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COLLECTION AND INFUSION STEM CELLS HEMATOPOIETIC: NURSING, TECHNOLOGY AND TEACHING-LEARNING

COLETA E INFUSÃO DE CÉLULAS-TRONCO HEMATOPOIÉTICAS: ENFERMAGEM, TECNOLOGIA E ENSINO-APRENDIZADO

RECOLECCIÓN E INFUSIÓN DE CÉLULAS MADRE HEMATOPOYÉTICAS: ENFERMERÍA, TECNOLOGÍA Y ENSEÑANZA-APRENDIZAJE

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ABSTRACT

Objective: to edit an educational video showing the collection procedure and infusion of hematopoietic stem cells. **Method:** study developed from documental research and literature review, conducted between September 2011 and March 2012. The literature review took place in oncology-hematology textbooks, legal documents and articles published in journals indexed. The documentary research was carried out in documents that standardize the technique referred in renowned oncological institutions in Brazil. In that step, comparative analysis of the technique found in research with the routine of study scenario was used. **Results:** after collection and analysis of data, an educational video was produced, and it was available on the Internet. **Conclusion:** the technology of information and communication produced is working with the teaching and learning of people undergoing transplantation of hematopoietic stem cells, their families and nurses. **Descriptors:** Hematopoietic Stem Cell Transplantation; Oncology; Health Education.

RESUMO

Objetivo: editar vídeo um educativo apresentando o procedimento de coleta e infusão de células-tronco hematopoiéticas. **Método:** estudo desenvolvido a partir de pesquisa documental e revisão bibliográfica, realizado entre setembro de 2011 e março de 2012. A revisão bibliográfica ocorreu em livros textos da Onco-hematologia, documentos legais e artigos publicados em periódicos indexados. A pesquisa documental foi realizada em documentos que padronizam a referida técnica em instituições oncológicas renomadas no Brasil. Nessa etapa, utilizou-se análise comparativa da técnica encontrada na investigação com a rotina do cenário do estudo. **Resultados:** após a coleta e análise dos dados, foi produzido um vídeo educativo, sendo que ele foi disponibilizado na Internet. **Conclusão:** a tecnologia da informação e da comunicação produzida vem colaborando com o ensino-aprendizado das pessoas submetidas ao transplante de células-tronco hematopoiéticas, de seus familiares e dos profissionais de enfermagem. **Descritores:** Transplante de Células-Tronco Hematopoiéticas; Enfermagem; Oncologia; Educação em Saúde.

RESUMEN

Objetivo: editar un video educativo presentando el procedimiento de recolección e infusión de células-madre hematopoyéticas. **Método:** estudio desarrollado a partir de investigación documental y revisión bibliográfica, realizado entre septiembre de 2011 y marzo de 2012. La revisión bibliográfica ocurrió en libros textos de oncología-hematología, documentos legales y artículos publicados en periódicos indexados. La investigación documental fue realizada en documentos que estandarizan la referida técnica en instituciones oncológicas destacadas en Brasil. En esa etapa se utilizó análisis comparativo de la técnica encontrada en la investigación con la rutina del escenario del estudio. **Resultados:** después de la recolección y análisis de los datos fue producido un video educativo, siendo que el mismo fue disponible en Internet. **Conclusión:** la tecnología de la información y comunicación producida está colaborando con la enseñanza-aprendizaje de las personas sometidas al trasplante de células-madre hematopoyéticas, sus familiares y de los profesionales de enfermería. **Descriptores:** Trasplante de Células-Madre Hematopoyéticas; Enfermería; Oncología; Educación en Salud.

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INTRODUCTION

The transplantation of hematopoietic stem cell transplantation (HSCT) is the infusion of hematopoietic stem cells (HSC) intravenously. This procedure is indicated when the bone marrow suffers a pathological process or when the hematopoietic toxicity is limiting the aggressive treatment of the disease with chemotherapy, radiation therapy and/or immunotherapy doses extremely toxic.¹

HSCT is the substitution or loss of a patient's bone marrow, by normal bone marrow cells, aiming at the reconstitution of a new and healthy marrow. Transplantation may be autologous, allogeneic and syngeneic.^{2,3}

Autologous HSCT occurs when the HSC comes from bone marrow or peripheral blood by the individual to be transplanted (receiver). Allogeneic HSCT occurs when the HSC comes from the bone marrow derived of peripheral blood or umbilical cord blood from another individual (donor), may be related when the donor and receiver are inbred, or unrelated, when the receiver and the donor are not inbred. The syngeneic HSCT occurs when the HSC comes from the bone marrow of monozygotic twin brother.³

In this study, we will discuss autologous HSCT. In this type of transplant, collection is performed after mobilization with high dose of chemotherapy and use of granulocyte growth factors. The beginning of the collection is programmed with the monitoring of the levels of leukocytes and cellular marker that enables the HSC counting, cluster of differentiation 34 (CD34). From the moment in which it gets the required minimum counting of CD34 (CD34 +), the patient is subjected to the placement of a central venous catheter (CVC), caliber, for carrying out the collection by apheresis in the hospitalization unit.⁴

The infusion of HSC requires highly complex care. In this therapeutic modality, the nurse performs technical, scientific and critical care and promotes education and the orientation of the patient undergoing this procedure, as well as of the family caregivers.⁵ The professional competence of nurses in HSC transplantation is defined in Resolution of the Federal Council of Nursing (COFEN) No 306/2006.⁶

The success of the transplant is fully linked to the education and the staff training at all stages of the process. Therefore, efficient and well elaborated programs of service in education, including educational and clinical components, deserve constant attention.¹

Taking into account the need of health education for the success and safety of HSCT, nursing professionals working in a specialized oncology care of Santa Catarina/Brazil produced an educational video to be used in the teaching-learning programs for people undergoing HSCT. Therefore, this study aims to edit educational video that shows the HSC collection procedure, by apheresis, and infusion of CTH, elaborated by these professionals.

The production of the video is justified by the need to contribute to the continuing education of nursing professionals and interested in health and, especially, to provide education to people submitted to HSCT and their families, aiming to ease their anxiety to fear of the unknown.

To support the development of this study, the use of information and communication technology was associated, which today is a tool that promotes the exchange of information and experiences, favoring learning, generating new knowledge and skills,⁷ among health professionals and the general public, its use can improve nursing care with publications on oncology-hematology method presented in this study.

OBJECTIVE

- To edit an educational video showing the collection and infusion of hematopoietic stem cell procedure.

METHOD

This study is from a documentary research and literature review carried out from September 2011 to March 2012, culminating in the educational video publishing.

The study scenario was a HSCT Unit of an oncology institution in Santa Catarina/Brazil. This Unit, a reference center for the care of cases of acute leukemia, has 11 beds and performs mobilization, collection, autologous HSC transplantation and intensive chemotherapy. Since the date of its inception in October 1999 until September 2011, there were 430 autologous transplants performed.⁸

We clarify that, for publishing the video in routine nursing care adopted in study scenario, first it was compared with the routines of other reference institutions in HSCT in Brazil and publications addressing the object of study.

To collect the documentary research, data were requested to the Coordination of Nursing of the Clinical Hospital of the Federal University of Paraná, Hospital Israelita Albert Einstein, from the Center for Hematology of Santa Catarina (HEMOSC) and the National

Cancer Institute (INCA), by telephone and a letter sent by e-mail with the standard operating procedure (SOP) for collection and infusion of autologous transplantation in HSC, adopted by these institutions. These documents were received and included in the study.⁹⁻¹² All institutions contacted agreed to provide POPs adopted by them in the collection and infusion of the HSC.

To register the aware and authorization of the use of POPs, available by the institutions, an authorization form was elaborated, as an ethical care.

For the literature review 13 publications, six textbooks for the HSCT, a Resolution of the Federal Council of Nursing (COFEN), an Ordinance of the Ministry of Health, two publications of the Sanitary Surveillance Agency and three articles published in indexed journals were included^{1-6,13-19} The choice of these publications was because of the quality of publications, being reference in the oncology-hematology area and for giving technical and legal support to the procedure investigated.

In documents and bibliographies, data collection covered the search by the steps about the collection procedure and HSC infusion. The technical differences found, when compared with the routine adopted by the nursing staff of the study scenario were recorded in Microsoft Word®. Program.

After collecting and recording data, the findings were presented to the Unit nursing staff concerned. Comparative, technical and scientific analysis was carried out on the findings. This occurred in two meetings scheduled in advance with the unit's nursing professionals, scenario of the study. For professionals who were unable to attend these meetings, the findings were available in printed form and analysis of the findings by them was asked. The suggestions were recorded in instrument created for this purpose, defined exclusively for this study.

After the comparative analysis, two POP were elaborated, one describing the collection of HSC by apheresis and another one describing the HSC infusion.

To validate the final document, a new meeting was scheduled with the nursing staff. After this step, there was a training of professionals for the development of the procedures established as the POPs of the institution.

To edit the video showing the process of collection and HSC infusion, a filming of two procedures for each process took place, according to POPs established. The images were sent to a qualified professional in pictures for the video editing. The audio was

held in the recording studio, accompanied by audio professional, following script prepared in advance.

It is noteworthy that there was the intention and the concern about the images and audio that make up the video presenting the standard operating procedure of collection by apheresis and HSC infusion didactically and esthetically. A soundtrack was introduced by the audio professional to complement the quality of work.

As an ethical care the authorization of footage was requested to Unit managers and Nursing Coordination and an authorization tool was elaborated for using the image of the infusion of hematopoietic stem cells. The patient's anonymity was anonymous through censorship of the face and of related data. The instruments were signed by the nurses involved in the filming of the scenes and the patient, having each one a copy of the signed document.

RESULTS

Because of this study, Apheresis and Autogenic Infusion of Hematopoietic Stem Cells prepared two standard operating procedures for the study scenario, entitled: Nursing Care in Hematopoietic Stem Cell Collection. The training of nursing professionals was carried out for the execution of the procedures established and the educational video was edited to be used in teaching and learning programs to people submitted to autologous HSCT in the pre-transplant phase and training programs and continuing education conducted in the study scenario.

The video briefly shows the institution scenario of study, HSCT unit, the nursing services, and the multidisciplinary team, information about bone marrow collection, the HSC infusion and care for patient safety during procedures. The video lasted 7 minutes and 58 seconds. It prioritizes teaching learning for self-care, from pre-transplant phase until after hospital discharge, the host and the humanization of health care.

For dissemination among all the institution's nursing professionals, the video was presented in a scientific event held shortly after the completion of the work.

Patients, families and nursing professionals of and multidisciplinary team praised the initiative, the quality of production and the benefit of the work produced.

For disclosure of the tool produced, the video is available on YouTube and can be found from the <http://www.youtube.com/watch?v=i27XYFcTj>

G4 address or by the searching words: bone marrow transplant CEPON.

DISCUSSION

The information included in the video helps patients and families to prepare their questions, which favors the completion of further clarification by the nursing and multidisciplinary team.

The production of the video and its presentation is a tool for information and education used in nursing care to patients undergoing HSCT, reducing stress and anxiety caused by the unknown and increasing adherence to care plan required for the procedure. It is also being used in the training and continuing education of nursing professionals.

The didactic quality of the video was only possible after following all the steps proposed in the method, because it was possible the scientific basis necessary for that purpose, that is started with the review of the standard operating procedure and in-service education.

Disclosure via Internet aimed to share with the public, people diagnosed with cancer, family members and other nursing professionals, information about HSCT and to create creative and innovative approach to nursing care in oncology.

The video production shows the use of information and communication technology. This science corresponds to all technologies that interfere and mediate informational and communicative processes of human beings. It can be understood as a set of integrated technological resources with each other, which provides through hardware, software and telecommunications features automation and communication of professional activities, teaching and research, among others. In this science for the guidance technologies should be used to gather, distribute and share information⁷ and the aim of this study meets this guidance.

In Nursing, the use of technology in nursing care expresses humanization and playfulness to care. The educational process focuses on the humanization of health care, ensuring conditions for the expression of freedom and creativity of the nursing worker, favoring their reflective performance,^{20,21} geared to the needs of people cared.

Thus, the use of technology can facilitate the establishment of links and humanization in health services, innovating the care provided, enabling the systematization of information and the best time management in the workplace. It also involves inventiveness of professionals to the best care to be provided, in order to better health assistance.²²

The need for submission to HSCT brings fear, anguish, and anxiety, among other feelings that can arise in a context never experienced before. In this way, patients and families want and need information to understand what they will face. The use of several tools for education facilitates learning and understanding of HSC transplantation process. The preview of the procedure by using the image contributes to this learning, considering many patients and families even to have sense of how the transplant is held. The multifaceted needs of this clients indicates the use of various educational materials, enabling the resolution of future problems and presenting the universe to be experienced.^{23,24}

The presentation of the video in the pre-transplant phase brings a great source of information. Its availability on the Internet extends this potential. However, it should be a potential examined by health team, since patients and family besides the access to information generated by the service, also access other information, not always produced by scientific rigor.²⁵ Thus, it is realized the importance of the incorporation of information and communication technologies in nursing practice, and the preparation and field of these tools by professionals in meeting the needs of today's society.²⁶

CONCLUSION

The development of this study resulted in the educational video production from the development of standard operating procedure, from searching precise and objective steps related to collection by apheresis and HSC infusion. After completion of this study, the audiovisual produced was released via online.

Visual information of the video facilitates understanding and embodying guidelines to the person submitted to HSCT and his family members, showing the knowledge in a clear and objective way, better understanding and consequent decreasing anxiety during transplantation, facing the unknown.

With the release on the Internet, the video becomes a source of information, enabling knowledge about the procedure. The approach of the use of information and communication technologies favors nursing care with quality and efficiency.

Therefore, the development of this study benefited the team study scenario, but mainly the transplanted patients and their families. The possibilities of using this material should reach the proposed objectives, constituting a

privileged tool for the most comprehensive knowledge of HSCT.

THANK

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