NURSING WORK PROCESS AND THE IMPORTANCE OF NURSES IN TOMOGRAPHY IN UNIVERSITY HOSPITAL

ABSTRACT

Objectives: to characterize the nursing work process in Computed Tomography of a university hospital and to demonstrate the importance of the nurses' work. Method: a case study with a qualitative approach, conducted with 10 nursing members. The data collection procedure was the direct systematic observation. The research project was approved by the Research Ethics Committee, Protocol 447.358. Results: the nursing work process aims at the realization of the examination, considering patient safety. The activities are the pre and post-examination guidelines and nursing technical procedures related to the administration of the contrast medium. Conclusion: the nursing work can be the difference in the CT unit, given that, in the coordination of activities, the nurse promotes the work with the necessary resources, human and material resources, organizing them focused in a humane and safe service.

RESUMO

Objetivos: caracterizar o processo de trabalho de enfermagem na Tomografia Computadorizada de um hospital universitário e demonstrar a importância do trabalho da enfermeira. Método: estudo de caso, com abordagem qualitativa, realizado com 10 membros de enfermagem. O procedimento de coleta de dados foi a observação sistemática direta. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, Protocolo 447.358. Resultados: o processo de trabalho de enfermagem tem como finalidade a realização do exame, considerando a segurança do paciente. As atividades são as orientações pré e pós-exames e os procedimentos técnicos de enfermagem relacionados à administração do meio de contraste. Conclusão: o trabalho de enfermagem pode ser o diferencial na Unidade de tomografia, tendo em vista que, na coordenação das atividades, a enfermeira promove o trabalho com os meios necessários, recursos humanos e materiais, organizando-os com foco num atendimento humanizado e seguro.

Descriptors: Nursing; Contrast Media; Tomography; Extravasation of Diagnostic and Therapeutic Materials.
INTRODUCTION

The object of this study is the nursing work process in the Computed Tomography unit of a university hospital, which will be understood here as the nursing actions that are developed in the daily work of this unit and that have specificities, being directly articulated to the realization of tests, guidelines for the prevention of complications considered preventable and observations for early detection of risk factors in the administration of contrasts.

The unit of Computed Tomography (CT) plays an important role in developing the assistance activities of the hospital, in that it confirms and complements the diagnostic findings. A basic principle of the operation of CT is the use of very fine X-ray beams, in which advanced features of computer technology are added to provide more detailed images, greatly enhancing the visualization of body segments.¹

In the university hospital that was setting of this study, there is a unit of computed tomography with high complexity resources used to assist in diagnosis and, consequently, in the choice of therapeutic processes based on the results of tests, through imaging techniques. However, this unit has difficulties in its operation, which are related to the administration of contrast intravenously with infusion pump, to the correct handling of the substances used as contrast and to the establishment of specific dose for each person according to their weight.

The iodinated contrast agent is usually administered intravenously and is a substance that can give greater definition to CT images, improving the quality of morphological information provided by CT. The qualification and technical training of the staff are essential to early identification of risk factors and signs of adverse reactions, being decisive in preventing harm to patients.¹

As for the degree of severity, adverse reactions to contrasts are classified into mild, moderate and severe. Severe reactions require emergency therapeutic support and the patient is hospitalized for monitoring. Symptoms of severe reactions include arrhythmias with clinical repercussion, hypotension, severe bronchospasm, seizures, pulmonary edema, syncope, atrial or ventricular fibrillation and cardiac and respiratory arrest.¹

It is possible to infer that the priority of care in the Computed Tomography unit of this university hospital is to make the realization of exams more agile, quickly conducting the procedures, which in a cursory glance seems to give dynamism to the service but may compromise its quality, especially when patients are dismissed shortly after doing the exam, without waiting the minimum time necessary to guarantee their safety and to give a qualified guidance.

Ensuring patient safety must be priority in our activities, since the error associated with the care has increased in recent years in Brazil and worldwide. It is noteworthy that the adverse events generate high costs to the health system and damage to the patient, which may be irreparable, generating often loss of confidence and dissatisfaction of patients and their families.²

In this study, we attempted to analyze the nursing activities performed in the CT unit and, in face of the problems presented, the following objectives were drawn:

● To characterize the work process of the nursing team in the Computed Tomography unit of a university hospital;

● To demonstrate the importance of the nurse;

To understanding this theoretical construction, it is required a conceptual basis about the health work process, with emphasis on nursing work.

♦ The Nursing Work Process

The work process is the joint of the working resources and the objects on which lies a productive activity. In studies of the health work process, there is highlight to those of Mendes Gonçalves, who addresses health practices and analyzes the components of this process, which are: the work object, the instruments, the purpose and agents, and points out that these elements must be examined in a coordinated way and not separately.³

The object is, in the health sector, the human health needs and is the specific aspect over which the activity of work occurs. In fact, something stands out as the object of work only when the agent establishes so, that is, it is cut by a "look" that contains a design, a purpose.³

Working instruments are the means with which work is done, which are distinguished in two ways: in the strict sense and in a broad sense. In the first sense, they serve as intermediaries between the agent and the object on which the work is directed. Broadly speaking, they comprehend all material conditions that, without intervening directly in the transformation process, are needed to perform it.⁴ It is possible to exemplify that in

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the CT unit the syringes and infusion pumps are working instruments in the strict sense, because they mediate the action of administering the contrast medium into the patient. On the other hand, the TC unit with its facilities is the instrument in a broad sense.

The everyday health work refers to the practice of workers/health professionals involved in the daily production and consumption of health services. The health worker is always collective, it is worth noting that there is no health worker who alone can cope with the complex object of caring: the world of health needs.

The organization of the nursing work is done based on activities carried out in divided, fragmented and routinized manner, in which hierarchy and discipline are present. In this context, the technical and social division of the nursing team work consists of different categories of workers with different levels of training: nurse, nursing technician and nursing assistant. Whereas nurses take predominantly the design of work and its management, the nursing assistants and technicians assume command of its execution and direct assistance.

Nursing while activity is able to transform itself, by participating in the collective work in health, in a particular work, from its own work processes of taking care, educating and managing, and that takes as reference the user's interest, represented by their health needs.

The care process has the following basic dimensions: care, education, research and the administrative-managerial dimension. Nursing professionals master the knowledge that base their activities and control the production and reproduction of knowledge necessary for their work, through teaching and research. In the care dimension, the nursing team has the division in their categories, and the undergraduate level has the responsibility to assist activities and the graduate nurses are responsible for care and unit management actions, with interventions in care and management processes.

The work process of administering and managing is of nurses exclusively. The nurse organizes and mediates their team's work with the purpose to meet users, staff and the institution, in addition to their own improvement.

In their daily work, nurses experience a constant struggle to account for the variability and specificity of this object that is the human being and their health needs. So teamwork is essential, specially associated with the development of activities and procedures.

**METHOD**

It was chosen case study with qualitative approach because this method has as object a unit that is evaluated deeply and develops in the natural environment. The case study method allows researchers to retain the holistic and meaningful characteristics of real life events.

The ten study subjects are members of the nursing team of the Computed Tomography unit of a university hospital, which is composed of two nurses, three technicians and five nursing assistants, whose demand is around fifty exams per day.

The data collection procedure comprehended the direct systematic observation, which consists in observing the activities developed by the agents in their daily lives. The field observation was conducted from August to December 2013 and amounted to a total of 120 hours, developed in periods of two hours.

The study had two phases: the direct systematic observation and the vignette technique, culminating in operational recommendations for CT nursing staff.

Through direct systematic observation, authors could identify in the nursing team work which activities that its members performed, which strategies are used in its execution, what kind of clients are served and how this service is conducted. Researchers could also detect working instruments, their use and the dialogue established between subjects. These findings were recorded in a field diary.

The second data collection technique was the vignette, that consists of brief descriptions of events or situations to which respondents are asked to respond. Descriptions can be fictional or real, but are always structured to elicit information on the perceptions, opinions or knowledge of respondents about some phenomenon studied.

Each member of the nursing staff was asked to describe, separately, what, in their opinion, their responsibility was in each step of the work process, for which they received a blank paper to do the record. Later, after evaluation of the material collected, the data were transcribed to better define the instrument.

Then, the instrument developed the researcher was provided and each team
member, again separately, was asked to assess the instrument and put their perception thereof and their opinion.

During data analysis, the following strategy was used:

Preparation and description of the raw material, that is, the content of the field diary of the observations and of the data obtained from the vignette; reduction of data, in which data are grouped according to the points of convergence; encoding process, which consists of assigning categories from the described observations and from well circumscribed speeches, and that have a great conceptual unity.

In structuring for data analysis, there is a stage called Theoretical Foundation, in which the data already collected and analyzed are founded with the help of bibliographic references in order to ratify and understand the results found.

Data were analyzed with a focus on conceptual references of the work process, which refers to its stages, understood as identifying the purpose of the work, its objects, the instruments that mediate the actions and the desired and the obtained product.

Data analysis is the moment when it should be established links between the content found as a result of research and the conceptual basis of the study, towards achieving the objectives.

The start of data collection was carried out after the approval of the research protocol by the Research Ethics Committee of HUAP, No. of Certificate of Presentation for Ethical Consideration 21834113.2.0000.5243 by the opinion 447358 in order to meet the provisions of the Resolution No. 466/2012.

RESULTS AND DISCUSSION

Characterization of the nursing work and the importance of nurses in Computed Tomography

The nursing work process developed at the CT is intended to carry out the emergency or elective exams with greater accuracy and speed, while optimizing the service provided to patients safely, often requiring constant observation, for obtaining as a result the “diagnostic” definition of procedures to be performed and the patient's body recovery.

In the health sector, the work object is defined when the agent responsible for conducting the activity has a way of looking at reality, which focuses on where and when to intervene, containing a project, that is, a purpose.

In this perspective, two nurses work at CT; however, the cut of their looks for the work object is different. One prioritizes reception of patients and families, seeking to guide them and encourage nursing team members to do the same, and seeks to accomplish the technical procedures in accordance with the nursing techniques and safely. The other nurse assumes bureaucratic activities, citing as justification the focus on administration. The following observations illustrate this situation:

When patients arrive, the nurse welcomes them, asks them to wait seated until they are conducted to do the exam, introduces herself and asks questions about the preparation for the exam (fasting, medication etc.). She makes individual care to each patient, guiding them and clarifying doubts. (OBS No. 10)

In another time, another nurse of the unit checks the amount of examinations for the period, contacts the CT intern on duty to see the referral of examinations, requests repairs to the maintenance sector, when necessary. (OBS No. 10)

The working process of the nursing team at CT was understood as part of a collective work process, which is multidisciplinary and involves the activities developed by the staff in the administration of contrast media in CT exams, which includes care before, during and after the exams, ensuring compliance of the patient's needs and their safety while undergoing the procedures.

In the observation identified as No. 03 of the field diary, it was found that adverse reactions or complications that arise during examinations are recorded.

This activity allows the unit to have a survey about these situations, this being an indicator for evaluating the quality of service and patient safety, which facilitates the nurse to rapidly intervene, improving management quality and care provided to patients who undergo CT exams.

Nursing work in tomography is based on medical and hospital model, where high complexity tests are conducted and health work has the function to develop care, guidance and assistance, through expertise.

There are reports in the literature that acute, non-acute, and frequent or severe allergic reactions may appear up to 24 hours after administration of iodinated contrast medium and extravasation of this drug is related to the clinical condition of the patient, location of access for peripheral...
punctures and the diameter of the catheter, pressure and infused volume to be used. It also shows the importance of knowing the complications that can be triggered with the use of contrast media, related to the patient's age and previous history of allergies. It is essential the presence of nurses and their work in imaging services, with technical and scientific knowledge and skills for decision-making in critical situations. 1,14-17

Also, the nurse is the management agent in the work process of nursing practice, which is a tool of care process, organizing work in terms of human and material resources, creating conditions for its realization. 5 The excerpt below highlights management actions observed during the study:

One of the nurses, as soon as she arrives in the unit to work, prints the examination schedules of tomography sectors, contrast test, with two copies: one for the medical staff and another for nursing staff. She checks the test book and records of the day, orders the medication and serums when needed for use during that shift. She checks the examination rooms and the organization left by the previous staff on duty, the presence of seals and the presence of checklist of the cardiac arrest trolley. She makes a schedule of the daily activities of nursing assistants/technicians and makes notes in the book of orders and events of the sector. She asks the hospital cleaner to conduct cleaning and positioning of the rooms materials, always demanding organization in the sector. (OBS No. 13)

The nurse in the tomography unit of this hospital, as coordinator and manager, is the responsible for taking the shift, verifying the schedule of radiology service rooms, and for being aware of the agenda of the exam rooms daily, which are: contrast test rooms, ultrasound and TC, making the daily schedule to serve these patients. They are also responsible for the control of the material in the unit, for requesting the replacement to the hospital stockroom service and for communication and routing memoranda to the daily, which are: contrast test rooms, ultrasound and TC, making the daily schedule to serve these patients. They are also responsible for the control of the material in the unit, for requesting the replacement to the hospital stockroom service and for communication and routing memoranda to the examination room when it is required that, during the test, patients are monitored, or in case of patients in critical and emergency condition. (OBS No. 14)

Nursing assistants/technicians also makes the prior guidance to the test when patients arrive at the unit after being sent by the appointment service of the clinic. These guidelines include: guidance on fasting; need to fill the Informed Consent Form (where the medications that the patient uses are recorded, the types of allergies, if any, pre-existing conditions, whether they have ever done tomography etc.). These actions are inserted in nursing action in the prevention of risk factors in contrast tests. 1,14-16,19-21

There is a nursing assistant in the reception room to receive the patient, to verify whether the preparation was performed, to weight and punch venous access. She also performs arrangement of stockrooms and replacement for the sector during the attendances. (OBS No. 15)

CONCLUSION

The nursing work in the CT unit of HUAP shows direct care situations characterized, for example, by the need to administer substances such as contrasts intravenously, which requires knowledge related to the required procedures and that can be performed both by nurses and by nursing assistants and technicians. Also, this paper presents various times in which the guidance to patients and families was prioritized, which is extremely important and can make all the difference between undergoing or not the test, and also with regard to reducing adverse event risks or preparing patients predisposing to undesirable changes with preventive measures in order to ensure the success in obtaining images that facilitate diagnosis, allowing the performance of these examinations. These activities are carried out primarily by nurses or under their supervision.

The nursing work can be the difference on CT unit, in coordinating managerial activities,
enabling work with the necessary means, i.e., human and material resources, organizing them. The humanized care must be exercised in an appropriate host because patients, despite being there for tests, have health needs that must be met. It is in meeting these needs that the purpose of nursing work, with actions that promote the achievement of safe and quality testing, with lower risk and less occurrence of adverse events and, also, with higher problem-resolution and patient satisfaction.

The concepts of the work process, which assist in interpreting the reality of nursing practice in CT, allowed the characterization of the elements of this process as the purpose with emphasis on examinations, the understanding of the object, that is the patient with their health needs, and instruments are understood as the workplace and those that mediate the nursing actions, especially in relation to techniques.

The nursing work in CT is performed by nurses, nursing assistants and technicians in the context of collective work in health, which requires direct care actions performed by all and coordinated by the nurse, but involves educational practice and guidelines developed mainly by the nurse and with encouragement and supervision by other members of the nursing staff.

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