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CASE REPORT ARTICLE

# CONTINUING EDUCATION ON HYPODERMOCLYSIS WITH THE NURSING TEAM OF A HOSPITAL SURGICAL UNIT

## EDUCAÇÃO PERMANENTE SOBRE HIPODERMÓCLISE COM A EQUIPE DE ENFERMAGEM DE UMA UNIDADE DE INTERNAÇÃO CIRÚRGICA

## EDUCACIÓN PERMANENTE SOBRE HIPODERMOCLISIS CON EL EQUIPO DE ENFERMERÍA DE UNA UNIDAD DE INTERNACIÓN QUIRURGICA

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**ABSTRACT**

***Objective***: to report the experience of conducting a continuing education activity on hypodermoclysis with nursing professionals in hospitals. ***Method***: the experience developed in the first half of 2014, while conducting Supervised Internship in Management of Health and Nursing. The scene was one Surgical Inpatient Unit of the University Hospital Polydoro Ernani de São Thiago, Florianópolis, SC. ***Results***: the development of the activity involved preparing an informative material on hypodermoclysis and workshops with the nursing staff. The focus of information material and workshops were about concept of hypodermoclysis, indications, contraindications, benefits, puncture sites, a technique traditionally used drugs, dilution, forms of dilution, and nursing care in puncture, maintenance, and monitoring. ***Final remarks***: the activity performed met the expectations of participants and contributed to the systematization of the professional practice in nursing in subcutaneous therapy. ***Descriptors***: Nursing Care; Management; Continuing Education in Nursing; Hospital Nursing Service.

**RESUMO**

***Objetivo*:** relatar a experiência de uma atividade de educação permanente sobre hipodermóclise realizada com profissionais de enfermagem no contexto hospitalar. ***Método*:** relato de experiência desenvolvido no primeiro semestre de 2014 durante a realização de Estágio Supervisionado em Gestão e Gerenciamento em Saúde e Enfermagem. O cenário foi uma Unidade de Internação Cirúrgica do Hospital Universitário Polydoro Ernani de São Thiago, Florianópolis, SC. ***Resultados*:** o desenvolvimento da atividade envolveu elaboração de um material informativo sobre hipodermóclise e realização de oficinas com a equipe de enfermagem. O foco do material informativo e das oficinas foram informações sobre conceito de hipodermóclise, indicações, contraindicações, vantagens, sítios de punção, técnica, medicamentos tradicionalmente utilizados, diluição, formas de diluição, e cuidados de enfermagem na punção, manutenção e monitoramento do dispositivo. ***Considerações finais*:** a atividade atendeu às expectativas dos participantes e contribuiu com a sistematização da prática dos profissionais nos cuidados na terapia subcutânea. ***Descritores*:** Cuidados de Enfermagem; Gerência; Educação Continuada em Enfermagem; Serviço Hospitalar de Enfermagem.

**RESUMEN**

***Objetivo*:** relatar la experiencia de la realización de una actividad de educación permanente sobre hipodermoclisis con profesionales de enfermería en el contexto hospitalario. ***Método*:** relato de experiencia desarrollado en el primero semestre de 2014, durante la realización de la Práctica Supervisada en Gestión y Gerenciamiento en Salud y Enfermería. El escenario fue una Unidad de Internación Quirúrgica del Hospital Universitario Polydoro Ernani de São Thiago, Florianópolis, SC. ***Resultados*:** el desarrollo de la actividad envolvió elaboración de un material informativo sobre hipodermoclisis y realización de talleres con el equipo de enfermería. El foco del material informativo y de los talleres fueron informaciones sobre concepto de hipodermoclisis, indicaciones, contraindicaciones, ventajas, sitios de punción, técnica, medicamentos tradicionalmente utilizados, dilución, formas de dilución, y cuidados de enfermería en la punción, mantenimiento y monitoreo del dispositivo. ***Consideraciones finales*:** la actividad realizada atendió las expectativas de los participantes y contribuyó con la sistematización de la práctica de los profesionales en los cuidados en la terapia subcutánea. ***Descriptores*:** Cuidados de Enfermería; Gerencia; Educación Continuada en Enfermería; Servicio Hospitalario de Enfermería.

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## INTRODUCTION

The hypodermoclysis, also known as subcutaneous therapy is a safe and simple method for the administration of isotonic fluids and/or drugs via the subcutaneous route (SR). It is indicated in cases of moderate dehydration, in which both the venous ways such as the oral intake of liquids cannot be performed.[1-2]

It can be used to administer fluid volumes up to 1500 mL over a period of 24 hours and also as an option for drug infusion to control symptoms such as pain, nausea, and shortness of breath. The absorption of medicines and subcutaneous fluids is slower than intravenously (IV), but the efficacy of the medicine is not impaired. Also, subcutaneous infusions are less painful and invasive, easy to handle both in handling and in maintenance and are not subjected to the same range of complications such as IV infusions.[1-2]

The use of SR for fluid infusion is a practice known since 1865 when the first successful experiments have been reported in Italy. Based on the successful initial results, the technique has spread around the world throughout the nineteenth century. However, it decreased in the mid-1950s because of fluid overload and current shock reports occurring after the infusion of large volumes of solutions without electrolytes. Another factor that contributed to the disuse of this technique was the ease of application of intravenous infusions.[3-4]

By 1980, from new studies, this way returned to clinical practice that established technical parameters for its use. These new investigations cleared aspects of puncture technique, the type of fluids and medication that can be infused administration and monitoring procedures of this way. Thus, since then, there is a growing use of this practice, especially in geriatrics and palliative oncology.[3-5]

It can be implemented as the alternative way in patients who require clinical support for replacement of fluids, electrolytes, and medications, both in hospitals and in home care. The main advantages of the use of hypodermoclysis are: low cost, possibility of early hospital discharge, minimal risk of discomfort or local complications and minimal risk of systemic complications.[6]

Nevertheless, the subcutaneous administration of medication is an area that still receives little attention compared to other types of parenteral therapy.[5] In Brazil, the use of protocols for use of hypodermoclysis are limited and few studies address the best practices of subcutaneous infusion as an alternative for patients. Therefore, many doctors and nursing professionals have little knowledge about this technique and require training and specific training programs to implement it.[2,5,7]

With all this information, one of the strategies that can be used to publicize the hypodermoclysis between health and nursing professionals is to conduct continuing education activities. Continuing learning is a policy of the Unified Health System (SUS) in Brazil focused on training and development of workers in the area. The proposal for continuing education shows the importance of the educational potential of the work process as a way to transcend traditional modes of education for transformation. It is guided in the learning at work that enables the improvement of quality of care, through a formal or informal, dynamic and dialogical educational process.[8,9]

In Nursing, Continuing education is one of the managerial competencies to be developed by nurses throughout their academic and professional training.[10] Running continuing education project involving nurses contribute to the teaching-service integration in education, improving the quality of assistance in the construction of the Unified Health System (SUS).[11]

This study aims to:

- Report the experience of conducting a continuing education activity on hypodermoclysis with nursing team professionals in hospitals.

## METHODOLOGY

This is a report developed from the experience of two nursing students during the curriculum components Management in Health and Nursing and Supervised Internship I, of the seventh semester of the Undergraduate Course in Nursing at the Federal University of Santa Catarina (UFSC).

These curriculum components are taught in an articulated and integrated way is aiming to create opportunities for students of developing the knowledge and managerial

skills to become managers or leaders in the health and nursing staff. Aiming at a generalist training, the hours of Supervised Internship I is divided between hospital care (162 hours) and primary care (108 hours).

In this article, the work on Inpatient Surgical Unit I (UIC-I) of the University Hospital Polydoro Ernani de São Thiago, Florianópolis, SC, in the first half of 2014 is focused. This area has 30 beds for adult male and female patients in chronic or severe disorders process requiring surgical intervention. It meets the medical specialties of general surgery, digestive tract (liver and bariatric transplants, among them), ENT, neurology, oncology, chest and head and neck. The nursing team consists of 9 nurses, 18 technicians and six nursing assistants. Together with nursing, they operate a medical and a multidisciplinary team composed of surgeons, social workers, physiotherapists, dieticians and psychologists who perform patient care in preoperative and postoperative. The sector is also training field for students of undergraduate and residence of areas related to health.

The hospital training provides students with the experience of the duties of the nurse manager of a hospital ward in which they carry out planning, implementation, and evaluation of a management proposal. It is developed in five weeks, and in the first weeks, students prepare the Training Action Plan (TAP) and in subsequent weeks, they execute it.

The TAP is based, methodologically, in Situational Strategic Planning (SSP), which enables the identification of a problem from the actor's view, the identification of possible causes and the search for different ways to address and propose solutions based on four stages: explanatory time, normative time, strategic and tactical-operational time.[12]

The first step, explanatory time, is the identification, description, and explanation of the problems, both from objective information and quantitative data, rules and routines, as subjective information such as perceptions of the various actors. The second stage, the normative time, proposes the definition of objectives and results to be achieved, and the forecast of strategies and actions needed to reach. In the third step, the strategic time, from the established objectives, should be provided for intervention projects, establishing its temporal sequence, as well as the expected effects. The fourth step, the tactical-operational time, provides the schedule of implementation of the proposals, including schedule, resources, responsible actors and participants in the execution. It is essential to define further strategies and monitoring and evaluation parameters, whether the results or the process.[12]

students are immersed in the hospital during the first week to know the processes To prepare the TAP. To do so, they perform dynamic observation in the unit, talk and interact with professionals to identify potential problems and to list problems/weaknesses/shortcomings in that environment. After this first time, students discuss and reflect on the area´s needs with professors and the nurse supervisor to select priority actions to be developed in the coming weeks.

From the inclusion of students in the area, it was identified the need to develop a continuing learning action with technicians and nursing assistants on hypodermoclysis. This action was selected because until now, only the nurses had been trained in this technique and was growing prescription of hypodermoclysis for patients admitted to the unit, especially those who were in palliative care, which generated doubts among the nursing professional team. It is worth noting that the practice of using hypodermoclysis has been more common in other units of the institution, such as emergency room, intensive care unit and medical clinics while in the surgical inpatient units was little used.

The development of the activity was divided into two stages. First, an informative material on hypodermoclysis was prepared. Then, it was proceeded the organization and carrying out of training with the nursing staff, based on the prepared material.

## RESULTS AND DISCUSSION

**♦ Preparation of informative material on hypodermoclysis**

The first step in the preparation of informative material on hypodermoclysis was conducting a literature review, aiming to seek theoretical background on the subject. Scientific articles and books were consulted on nursing care in hypodermoclysis. There is the use of manual

subcutaneous therapy in advanced cancer from the National Cancer Institute (INCA). This material is one of the main references in the area and has been produced to obtain uniform procedures relating to the subject approach in care sectors of the Cancer Hospital IV - Palliative Care Unit of INCA, a pioneer service in the use of hypodermoclysis in Brazil.

After the literature review, it was discussed with the nurses of the inpatient unit information to be included in the information material, so they were consistent with the practice in the area and provide the learning needs of nursing professionals. This step was important for the material actually to portray the light of the relevant literature; the way hypodermoclysis is held in the institution and the area. This dialogic relationship between nurses, teachers and academics are essential for the formation of critical-reflective professionals and transformation of practice scenarios in learning spaces.[13]

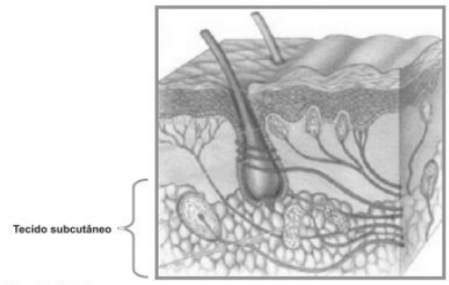
The next step was to seek review and final approval of the material by two experts' nurses. It is worth noting that according to a professional literature expert or reference is considered in a particular field of activity or field of knowledge after an average of 5 to 10 years of involvement with the labor exercise.[14] The two professionals who reviewed and approved the material had experience in both the development of studies on hypodermoclysis, as in the implementation and use of this technique in professional nursing practice for over ten years.

The elaborated informative material is presented in Figure 1 and 2. It contemplates information on the concept, indications, contraindications, benefits, puncture sites, step by step technique, traditionally used drugs, dilution, forms of dilution, use of drugs prohibited by this way and nursing care in the puncture, maintenance, and monitoring of the device.

# HYPODERMOCLYSIS

## DEFINITION

Hypodermoclysis is the infusion of isotonic fluids and/or medication subcutaneously and is aimed at fluid replacement and/or drug therapy. (INCA, 2009).




Anatomia da pele

Fonte: Bear, MF, Connors, BW & Paradiso, MA. Neurociências – Desvendando o Sistema Nervoso. Porto Alegre. 2ª ed. Artmed Editora, 2002. (adaptado)

*Source: Bear, MF, Connor, BW & Paradiso, MA. -Neuroscience: disclosing the nervous system. Porto Alegre 2nd edition Artmed Editor, 2002. (adapted)*

- Low cost and easy installation and maintenance

## INDICATIONS

- Inability mouth intake
- Inability to peripheral venous access
- Possibility of the patient staying at home

## CONTRAINDICATIONS

- They are related to coagulation disorders, edema, and anasarca

## ADVANTAGES

- Minimum risk of discomfort or local complications

## TRADITIONALLY DRUGS USED

| COMPATÍVEL / INCOMPATÍVEL / NÃO TESTADO | CLORPROMAZINA | DEXAMETASONA | FENOBARBITAL | FUROSEMIDA | HALOPERIDOL | HIOSCINA | INSULINA | KETAMINA | METADONA | METOCLOPRAMIDA | MIDAZOLAM | MORFINA | OCTREOTIDE | ONDANSETRONA | RANITIDINA | TRAMADOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLORPROMAZINA | ■ | | | | ■ | | | | | ■ | ■ | ■ | | | ■ | |
| DEXAMETASONA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| FENOBARBITAL | | ■ | ■ | | | | | ■ | | | | ■ | | | ■ | |
| FUROSEMIDA | | ■ | | ■ | | | | | | ■ | ■ | ■ | | | ■ | |
| HALOPERIDOL | ■ | ■ | | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | | | ■ |
| HIOSCINA | | ■ | | | ■ | ■ | | ■ | ■ | ■ | ■ | | ■ | ■ | | ■ |
| INSULINA | | ■ | ■ | | | | ■ | | | ■ | ■ | ■ | ■ | | ■ | |
| KETAMINA | | ■ | | | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | | |
| METADONA | | ■ | | | ■ | ■ | | | ■ | ■ | ■ | ■ | | | | ■ |
| METOCLOPRAMIDA | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| MIDAZOLAM | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| MORFINA | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| OCTREOTIDE | | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | | |
| ONDANSETRONA | | ■ | | | | ■ | | ■ | | ■ | ■ | | ■ | ■ | | |
| RANITIDINA | ■ | ■ | ■ | ■ | | | ■ | | | ■ | ■ | ■ | | | ■ | |
| TRAMADOL | | ■ | | | ■ | ■ | | | ■ | ■ | ■ | ■ | | | | ■ |

Quadro de compatibilidade de medicamentos para administração por via subcutânea

Fonte: INCA, adaptado de: Cuidados Paliativos Oncológicos – Controle de Dor – Centro de Suporte Terapêutico Oncológico (CSTO) – Instituto Nacional de Câncer – RJ. 2001; Compatibility of Subcutaneously Administered Drugs 2006.

*Chart of drug compatibility for subcutaneous administration*

*Source: INCA, adapted from: Palliative Care Oncology - Pain Control – Therapeutic Support Center Oncology (CSTO) - National Cancer Institute - RJ, 2001;*

## ADMINISTRATION WAYS

- Bolus;
- Continuous infusion (it must be by infusion pump);

## DILUITION

- According to practical evidence, the drugs should be administered in pure form (do not dilute). After that, remember to wash the route with 1 mL of 0.9% saline solution.

- Diazepam, diclofenac, electrolytes undiluted and phenytoin.

Figure 1. Information material on hypodermoclysis (front page)

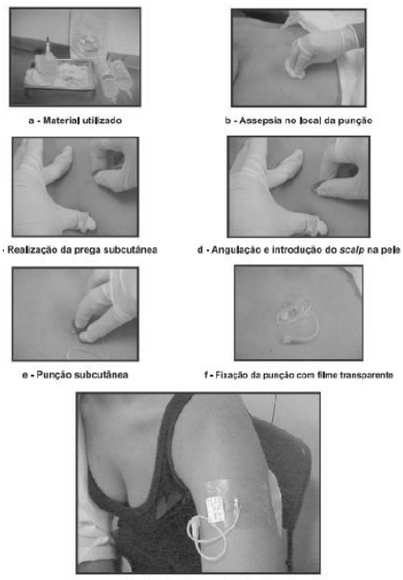
**PUNCTURE PLACES**

- Deltoid region
- Previous chest region
- Scapular region
- Abdominal region
- Lateral thigh face

Appropriate places for subcutaneous puncture

Source: Palliative Care Oncology - Pain Control - Therapeutic Support Center Oncology (CSTO) - National Cancer Institute - RJ, 2001;

**TECHNIC STEP BY STEP**






*a - Material used/ b - Asepsis on the puncture place/ c - realization of subcutaneous fold/ d - angulation and introduction of the scalp in the skin/ e - Subcutaneous puncture/ f - fixing the puncture with transparent plastic/ g - visualization of the subcutaneous puncture*

**REMEMBERING THAT...**

- The DOCTOR is responsible for the prescription.
- The NURSE is responsible for puncture.
- **NURSING TEAM** is the responsibility for monitoring.

***IMPORTANT:***

*According to the Hospital Infection Control Commission, the catheter exchange should be performed every 5 days.*

**NURSING CARE**

- Monitoring the puncture place for:
  - Local irritation signal in the first 4 hours.
  - Signs of inflammation: swelling, heat, redness and pain.
  - Induration.
  - Bruise.
  - Tissue necrosis (late complication).
- At the time of changing the puncture site, respect the distance of 5 cm from the location of the late puncture.
- Consider clinical characteristics of the patient and environment.
- After medication administration, inject 1 ml of saline 0.9% to ensure that all device content was introduced at the puncture site.
- If a local edema is observed, it is recommended to decrease the drip (ml/h) or stop the infusion.

BRAZIL. Ministry of Health. National Institute of Cancer. Subcutaneous therapy in advanced cancer. / National Cancer Institute. – Rio de Janeiro: INCA, 2009. 32p: il – (Palliative Care Series)

**Figure 2. Information material on hypodermoclysis (back page)**

For the printing of information material, two sheets A3 were used in landscape format, which were laminated as preconization the Hospital Infection Control Committee of the institution. The printed material was available to professionals of the area and used in the workshops, described below.

**♦ Update workshops on hypodermoclysis for nursing staff**

For the workshops with the nursing staff, initially, there were planning dynamics that would be used and logistics, for example, date, time, duration and evaluation methodology. This step was carried out together with the nurses and responsible teachers.

As originally planned, the target audience of the activity was the team of technicians and nursing assistants. However, there was some voluntary participation by nurses in the unit. A schedule of five workshops was created to achieve maximum possible of professional, one for the morning shift, one for the afternoon shift and three for the different teams working at night.

Each workshop lasted about 20 minutes and were carried out during the work shift of professionals. The decision to hold workshops during the working shift was to promote the participation of all members of the nursing team. It is known that the irregular distribution and low availability of professionals for training outside working hours hinder the adherence to continuing education activities.[15]

The workshop began with a description of the informative material and followed by a time for dialogue and questions, always trying to relate the theme presented to the daily practice of professionals. This approach to real work situations is a major feature of continuing education and enables the context of theoretical and practical knowledge in all its complexity, differentiating the practice of traditional forms of continuing education.[15]

During the first workshop, there were two questions among the participants. The professionals questioned about the use of antibiotics through hypodermoclysis and if it was possible its use in pediatrics.

Studies on the use of antibiotics subcutaneously are limited. The literature considers that the Ceftriaxone, Cefepime, and Teicoplanine antibiotics are better tolerated by the SC route. However, Ertapenem, Ampicillin, Tobramacine, and Amicanice still need more studies to prove the feasibility of using. The antibiotics of aminoglycosides class do not seem to be advisable by the appearance of skin lesions, most evolving to necrosis.[3]

These doubts were used to supplement the subsequent presentations.

After the presentation, an assessment instrument with open and closed answers was applied (Figure 3). The objective of this instrument was to assess whether the action was appropriate and effective, if the way to show it was descriptive, clear and understandable and with space for suggestions.

1. Do you consider that the information passed by the academics was clear?

( )Yes ( )No

2. Do you think the team needs another training on the topic?

( )Yes ( )No

3. The poster is explanatory in order to provide information necessary to nursing care for patients with hypodermoclysis?

( )Yes ( )No

4. Do you have any question?

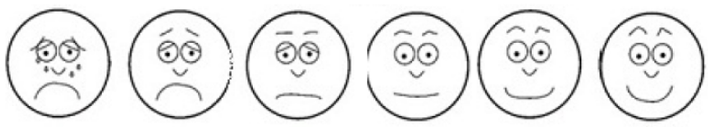
( )Yes ( )No

5. Which one?

_____

_____.

6. Evaluate the information offered by academies according to the scale below:




7. Suggestions

_____

_____

_____.

Figure 3. Evaluation instrument

Through this evaluation, it is concluded that the workshops meet the expectations of the participants. They judged that the topic was approached by an explanatory, descriptive way, easy to understand and doubts about hypodermoclysis were resolved. Through the evaluation stage, it was concluded the intervention project traced based on PES references.

## FINAL REMARKS

This study shows the experience of conducting a continuing education activity on hypodermoclysis for the professional nursing staff of a hospital surgical inpatient unit. It can contribute to the systematization of the professional practice in the realization of care about subcutaneous therapy in the hospital. Therefore, it is expected to improve the quality of patient care and provide greater technical safety for nurses.

The performance of the activity provided Nursing students to theoretical and practical deepening the issue and exercise of the continuing learning ability in the management training process. It highlights the importance of new studies to evaluate the effectiveness of action taken and disseminate hypodermoclysis technique between nursing and health professionals.

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