ORIGINAL ARTICLE

OCCUPATIONAL RISK IN EMERGENCY ROOM: USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) BY NURSING PROFESSIONALS

RISCO OCUPACIONAL NA EMERGÊNCIA: USO DE EQUIPAMENTOS DE PROTEÇÃO INDIVIDUAL (EPI) POR PROFISSIONAIS DE ENFERMAGEM

ABSTRACT

Objective: to identify the knowledge of nursing professionals of the emergency sector about the occupational risks to which they are exposed and how do they use the personal protective equipments in their daily work.

Method: it is a descriptive study, of qualitative approach, with thematic analysis. Data collection was conducted through semi-structured interviews recorded, with twelve nursing workers of the Emergency Service, of a hospital in a city from the Brazilian South. The project was approved by the Ethics Research Committee of the Santa Casa de Misericórdia, under Protocol nº 153/2011. Results: from the analysis of the interviews, two categories have emerged: << Knowledge on occupational risks >> and << Use of PPE in the Emergency Service >>. Conclusion: it was possible to verify that the direction of health institutions should provide Continuing Education Programs, vaccination and PPE, charging and supervising their use.

Descriptors: Nursing, Team; Protective Devices; Emergency Medical Services.

RESUMO

Objetivo: identificar o conhecimento de profissionais de enfermagem do setor de emergência acerca dos riscos ocupacionais a que estão expostos e como utilizam os equipamentos de proteção individual em seu cotidiano de trabalho. Método: estudo descritivo, de abordagem qualitativa, com análise temática. A coleta de dados foi realizada por meio de entrevistas semi-estruturadas gravadas, com doze trabalhadores de enfermagem do Serviço de Emergência, de um hospital de uma cidade do Sul do Brasil. O projeto foi aprovado pelo Comitê de Ética em Pesquisa da Santa Casa de Misericórdia, sob Protocolo nº 153/2011. Resultados: a partir das análises das entrevistas, emergiram duas categorias: << Conhecimento acerca dos riscos ocupacionais >> e << O uso de EPIs no serviço de emergência >>. Conclusão: foi possível verificar que a direção das instituições de saúde deve propiciar Programas de Educação Continuada, vacinação e EPIs, cobrando e supervisionando seu uso.

Descritores: Equipe de Enfermagem; Equipamentos de Proteção; Serviços Médicos de Emergência.

RESUMEN

Objetivo: identificar el conocimiento de profesionales de enfermería del sector de emergencia acerca de los riesgos ocupacionales a que están expuestos y cómo utilizan los equipos de protección individual en su trabajo diario. Método: estudio descritivo, de enfoque cualitativo, con Análisis Temático. La recolección de datos fue realizada a través de entrevistas semiestructuradas grabadas, con doce trabajadores de enfermería del Servicio de Emergencia, de un hospital de una ciudad del Sur del Brasil. El proyecto fue aprobado por el Comité de Ética e Investigación de la Santa Casa de Misericordia, en conformidad con el Protocolo nº 153/2011. Resultados: en el análisis de las entrevistas, emergieron dos categorías: << Conocimiento acerca de los riesgos ocupacionales >> y << El uso de EPIs en el servicio de emergencia >>. Conclusion: se verificó que la dirección de las instituciones de salud debe proporcionar Programas de Educación Continuada, vacunación y EPIs, cargando y supervisando su uso.

Descripciones: Equipo de Enfermería; Equipos de Seguridad; Servicios Médicos de Urgencia.

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INTRODUCTION

The hospital emergency services can be considered as one of the areas of hospital with greater complexity of care and with greater flow of professional activities and users. The concept of emergency, for more wide and diverse as it is, always implies in a critical situation, as that one in which the individual comes into homeostatic imbalance, by confronting obstacles that are faced in its life objectives.

To work in this sector, the health professionals need knowledge and qualification, in order to wish a better resolution to the attendances. Thus, the emergency unit should be organized and technically enabled with materials and equipment to provide the primary care and stabilization of the emergency medical picture.

As such, the work in the emergency room becomes complex, especially for the nursing professionals who perform with greater frequency a direct care to the patient, having to be dynamic and develop their activities by taking decisions quickly and establishing priorities. These features are essential for the professionals of the nursing team, since time is crucial for attending a critical patient.

The Emergency Room is considered the gateway for these patients, who usually arrive in ambulances specialized in pre-hospital care or on their own, and this first contact mainly conducted by the nursing team and other professionals. They, usually, arrive without predetermined diagnoses, requiring care. So, all patients should be considered potentially contaminated, and because of this, the health risks of these workers can become high.

The hospital is an institution for promoting the health of individuals, however, can also be the cause of diseases for the health team. The workers of the nursing team are the ones who suffer most accidents and they experience unsanitary and inadequate work conditions. Involved in the dynamics of patient care, focused on the healthcare, often, aiming at preserving the lives of patients at imminent risk of death, forget about the maintenance of their integrity, exposing themselves to the pertinent risks of this attendance. Therefore, they become more susceptible to accidents at work and occupational diseases.

The risks to which they are liable in an emergency department are related to the occupational exposure to agents such as: Hepatitis B (HBV), Hepatitis C (HBC), Human Immunodeficiency Virus (HIV), Tuberculosis, Chickenpox, Herpes Zoster, Measles, among others.

Regarding the contributing factors to the occurrence of accidents, it should be identified that 57.7% of workers of the Nursing field relate to the need for agility in execution of activities; 23.1% to physical and mental fatigue; 11.5% to the performance of procedures without the use of Personal Protective Equipment (PPE); and 7.7% to the lack of experience at work. With regard to the perceived causes of accidents, it should be cited: the repack needles (38.6%); followed by patient movements in hospital bed (29.5%); caused by third parties (22.7%); for inadequate disposal (4.5 %); and lack or inadequate use of PPE (4.6%).

It should be considered that the use of PPE protect the physical integrity of the professional, helping in the prevention of exposure to biological risks to which the nursing team is subjected. According to the Regulatory Norm NR 06, it is considered PPE: every device or product for the individual use of the worker, for the protection of risks capable of threatening the safety and health at work.

The exposure to the biological risks is worrying, since they are causing many health problems in workers. The chemical risk is also considered important, because workers remain in daily contact with a variety of chemical substances. Accordingly, the adoption of biosecurity measures is important so that there is effective prevention of accidents and occupational diseases arising from these risks. In this sense, the use of PPE, such as masks, cap, glasses, cloak and boots, becomes mandatory for all workers.

The nursing professional should be aware of the risks to which the health team is exposed and requests the proper use of a PPE for each situation, preserving their safety. The practice of using PPE prevents unnecessary exposure to the contaminated material, minimizing occupational risks and preventing work accidents. However, it should be evidenced that, as the emergency room is where serious patients arrive, with imminent risk of death, the nursing team ends up exposing its health, not adequately using protective equipment.

In a study about accidents with biological material among nursing students, they reported that the use of PPE causes decreased agility in the victim care. The justifications given by students for not using PPE were: difficulty in removing the adhesive tape, with the gloves; judging that there was no need;
hurry or lack of time; distraction; difficult in finding the adequate PPE and correct size in the place of practical activity, understanding that did not need to use it and that the use of gloves minimizes sensitivity in venipuncture.

It is known that, in most scenarios to provide nursing care, the biosafety standards have been neglected up; the personal protective equipments (PPE) are most used in care for the patient whose diagnosis is known, underestimating the vulnerability of human organism against infections.

It should be realized, thus, that the nursing professionals are exposed to several risks during the patient care, since the health care in an emergency department requires the execution of procedures with different degrees of complexity, ranging from the simple exchange of bed to the conduction of invasive procedures, a fact that requires adherence to the use of PPE.

Given this, the question that guided this study was: what the nursing professionals of an emergency room know about occupational risks and how do they use the personal protective equipment in their daily work? From this questioning, we aimed at identifying the knowledge of nursing professionals of the emergency department about the occupational risks to which they are exposed and how they use the personal protective equipment in their daily work.

**METHOD**

This current study was extracted from the final report of the Final Paper entitled “Occupational risk in emergency room: use of personal protective equipment by nursing professionals”, in force from March to December 2011. This is a descriptive research, with qualitative approach. The descriptive research addresses the description of the investigated phenomenon, enabling to know the experienced problems.

The qualitative approach works with a universe of meanings, reasons, aspirations, beliefs, values and attitudes, allowing greater depth of relationships, processes and phenomena that cannot be translated by means of their reduction to the operationalization of variables.

This study was conducted in the second semester of 2011 in an Emergency Service of a hospital in the Brazilian South. This service daily attends an average of 290 users, reaching the significant number from 8 to 9 thousand of attendances. It has an area of approximately 1040m², divided into the reception room, administrative room, two medical clinics, nursing station, six bathrooms, two wards, one room for emergency care, one intensive care room, medication room, x-ray room and room for sutures and dressings.

The nursing team is comprised of three nurses, nine nursing assistants and fifteen nursing technicians, distributed in three work shifts. The study participants were two nurses, seven nursing technicians and two nursing assistants working in the sector. The met inclusion criteria were: being a nursing professional and working in the sector for more than six months. Professionals on vacation or in medical leave were excluded. All signed a Free and Informed Consent Form (FICF) and allowed the recording of the interview and dissemination of results.

Data were collected through semi-structured interviews previously scheduled and conducted in the doctor office of that sector. They were asked about their perceptions on the use of PPE. We conducted the thematic analysis of data. This technique is performed in three steps: pre-analysis; exploration of the material; and the treatment of the obtained results and interpretation.

In pre-analysis, the literal transcription of the interviews and the elaboration of registration units are performed. In phase of material exploration, the data were coded and grouped by similarities and differences, generating categories and, in phase of treatment of obtained results and interpretation, we selected the most significant speeches, which were discussed from authors who were scholars of this thematic.

The ethical principles of the Resolution 196/96 of the Brazilian National Health Council - Conselho Nacional de Saúde (CNS), which regulates researches involving human beings, were taken into consideration. The project was sent to the Ethics Research Committee of the Faculdade Anhanguera Ltda., Pelotas/RS, Brazil, and approved, receiving favorable opinion to its publication under the Protocol nº 153/2011. In order to preserve confidentiality and anonymity, the study subjects were identified with the initials of their professional category, in Portuguese (Nursing: E, Nursing Assistant: AE and Nursing Technician: TE), followed by the number of the interview.

**RESULTS**

Of the 11 subjects, only two were male. They had ages between 26 and 37 years old,
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[...]. Often, there is no glove and the patient may be cut, may be bleeding. Then, we meet the patient without using protective equipment. (TE6)

Furthermore, they reported that the glasses are the less used PPE in procedures within the emergency sector.

The glasses are almost never used. The things are flowing very fast. The patient comes in and has to be very quickly served. There’s no time to use the glasses. (TE2)

It was shown, too, that in many situations, they do not utilize the glove. They said that the use of gloves hinders their performance during the procedures. They reported not using PPE, even, in procedures such as punctures or exchange of a nasogastric probe that directly works with potentially contaminated secretions. They justified such conduct because of self-confidence, accommodation and neglect.

In the exchange of a nasogastric probe, I do not use and in some venipuncture that is more difficult for accessing, I cannot see well the venous network. By proper handling, the sensitivity gets decreased. (E2)

Sometimes, we do not use, because we have not a right diagnosis. It becomes routine. Often, we pass it out because of the self-confidence. Or even by accommodation. We think it will not happen with us. I think it is negligence of the employee itself. We have the equipments, but we not use them. (E1)

They reported using PPE only in the face of a visible presence of bodily secretions.

If the patient is not stained with blood, we hardly use. We use only if it is contaminated with some secretion, because of the risk of Hepatitis C. We handle with any secretion. Then, you have to care a lot. Only if no visible secretion, we end up not protecting ourselves with gloves, occasionally, and it’s wrong. (AE1)

They showed ignorance about the procedures that require the use of gloves. One of the participants expressed concern in using the glove in position change that it is not an invasive procedure.

If I have any contact with the patient, I use gloves. So, if you have to make a position change, I’m already using. (TE5)

When we are quickly called to attend a patient, we are often with no gloves in middle of the hallway and we have to join the patient and it can be cut, stained with blood. We meet the patient without using protective equipment, which should be, firstly, think about the safety of the rescuer and after to think on safety of the patient, but most often it does not happen. (TE4)

The jacket is cited as key object to perform the activities, being the most used
PPE by all professionals in the health sector, since it is understood as a protective barrier both for clothing and the body of professional.

All of us wear the jacket. This is essential. From the moment you enter the unit to work, everyone quickly put the jacket. Because it protects clothes and form a barrier between our bodies, the environment and the patient. (TE7)

Regarding the duck bill mask, the subjects show themselves aware of the risks they run if they do not use it. But they argue that is provided by the Hospital Infection Control Commission that is located far away from the emergency room, evidencing neglect with regard to their health with the non-use. They reported that many of them have their own mask, but keep it stored. Generally, they use masks of cloth or paper, even knowing that for some situations these types of masks are unsuitable.

They are available, but sometimes we find it difficult to catch the duck bill mask, because it’s far away, in the Hospital Infection Control Service. They are far away from us. Almost everyone has its own mask, but does not use, because I don’t know, it is stored in the bag. We deal with many patients who have Tuberculosis and we know the risk. Usually, we use the normal mask, made of cloth or paper, to enter the isolation. (TE2)

DISCUSSION

The study data showed that, in the investigated emergency service, the professionals of nursing team know the PPE and occupational risks to which they are exposed. Nonetheless, they neglect their use due to the need to quickly meet the patient. That way, the nursing professional, in its work environment, is exposed to numerous occupational risks, which are originated from unhealthy and critical activities, causing adverse effects to their health, thus may lead to the appearance of accidents and occupational diseases. 15

The biological risk is the most recognized by workers of the health sector, they fear the contamination by HIV, Hepatitis C and secretions by direct contact with the patient. All patients, even if they do not show specific symptoms, should be considered potential carriers of diseases and, therefore, the nursing team should adopt a precautionary approach for not being infected. Nevertheless, for this to occur it is necessary that they have knowledge about the risks to which they are exposed for, thus, taking preventive measures. 18

Organic fluids containing blood and other bodily secretions (semen, vaginal secretion, peritoneal, pleural, synovial, pericardial and amniotic fluids) are considered potentially infectious biological materials for diseases such as HIV and Viral Hepatitis B and C. This occurs, because nursing professionals directly and continuously play an assistential work to the patient in the emergency service, becoming susceptible to the contamination by such kind of stuff. 17

The ergonomic risks have occasioned an increase in cases of Work-Related Musculoskeletal Disorders (MSDs) in which, the health professionals, especially nurses, are exposed due to the movement and transportation of patients that require great physical effort and are associated to musculoskeletal problems. 16 The same authors still report that these nurses are exposed to physical risks, due to the exposure to the radiation and noising, as well as the problems arising from wiring, lighting and air-conditioning.

The chemical risk is also evident in the daily lives of these professionals of the urgency and emergency services, because they remain in close contact, daily, with a variety of chemical substances such as glutaraldehyde and PVP (water-soluble iodine polyvinylpyrrolidone solution), the first of which is used for disinfection of stuffs like nebulization masks and the latter is used as an antiseptic. 8

In a study on the use of personal protective equipment by professionals in endoscopy units, also, it was showed a low adherence to safety glasses (4.4%), which protect the nursing workers, preventing spills of biological fluids of reaching mucous membranes of the eyes throughout the procedures. 19

A research has identified a concern with non-adherence to the use of gloves when administering medications, body sanitization and in positioning of the patient. 18 But the laboratory jacket must be worn in all practical activities, since it anticipates the possibility of large spills of bodily fluids, as well as contact with biological material, including contaminated surfaces. 16

The adoption of scientifically precautionary established norms and use of PPE are effective mechanisms in reducing accidents with biological material in the hospital environment, by minimizing occupational the risks to which the professionals are exposed. 21

We considered the need for further studies in the light of different theoretical and methodological referentials and in other
CONCLUSION

We aimed at identifying the knowledge of nursing professionals of the emergency sector about the occupational risks to which they are exposed and how do they use the personal protective equipments in their daily work. It was found that nursing professionals know the occupational risks to which they are exposed in sector. They primarily cited the biological, but also the chemical, physical and ergonomic risks.

Professionals reported concern about the contagion of diseases by the respiratory airways. Despite of knowing the risks, they do not correctly use the PPE, even, in procedures such as punctures or exchange of a nasogastric probe that directly deals with potentially contaminated secretions. They justified such conduct because of self-confidence, accommodation and neglect. The less used PPE are glasses and duck bill mask and the most used is the jacket.

We found that for the occupational risks are minimized, becomes indispensable that the workers adopt the use of suitable PPE for a safe health practice. Orientation and training programs should be implemented in favor of the health of these workers. We believe that is necessary the establishment of standardized measures to be used to provide care to patients during the handling of blood, secretions, excretions and contact with broken skin and mucous membrane, regardless of diagnosis that this subject has. These measures include the use of PPE and care in handling of sharps. The physical area of the sector must be adapted in order to facilitate patient care without exposing workers to unnecessary risks. The PPE should be available in an accessible place as a form of allowing quickly their use.

The direction of health care institutions should encourage the participation of these professionals in Continuing Education Programs, offer pertinent vaccination to those professionals, raising their immunization index, providing the PPE, charging and supervising their use. The health professionals should perform their self-care as a way to make the emergency sector a safer place, reflecting on the risks present in their daily work and the repercussion of these for their health and life quality.
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