0.9%	8	10,0
Electrolytes (potassium chloride 10% and sodium 20%)	5	6,3
Midazolam	4	5,0
Ketamine	3	3,8
Scopolamine	3	3,8
Furosemide	3	3,8
Cefepime	2	2,5
Clorpromazina	2	2,5
Dimenhydrinate	2	2,5
Octreotide	1	1,3
Glucose solution 5%	1	1,3
Omeprazole	1	1,3
Ampicilin	1	1,3

Source: Adapted from Pontalti *et al.* (2018).

Absorption of infused drugs and fluids through hypodermoclysis occurs primarily through the process of capillary diffusion and tissue perfusion. In this sense, patients suffering from edema or hematomas may face challenges in the efficacy of their therapy (GODINHO; SILVEIRA, 2017).

The therapeutic approach aims at the possibility of medications when it is not possible to perform orally and when it is feasible to maintain an adequate level of hydration, in this context hypodermoclysis stands out as a simple method, easy to manage and comfortable for patients. It is important to note that medications need to be in liquid or diluted form. According to Azevedo (2017), some medications will in line with those found in the research: ampicillin, cefepime, ceftriaxone, dexametasona, dimenhydrinate, dipyrone, scopolamine fentanil, furosemide haloperidol, methadone metoclopramide, midazolam, morphine omeprazole, Ondasetron, tramadol, saline and glucose are well tolerated subcutaneously.



Given the above, the evolution of medicine over time is notorious, which enables significant knowledge and technologies in patient care, however there are still gaps in knowledge, and it is necessary to deepen research with scientific evidence, since the use of subcutaneous medications is *off-label* (QUAGLIO *et al.*, 2018). From this perspective, it is important to highlight the expansion of investments in research that provide support to professionals for the use of the subcutaneous route in order to finally train families who wish to offer home care.

CONTINUING EDUCATION FOR PROFESSIONALS WHO CARE FOR PATIENTS IN PALLIATIVE CARE

The Unified Health System (SUS), one of the largest and most efficient public and free health systems in the world, was created in 1988 during the reform of the Federal Constitution, by Law No. 8,080/1990, with the following principles: universality, equity and comprehensiveness. In view of this, the national policy of continuing education in health was implemented as a SUS strategy for the training and development of workers for the sector on February 13, 2004, Ordinance No. 198/GM (BRASIL, 2004).

Through continuing education, it is possible to provide workers with a teaching and learning process in the professional routine, seeking educational actions, critical thinking worked within the multidisciplinary team, turning the gaze to the needs of the assisted population (ALMEIDA *et al.*, 2016). Nursing is of strong importance in the health area, being indispensable for the system to function. Thus, it is evident in the articles found the search for improvement in work processes, institutions need to invest in training professionals so that their care meets the demands of each patient, alternative ways of care such as hypodermoclysis puncture are fundamental for humanized care.

It is recommended that professionals be trained in the use of hypodermoclysis, as well as the adoption of guidelines and protocols that can guide the clinical practice of nursing professionals in order to favor adherence to this technique. In addition, the teaching of the practice of hypodermoclysis should be encouraged in universities, in order to favor the training of professionals to perform it (BOLELA *et al.*, 2022, p. 8).

By training more than 50 participants to use the subcutaneous route in adult and elderly clients, they contributed to the training of specialized nursing human resources, who are better able to offer quality and safe care (SANTOS *et al.*, 2020, p. 5).

The performance of the nursing team is essential and requires knowledge about anatomy, physiology and pharmacology. The relationship with the family and the patient is important for evaluation and safety in care. Studies show the lack of publications on the subject of hypodermoclysis, in addition to the lack of knowledge of health professionals, it is necessary to invest in research on the subject, since it is a low-cost resource (ADRIANI *et al.*, 2016). According to



Novelli *et al.* (2019), studies on the subject are necessary to contribute to the care of professionals who work with patients in palliative care, providing relief from signs and symptoms of pain and providing quality of life.

Care protocols assist in care and unify patient care, adapting financial and logistical resources to solve patients' problems. For its construction, it is necessary to study and research its effectiveness, reinforcing in the results of the studies indicate:

The research, corroborating studies, demonstrated that hypodermoclysis is a safe, reliable, easy to handle technique with minimal discomfort for the patient, however, it is still little used by the team of the study institution (JUSTINO *et al.*, 2013, p. 89).

Hypodermoclysis is a pathway that has been little explored in clinical practice. There are still limited studies on the administration of drugs and solutions by the subcutaneous route as an alternative, and it is believed that the lack of institutional protocols and awareness of the team limits its use. However, even in the presence of adverse events, hypodermoclysis is an alternative route of administration of safe medications and fluids, as long as the nursing team is trained (SOUZA *et al.*, 2023, p. 7).

It is possible to identify the low adherence of the team to the performance of hypodermoclysis, a fact that may be related to the lack of knowledge about the technique by health professionals, little public evidence about its benefits and the technique itself. Thus, it is necessary to carry out studies with high levels of evidence to support the nursing team's care practice, favoring the use of the subcutaneous approach (MOREIRA *et al.*, 2020, p. 6).

Although it is a simple procedure, hypodermoclysis involves and encompasses the relationship between professionals and family caregivers, its history contributes to health care and autonomy in home care as long as these family members are trained to use it, thus establishing a strong and permanent bond with the care team (BONIZIO, 2021). Regarding palliative care in the home environment, an interprofessional approach generating quality care through listening, dialogue, and comprehensive care for the family and the patient stands out (HESLER *et al.*, 2020).

The articles found in this research corroborate that nursing is a significant part of patient care, as well as in the face of palliative care at home, the nursing team develops an important role in health education in primary care. This is because training family members to manage hypodermoclysis is not an easy task, for this this family needs to be willing to learn, it is an activity that generates comfort and quality of life for the family member and empowerment of the family in care. This can be found in the reports of the studies:

The subcutaneous approach is easy to apply in the home setting, in addition to being low-cost and ensuring symptomatic control, since it is possible to use most of the drugs necessary in palliative care and, thus, promote comfort and quality of life for the patient. However, the lack of protocols, dissemination of knowledge and research on subcutaneous therapy or hypodermoclysis hinder the expansion of its use, and further studies on this method are needed. It is also important to highlight the relevance and benefits observed in this service, such as the use of subcutaneous therapy, since it promotes comfort, autonomy and quality of life for patients in palliative care (CARDOSO; MORTOLA; ARRIEIRA, 2016, p. 353).



Hypodermoclysis has provided cancer patients in palliative care with effective, safe, and less invasive drug therapy, presenting itself as an easy-to-use, well-tolerated, and low-risk complication option for parenteral infusions. In addition, this study contributes to the implementation of this technique in other care settings, in order to benefit eligible patients in the use of hypodermoclysis therapy (PONTALTI *et al.*, 2018, p. 284).

This technique using the subcutaneous route is an accessible, safe, low-cost and easy-to-manage alternative. During the daily routine of care, there is a lack of documents and protocols that guide professionals to use the procedure, and the health institution needs to turn its attention to the training of these workers, since the use of hypodermoclysis can cause minimal adverse effects (NUNES; SOUZA, 2016). Studies show a lack of approach to palliative care and how much work activity is interconnected with mental health, given that professionals need to express their feelings, it is necessary for the institution to provide emotional support (SOUZA *et al.*, 2022).

As mentioned, it is evident that there is a need for a change in the training of health workers with the policy of permanent education in health, especially professionals who work with patients in palliative care. It is possible to perceive in the studies the lack of knowledge of the professionals and their approach should be from the undergraduate level, making it necessary to develop research in health institutions.

Considering the nurses' knowledge about hypodermoclysis, we observed that 29%, i.e., two of the nurses submitted to the questionnaire had already heard about this technique. Of these, one participant obtained information through the internet, but was unaware of its benefits and applicability, and the other had contact with the technique during the undergraduate nursing internship at the Cancer Hospital, in which he was instructed about the benefits of the method, but did not mention them in this research. On the other hand, 71%, i.e., five of the nurses were completely unaware of this technique (TAKAKI; KLEIN, 2010, p. 492).

Thus, we suggest that the topic of hypodermoclysis be addressed more frequently in undergraduate nursing courses. It is necessary to discuss its meaning, its benefits, its risks, in short, the technique itself (TAKAKI; KLEIN, 2010, p. 493).

Health education is fundamental within palliative care, it is necessary that the entire team and especially the nurse are prepared and qualified to act and guide the family caregiver so that he is able to perform care for his family member. Nursing is part of the group of health professionals who assist in the promotion and maintenance of the health and well-being of the population, working on the front line of disease prevention and treatment. Multidisciplinary work is essential in various contexts of workplaces, as well as hospitals and primary health care.

FINAL THOUGHTS

This research allowed us to illustrate the nursing technique and care in the use of hypodermoclysis with acceptability, effectiveness and safety for better symptom management, as well as the transition of patient care in palliative care. Thus, enabling the use at home, through the



training of family members with the support of trained nursing professionals, forming a network of continued care.

The strategies used to implement the use of hypodermoclysis are continuing education and protocols that guide the use of the subcutaneous route. To this end, health institutions must be willing to invest in the continuing education of their employees, as well as to organize multidisciplinary study groups on palliative care, also addressing the issue of hypodermoclysis.

It can be seen that in the daily routine of care, and even in the undergraduate course, hypodermoclysis is little worked on, and sometimes not talked about, which needs to be remembered as an alternative route of medication administration, in addition to the traditional routes, in those patients with impaired venous network.

It is noteworthy that palliative care should be addressed in a transversal way in the undergraduate course of health courses. This means that the theme should be contemplated in the disciplines that address the different areas of human development, in order to integrate palliative care with the existing contents.

It is hoped that this research can instigate multidisciplinary teams to search for new care strategies in order to improve the quality of life of their palliative care patients and, consequently, of their families.



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Appendix B - List of articles analyzed – 2023

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