Nursing diagnoses in patients classified as priority level I and II according to the Manchester protocol

DIAGNÓSTICOS DE ENFERMAGEM EM PACIENTES CLASSIFICADOS NOS NÍVEIS I E II DE PRIORIDADE DO PROTOCOLO MANCHESTER

DIAGNÓSTICO DE ENFERMERÍA EN PACIENTES CLASIFICADOS EN LOS NIVELES DE PRIORIDAD I Y II DEL PROTOCOLO MANCHESTER

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ABSTRACT

The aim of this study was to identify possible nursing diagnoses in patients classified as priority level I and II according to the Manchester protocol. This descriptive retrospective study evaluated 40 medical charts classified as priority level I and II. To identify nursing diagnoses, two experts analyzed signs and symptoms registered in medical charts at the time of risk classification. For priority level I patients, the most frequent nursing diagnoses were acute pain (65.0%), respiratory insufficiency (45.0%), and impaired gas exchange (40.0%). For the priority level II patients, the most frequent nursing diagnoses were acute pain (80.0%), nausea (10.0%), and risk for electrolyte imbalance (10.0%). This study suggests that the use of the Manchester protocol enabled identification of defining characteristics and risk factors and supports the elaboration of nursing diagnoses in risk classification.

RESUMO

O estudo objetivou identificar possíveis diagnósticos de enfermagem em pacientes classificados nos níveis I e II de prioridade do protocolo Manchester. Trata-se de estudo descritivo retrospectivo, cuja amostra foi de 40 prontuários de pacientes classificados nos níveis I e II de prioridade. Para identificação dos diagnósticos de enfermagem dois especialistas analisaram sinais e sintomas registrados nos prontuários dos pacientes no momento da classificação de risco. No nível I de prioridade, os diagnósticos de enfermagem mais frequentes foram: dor aguda (65,0%), padrão respiratório ineficaz (45,0%) e troca de gases prejudicada (40,0%). No nível II de prioridade foram: dor aguda (80,0%), náusea (10,0%) e risco de desequilíbrio eletrolítico (10,0%). Percebeu-se que a utilização do protocolo de Manchester favorece a identificação de características definidoras e fatores relacionados/fatores de risco que subsidiam a elaboração de diagnósticos de enfermagem na classificação de risco.

RESUMEN

El objetivo del estudio fue identificar los posibles diagnósticos de enfermería en pacientes clasificados en los niveles I y II de prioridad protocolo Manchester. Es un estudio retrospectivo descriptivo, cuya muestra de 40 expedientes de pacientes estratificados en los niveles I y II de prioridad. Para identificar los diagnósticos de enfermería, dos expertos analizan los signos y síntomas registrados en las historias clínicas de los pacientes con clasificación de riesgo. En el nivel de prioridad I diagnósticos de enfermería más frecuentes fueron: dolor agudo (65,0%), el ritmo respiratorio ineficaz (45,0%) y el deterioro del intercambio gaseoso (40,0%). En el nivel II de prioridad fueron: dolor agudo (80,0%), náuseas (10,0%) y el riesgo de desequilibrio electrolítico (10,0%). Se observó que el uso del protocolo Manchester favorece la identificación de características definitorias y factores relacionados /factores de riesgo que apoyan el desarrollo de los diagnósticos de enfermería en la clasificación del riesgo.

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INTRODUCTION

Humanized care has been adopted by the Brazilian Ministry of Health as a cross-sectional policy that specifies differing management according to care levels of *Sistema Único de Saúde* (SUS, acronym in Portuguese [Brazilian Public Health System]). National politics that emphasize humanization encourage users of SUS and employees to adopt these changes, and this shift in focus toward humanization presents challenges for improving the quality of health care provided by SUS.

Although, embracement is part of all care and management practices, emergency services have focused on discussions of this theme because this field must overcome some related challenges. These challenges include overcrowding, fragmented work process, power conflicts, exclusion of patients from hospital admission, and little integration with care networks[1].

To organize and humanize care, in 2004 the Brazilian Ministry of Health adopted risk classification for admissions to emergency services. Risk classification prioritizes care according to patients' potential risk, injuries, and degree of suffering[2]. The implementation of this classification guarantees adequate prioritization of care and facilitates care organization and knowledge of the indicators that guide service management and resource allocation[3].

Nurses have been the professionals designated to assess and classify severity for patients seeking emergency services. Therefore, nurses have a fundamental function to regulate the demands for care and to prioritize care among patients.

Attributing the degree of risk that a given patient involves a complex process of decision-making and use of several screening scales that have been developed to guide nursing assessment[4,5]. Classification protocols enable different evaluators to conduct clinical investigations using the same parameters in order to establish the severity of a patient's condition and, as a result, decrease the potential for bias from the subjective view of each evaluator.

Among these protocols, the Manchester protocol is emphasized and widely used in Brazil. The Manchester protocol is structured with flowcharts to represent the chief complaints of those who sought emergency services. A patient can be classified into five different priority levels ranging from emergent demand (priority level I) to nonurgent demand (priority level V). For each level, a target time is established for medical care and reassessment by the nurse[6].

Patients classified as priority level I and II have conditions that require medical and nursing intervention within

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a maximum deadline of 10 minutes because of the high risk of death. After risk classification, patients are sent to the emergency department so that medical and nursing teams can rapidly begin the interventions needed.

Routines in emergency units have the goal of prioritizing patients at imminent risk of death in order to reduce morbidity and mortality and the sequelae of disability; having as a principle the need to provide integral and continuous high-quality assistance[7]. Because assistance must be provided rapidly, particularly for patients classified as priority level I and II, nurses find it difficult to implement steps in the nursing process using a standardized language, especially in the emergency department.

The aim of risk classification is not to assign a medical diagnosis but rather to assess signs and symptoms of severity presented by the patient. However, the assessment provides the nursing the opportunity to identify defining characteristics, related factors, and risk factors that enable prioritized nursing diagnoses (NDs) and that help identify the need for rapid, life-saving interventions.

Identifying possible NDs for risk classification is important for guaranteeing the continuity of care in the emergency department, planning the steps needed to obtain the expected results, and listing the nursing interventions required to achieve such results.

Considering these issues, we conducted a study to identify possible NDs in patients classified as priority level I and II according to the Manchester protocol.

METHOD

This descriptive, retrospective study used the research database *Concordance degree of risk classification of users assisted in emergency room using two different protocols*[8]. The study was approved the Ethical and Research Committee of the Universidade Federal de Minas Gerais (ETIC no. 529/08).

The study was conducted with patients seen in the emergency department in Minas Gerais, Brazil, which provides specialized care for clinical and traumatic emergencies. On average, the emergency department sees 800 at-risk patients every day.

Data were collected between September and October 2011 from the patients' medical charts. Signs and symptoms registered in the charts at the moment of risk classification were analyzed. The study population consisted of 87 medical charts from individuals classified as priority level I (n=20) and priority level II (n=67). We included all 20 charts of patients classified as priority level I; among the 67 charts of patients classified as level II, we randomly selected 20. This yielded a total sample of 40 medical reports.

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Cases were assessed in pairs by two experts in scientific production in emergency medicine and use of nursing taxonomy. To identify NDs, the experts used taxonomy from NANDA-I[9]. From information in the medical charts, we identified the diagnosis, related factors/risk factors, and defining characteristics for each diagnosis. We included only NDs that provided clues to or information enabling diagnostic reasoning. To perform the descriptive statistical analysis, we used SPSS software, version 17.0 (SPSS Inc., Chicago, Illinois).

RESULTS

We identified 11 different NDs among the 40 cases. For 20 patients classified as priority level I, NDs identified were acute pain (n=13; 65.0%), respiratory insufficiency (n=9; 45.0%), impaired gas exchange (n=8; 40.0%), nausea (n=2; 10.0%), fatigue (n=2; 10.0%), hyperthermia (n=2; 10.0%), and chronic pain (n=1, 5.0%). It is important to emphasize that most patients had more than one ND (n=13; 65%).

Among patients classified as priority level II (n=20), the NDs identified were acute pain (n=16; 80.0%), nausea (n=2; 10.0%), risk for electrolyte imbalance (n=2; 10.0%), chronic pain (n=1; 5.0%), contamination (n=1; 5.0%), suicidal risk (n=1; 5.0%), and risk of integrity of impaired skin (n=1;5.0%). As was seen with patients with priority level I, the majority of those with level II had more than one ND (n=12; 60.0%).

Three NDs were seen most often, no matter the priority level of the Manchester protocol. These NDs are included in the following domains of the NANDA I taxonomy:[9] *comfort*, *activity/rest*, and *elimination and exchange*. The most frequent NDs was acute pain, included in the *comfort* domain and in the *physical comfort* class of the above-mentioned taxonomy. This class is defined as *unpleasant sensorial and emotional experience that appears from real or potential tissue injury or described in terms of such injury; sudden or slow beginning, mild to severe intensity, with an early or predictable end and duration of less than six months*[9]. All patients had a factor related to *affecting agent* and to the defining characteristic *verbal report of pain*. Presence of pain caused changes in cardiac and respiratory measures of individuals classified as priority level I, considered as *emergent* (i.e., a condition that requires an immediate medical response).

The NDs respiratory insufficiency and impaired gas exchange were seen only in patients classified as priority level I; they occurred with the same frequency. The former ND is defined as *inspiration and/or expiration that does not provide adequate ventilation*[9]; the related factors were identified as pain (77.8%) and hyperventilation (100%). Defining characteristics that confirmed this diagnostic finding were tachypnea (100.0%), dyspnea (66.7%), and use of accessory musculature for breathing (22.2%).

Patients with the ND of impaired gas exchange had a deficit in oxygenation or elimination of carbon dioxide in the alveolar-capillary membrane[9]. The related factor disequilibrium in ventilation/perfusion was present in 100% of cases, and the most frequent defining characteristics were hypoxemia (87.5%), dyspnea (50.0%), tachycardia (37.5%), abnormal breathing (37.5%), and cephalalgia (12.5%).

The ND of risk for electrolytic imbalance was identified only in patients classified as priority level II. These patients were at risk for changes in serum electrolyte levels that could compromise their health[9]. The risk factors identified were impaired regulatory mechanisms and diabetes (50%) and vomiting (50%).

The ND of nausea, which is defined as *unpleasant subjective sensation, resembling a wave, in back part of the throat, in the epigastric and abdominal region that could lead to the impulse to or need to vomit*[9], was present in patients classified as levels I and II. Factors related to nausea for those classified as priority level I were pain (50%) and use of medicine (50%). For the priority level II group, the related factors were pain (50%) and biochemical impairment — hyperglycemia (50%). The defining characteristics of vomiting feeling (25%) and nausea reporting (75%) confirmed the diagnostic finding.

DISCUSSION

Acute pain was the principal ND identified in patients classified as levels I (n=13; 65.0%) and II (n=16; 80.0%) priority according to the Manchester protocol. Although pain is identified as the most frequent complaint among patients seeking emergency services[8,10], the accurate assessment of pain remains deficient.

A study conducted among 351 patients showed that of the 269 cases for which pain was identified as the main complaint, only 49 (18.2%) had a complete description of pain evaluation in the medical chart. The lack of identification of pain intensity was the most frequent problem among cases that lacked complete description of this complaint assessment[11]. Most of time, the team's knowledge was restricted to use of a visual analogue scale as a pain assessment resource; use of this tool allowed the team to recognize some signs; however, it does not constitute a systematic practice understood as a *fifth vital sign*[10].

These findings indicate the need for nurses to adequately evaluate signs and symptoms that confirm the presence of the ND acute pain, especially in individuals who present with decreasing levels of consciousness and do not verbally report pain. Pain measurement is an important factor in prioritizing care[6] and in guiding the choice of therapeutic management.

Scales have been used to determine pain perception, and knowledge of these instruments is critical for the adequate assessment of pain process[11,12]. To be applied in emergency services, assessment instruments must be easy

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and quick to use, and they must consider patients' reactions and perceptions of the evaluator.

In the Manchester protocol, pain assessment is guided by a *pain ruler*: an instrument for measurement that combines the use of oral reports with application of an analogic view and that assesses pain intensity and effects of pain on individuals' daily activities. Pain levels are measured on a scale ranging from 0 (no pain) to 10 (severe, uncontrollable pain, described by the individual as the worst pain ever experienced). For each score presented on the *pain ruler*, signs and symptoms that the individual might present are described. Thus, it is possible to relate the signs and symptoms presented on the scale with the defining characteristics of the ND acute pain and then to investigate factors related to the presence of pain.

The NDs respiratory insufficiency (n=9; 45.0%) and impaired gas exchange (n=8; 40.0%) were seen only in patients classified as priority level 1. Respiratory assessment is important for determining the priority level among individuals who seek emergency services. Respiratory insufficiency is the second most frequent cause of admission to the emergency department, and it is overcome only by changes in consciousness[13]. Clinical presentation and manifestation of changes in respiratory and oxygenation needs are related to lung events or not that caused a real or potential problem This is a condition that threatens one of vital functions of the human body. This fact justifies the identification of the NDs respiratory insufficiency and impaired gas exchange only among patients classified as priority level I.

According to the protocol, people with inefficient breathing could not maintain adequate oxygenation. These individuals are characterized by clinical signs of inability to keep the permeability of upper airways, showed by very low levels of oxygen saturation and the presence of stridor, apnea, tachypnea, or dyspnea[6]. Most of these clinical signs are described in the NANDA-I taxonomy o as the defining characteristics for the NDs respiratory insufficiency and impaired gas exchange. Thus, it is possible to state that the use of the Manchester protocol facilitates the identification of such defining characteristics in order to help confirm the diagnostic hypothesis.

In addition to the ND of acute pain (n=16; 80%), the other NDs found most frequently among patients classified as priority level II were nausea (n=2; 10.0%) and risk for electrolyte imbalance (n=2; 10.0%). They were also found as related factors for impaired regulatory mechanisms – diabetes and biochemical impairments – hyperglycemia.

In clinical practice, it is perceived that emergency units deliver care to many patients with acute episodes of chronic disease; among the most prevalent of these are emergencies due to uncontrolled diabetes mellitus.

A common acute condition in patients with diabetes is diabetic ketoacidosis, characterized by a clinical picture of decreased circulating insulin action. These patients may also present different clinical manifestations, such as polyuria, polydipsia, polyphagia, weakness, dry mucus and skin, decreased skin turgor, facial blushing, blurred vision, somnolence, disorientation, and nausea, vomiting, and abdominal pain. Assessment of these signs and symptoms related to the pathologic picture is an essential part of nursing interventions for these individuals[14].

Our findings justify the use of a specific flowchart to assess patients with diabetes mellitus in the Manchester protocol, in addition to the flowcharts already mentioned for the assessment of respiratory measures and pain. Clinical signs described in the Manchester protocol for assessment of patients with diabetes mellitus are also similar to defining characteristics described in the NANDA-I taxonomy for the ND of *nausea* and risk factors of risk for electrolytic imbalance. These findings again reinforce the idea that the Manchester protocol enables nurses to more quickly identify the structured components of the NDs.

In this study, there was a predominance of NDs geared toward psychobiologic needs. This finding was expected because patients classified as priority level I and II had care demands that could be life-threatening if not addressed in a short period of time.

A similar finding was seen in a study that sought to identify the main NDs in victims of trauma who were assisted by advanced life support ambulances (SAMU, acronym in Portuguese). That study evaluated 23 victims aged 18 to 30 years. The most frequent NDs were infection risk (91%), trauma risk (82), acute pain (74%), impaired tissue integrity (65%), fluid volume deficit, (43%) and risk for fluid volume deficit (43%)[15].

These findings reinforce the need for professional nurses, particularly those working in emergency units, who have a solid knowledge of semiology, anatomy, and physiolopathology; clinical experience; and well-developed interpersonal and observational skills for clinical reasoning and, as a consequence, decision-making. These qualities are essential for the development of critical thinking skills, which are needed to quickly evaluate the patient, identify his/her real or potential problems, formulate a diagnostic hypothesis, and identify priority interventions based on the needs of each individual.

We found no other studies identifying NDs in risk classification; thus, further research on this topic is required.

In emergency units, the importance of the nurse's role in patient care is sometimes neglected because of the lack of records on nursing care that use standardized language[16]. Care for critically ill patients requires a multidisciplinary team, including physicians, nurses, and physiotherapy professionals, in addition to staff who support the diagnosis, such as radiologic technicians. All these professionals are required so that immediate, life-saving interventions can take place. A good prognosis for the patient requires the coordination of all the professionals involved in this process.

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In risk classification, nurses using a guided protocol will list prominent signs and symptoms that will guide nursing care management. A record of nursing decisions in the emergency department helps improve the quality of the interventions performed, organizes priorities for patient assessment, and helps improve education and research related to the clinical decision-making process[16]. Studies approaching the relation between risk classification protocols of NDs must be performed to enhance the development of ND taxonomies.

A study conducted in the United States reported that the NANDA-I, NOC, and NIC taxonomies must be revised in order to include treatment of critical-incident nursing. In the NANDA-I taxonomy, an addition to the domain of safety/protection was proposed: including the class *condition of risk to life* for the ND of critical incident nursing, defined as an acute event, potentially fatal, that results from disease, surgery, treatment, or medications[17]. It is believed that inclusion of this ND is important for delineating results and nursing interventions that aim to control critical incidents in life-threatening situations.

The lack of systems that interrelated ND results and interventions, using a standardized terminology in nursing care delivery for critically ill patient in emergency units, made communication and care difficult for patients in life-threatening situations[18]. The creation of a model for ND terminology for critically ill patients at risk for death is important to close the current gap in standardized nursing terminology[16,19].

The importance of conducting studies in an emergency setting is especially reinforced for risk classification that aims to identify the most frequent NDs. These studies could help enhance existing nursing taxonomies by describing what is recorded, evaluated, and treated by nurses during critical incidents. This should improve the visibility of nursing care contributions in emergencies units.

The NANDA-I taxonomy includes some NDs that are commonly seen in patients receiving emergency care, such as respiratory insufficiency, impaired gas exchange, inefficient airways patency, and decreased cardiac output[20].

In our study, the NDs respiratory insufficiency and impaired gas exchange were among the most frequent NDs in patients classified as priority level I according to the Manchester protocol, a finding that corroborates other studies in the field. However, emergency services staff rarely use the NANDA-I taxonomy, especially for risk classification, and this is an educational and research field that requires further exploration. In addition, authors affirm that because the NANDA-I taxonomy is the one most used by nurses worldwide, it should contain more NDs that translate the interdisciplinary practice of nursing into an emergency services context[16].

A limitation of this study is that NDs were identified by records made by nurses during risk classification, not through evaluation of the patient in real time. It is possible that other diagnoses besides those found in our study were identified. However, given the scarcity of studies on the use of nursing taxonomies in emergency units, the present study enabled identification of possible NDs for patients classified in priority level I and II. This identification could provide important impetus for future research, especially studies of continuing care in emergency departments.

It is believed that ND identification during risk classification could improve care in the emergency department because data collection steps and ND establishment will be conducted before patient admission. Hence, the clinical decision-making process of nurses is beneficial, and enables nurses to prioritize care right after admission. Classifying patients according to severity and identifying prioritized NDs are important actions because they could reduce negative effects on prognosis that may occur when care is delayed. Therefore, the time that patients spend waiting to be assessed by the health team could be reduced, and the identification of prioritized needs in a timely manner will facilitate emergency interventions performed by the nursing team.

CONCLUSION

The most commonly found ND among individuals classified as priority level I and II was acute pain. This reinforces the need to train nurses in adequate pain assessment by using instruments that apply to the reality of emergency services. The NDs that indicated acute respiratory changes were identified only in patients classified as priority level I, which is compatible with the criteria for emergency established by the Manchester protocol.

Use of the Manchester protocol facilitates the identification of defining characteristics and related factors/risk factors that support the elaboration of NDs in risk classification. This enables nurses to detect and control nursing problems rapidly and to perform interventions based on scientific knowledge, thereby helping improve patients' prognoses.

The use of technological instruments such as software, which includes the Manchester protocol, favors the selection of a flowchart that is based on patients' complaints, which, in turn, guides the determination for duration of care.

This study reinforced the viability of associating the evaluation and conduction of reasoning by colors (priority levels) with ND. These registers are considered facilitators of continuing care, in addition to offering greater visibility to the work of the nurses responsible for screening.

Further studies are recommended to enlarge taxonomies so that they include NDs related to the practice of nursing in emergency services, especially for risk classification.

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